Sound sense: the phonics element of the National Literacy Strategy

A report to the Department for Education and Skills

Greg Brooks
University of Sheffield

July 2003

Sound sense: the phonics element of the National Literacy Strategy.
A report to the Department for Education and Skills.

Greg Brooks, University of Sheffield

July 2003

> **To what extent, and in what ways, does the phonics element of the National Literacy Strategy need modifying?**

This was the overarching question for a consultative process undertaken by the Standards and Effectiveness Unit (SEU) of the Department for Education and Skills in early 2003. The most publicly visible part of the process was a one-day expert conference in London on 17 March 2003.

As the expert facilitator to the process, in this report I cover:

- Origins and stages of the process
- My analysis of the issues
- Conclusions and recommendations.

Though the focus of the process and this report is by definition the phonics element of the NLS, this must not be taken to imply that other aspects of the NLS or of literacy teaching and learning more generally are considered unimportant. All literacy teaching and learning are about meaning-making: 'Reading is making sense of print' (Moustafa, 1996: 7), writing is making sense in print, and meaning must therefore be at the heart of the enterprise. Phonics is purely a means to this end, not an end in itself.

At the March 2003 conference, I mentioned the previous seminar on phonics organised by Ofsted in London at my instigation four years all but two days earlier (19 March 1999 – about 10 people present then were also present at the March 2003 conference), and wondered how much further on we would be in another four years. This report is intended to ensure that we shall be much further on.

1. Origins and stages of the consultative process

1.1 Issues raised by Ofsted

The Ofsted report on the first four years of the NLS (Ofsted, 2002; see especially paragraphs 48-54 and 57-59, pp.15-17) praised some aspects of the teaching of phonics in primary schools in England but criticised others. The issues raised by Ofsted about the phonics element of the NLS can be summarised as follows:

1. 'Teachers in Year R and Key Stage 1 feel compelled to teach all types of word-level objectives in the first 15 minutes, not simply phonics. This reduces the potential effectiveness ... of the hour.' (para 59)

2. 'In Year R and Key Stage 1, teachers still do not give enough emphasis to the application of phonic blending skills during shared reading.' (para 57)

3. In Years 3 and 4, no word-level work was taught in one-third of classes and, where it was taught, it 'still does not necessarily include phonics or spelling… A significant part of the problem in Years 3 and 4 is that … teachers omit the teaching of phonics and spelling, even when the pupils clearly need further teaching in these areas… Many of these pupils still need daily, systematic teaching of phonics to continue the development of their reading as well as their spelling.' (paras 49-52)

4. 'The "searchlights" model … has not been effective enough.' (para 58)

Other issues known to have been raised by Ofsted were:

5. The pace and coverage of phonic knowledge and skills in Year R and Year 1
6. The order in which phonic knowledge is taught
7. The place of synthetic phonics within the NLS approach
8. The evidence from the considerable amount of research that has been conducted in the UK since the NLS was introduced.

In what follows I will identify commentary on the various issues by using the numbering above. It can be said immediately that NLS staff had already recognised Issues 1-3 and were working on them – see pp.21-3 of the paper the NLS prepared for the conference. I endorse the NLS's ongoing provision of materials and training to address these issues.

Issue 5 has also, in my opinion, already been addressed: the pace at which phonics is covered has accelerated considerably since the introduction of the NLS, and is

markedly faster in (for example) *Progression in phonics* than in the National Curriculum – see NLS paper (p.5).

Issue 8 can similarly be dealt with very swiftly: there has not been a considerable amount of relevant research in the UK since the NLS was introduced.

Further issues arose at the conference and during my reflections, and I address these too. For ease of reference, I list and number them here:

9. How early should phonics instruction be introduced?
10. Do phonics for reading and phonics for spelling need to be slightly different?
11. Do children need to learn a small initial sight vocabulary?
12. What form of systematic phonics is most effective?
13. Should sounding out (grapheme-phoneme translation) and blending for decoding be done without hearing the word?
14. How much phonics needs to be taught?
15. What aspects of teacher knowledge might need improving?
16. What details of the NLS's phonetic analysis need tidying up?
17. How can research on and the teaching of comprehension be improved?

1.2 Other critics

The phonics element of the NLS had other critics besides Ofsted. On one side were those who maintained that it did not take a strong enough line, while on the other were those who not only did not want phonics to have more prominence but wanted it rolled back – both groups were represented on 17 March. Typical of the former was Debbie Hepplewhite of the Reading Reform Foundation, who was quoted in the *Times Educational Supplement* of 15 November 2002, p.9, as saying: 'Synthetic phonics is the key to success in literacy in this country. The National Literacy Strategy has got it wrong all these years' (Issue 7). No such handy quote is available from the opposing camp, but some Early Years experts are known to be sceptical of the drive to introduce children to formal literacy instruction, including phonics, at ever younger ages, and a few would want its introduction postponed (Issue 9).

1.3 Before and after the expert conference

Given the conflicting views summarised above, Professor David Hopkins, Head of the SEU, resolved to initiate a process leading to an expert conference and analysis. Leading up to the 17 March conference there were discussions within and between the D*f*ES and NLS; I was appointed expert facilitator; decisions were taken about who should be invited to the conference and who should be invited to present on the day; an NLS position paper for the D*f*ES responding to the concerns expressed by Ofsted was drafted and re-drafted; that paper was circulated to the invited speakers; those speakers drafted their papers; and their papers and the NLS paper were circulated to all those invited to attend.

Following the conference, the process continued. I wrote this report, submitted it to the D*f*ES, and made a few amendments; the invited speakers were invited to agree to publication of their papers, along with the NLS paper and my report, on the D*f*ES website and to revise their papers in the light of the discussions on the day and my report if they wished; I revised this report in the light of comments received; the D*f*ES reproduced a response to the whole process, and all these documents were published on the website. Beyond that point, implementation of any agreed changes to the phonics element or any other aspect of the NLS will be the responsibility of the Department, the Strategy and the teaching profession in state primary schools in England.

1.4 The structure of the conference

Two early decisions about the conference were that

1) the first substantive presentation should be based on the NLS paper. The presentation was made on the day by Steve Anwyll, Director of the NLS;

2) there should be six invited speakers, three offering a research perspective and three a practitioner perspective. It was recognised that this division was not and could not be watertight, and the list below acknowledges that Jonathan Solity's presentation, originally listed under Practitioners, was more research than practice.

The invited presenters were:

Researchers

Professor Linnea Ehri, Graduate Center of the City University of New York and chairperson of the (US) National Reading Panel, on that Panel's meta-analysis of experiments on phonics

Professor Rhona Johnston, Psychology Department, University of Hull, on her research with Joyce Watson in Clackmannanshire and Fife funded by the Scottish Office/Executive and comparing synthetic and analytic phonics

Dr Jonathan Solity, University of Warwick Institute of Education, on his Early Reading Research in Essex and elsewhere

Dr Morag Stuart, University of London Institute of Education, on her research in Tower Hamlets comparing synthetic phonics for children with English as an additional language with normal teaching

Practitioners

Ms Ruth Miskin, consultant, on her RML phonics programmes

Mr Alan Davies, UK Director of THRASS (Teaching Handwriting, Reading and Spelling Skills), on the THRASS programme.

There were 41 participants at the conference. They comprised:

- 6 invited presenters
- 15 members of the National Primary Strategy reference group
- 13 officials from the D*f*ES, QCA and Ofsted
- 7 other interested parties.

The full list of participants is given in Appendix A.

Steve Anwyll and the six invited speakers made brief presentations. There was discussion in plenary session after the presentations and in three break-out groups. In a final plenary, there were reports back from the groups and some further discussion. At the end of the conference, summings-up were given by myself and David Hopkins.

2. My analysis of the issues

The topics I deal with in this section fall into five categories: (1) general principles, (2) how early phonics should be introduced, (3) what form of systematic phonics is most effective, (4) issues within synthetic phonics, and (5) wider implications. The analysis deals with Issues 9-17 in the numerical order of the list at the beginning of this report, with Issues 4, 6 and 7 interspersed as they arise in the conceptual framework.

2.1 General principles

The aim of the initial teaching of reading and writing must be to bring learners as swiftly as possible to the point where they can read and begin to write independently, so that they can get on with reading for enjoyment and learning and write for a range of purposes. Within this process, phonics is necessary but not sufficient.

2.1.1 Phonics is necessary …

There should no longer be any dispute that phonics is part of the main highway to success in literacy learning. The work of the (US) National Reading Panel (2000; cf. Ehri *et al*., 2001a) led by Linnea Ehri, who summarised its findings on phonics at the London conference, showed that children taught using systematic phonics (of various forms) made better progress in reading and spelling than children taught using unsystematic or no phonics. Some children may be able to learn just as effectively by other routes, but it seems well established that most must be taken along the main highway – they get lost on by-ways. However, it is possible that a few people's brains or preferred learning styles are so unsuited to learning by phonics that they would be impeded by it, and there appear to be a few such cases in the literature (see Campbell and Butterworth, 1985; Howard and Best, 1997; Stuart and Howard, 1995) – so this possibility must always be kept in mind, and research into identifying such learners and meeting their needs is required.

2.1.2 … but not sufficient

However, the insufficiency of phonics on its own is proved by the complexity of English orthography. I estimate (based on work for a forthcoming book) that the

spelling system of English is about 75 per cent regular, that is predictable by rule, at the phoneme-grapheme and grapheme-phoneme level. In learning to read, learners can use this amount of regularity to decode partly irregular words from partial cues – what Jonathan Solity usefully calls the 'phonic self-correcting effect'. But in writing, that is spelling, there is no way round the irregularities – every phoneme must be represented, and by the correct grapheme. This implies that spelling must involve visual as well as auditory memory. It may also imply that phonics for reading and phonics for spelling need to be slightly different (Issue 10). For example, there are two subtly different forms of 'sounding out': phonemic segmentation for spelling, and saying letter-sounds in sequence before blending in decoding (grapheme-phoneme translation). It seems to me that this differentiation has not yet been thought through and is therefore a further task for the profession.

The effect on children's learning of the complexities of spoken and written English has been studied as part of a large international comparative study coordinated by Philip Seymour, University of Dundee (see article in *Times Educational Supplement*, 7 September 2001, p.4; Seymour, Aro and Erskine, 2003, in press). He and his colleagues studied children learning to read and write in 12 different languages (and therefore orthographies) in 13 European countries (German being the language studied in both Germany and Austria; the English-speaking sample was in Scotland). They classified languages according to both complexity of syllable structure in the spoken language and depth of orthography in the relationship between the spoken and written language. English is extreme in both respects: its syllable structure is complex, and its orthography is deep. (As usual, the polar opposite is Finnish – simple syllable structure, and shallow orthography.)

Seymour *et al*. found that English-speaking children take two to two and a half times as long to reach the same level of competence as children learning literacy in less complex languages with shallower orthographies, and argued that at least some of this delay may be unavoidable just because of the complexities of the language. They hypothesised that deeper orthographies oblige learners to develop a dual foundation for literacy learning, with both logographic (≈ whole-word) and alphabetic (≈ phonic) elements, and that this takes longer than the single-process (alphabetic) foundation needed for shallow orthographies.

It could be argued that these findings support the need for at least a small element of sight-word learning in the beginning stages of reading and writing (Issue 11), so that children realise from the beginning that reading and writing are about making meaning with text, have an early taste of success, don't get hung up on the irregular words of highest frequency, and have an early induction into the 'set for diversity' which they will need in order to cope with our less than fully regular system. Morag Stuart, Jonathan Solity, Ruth Miskin and the NLS paper (p.11) all refer to this issue. Though I know of no direct experimental evidence on the question, I support the teaching of a small initial sight vocabulary. However, it does not need to comprise the whole of the list of the 100 most frequent words. The phonically regular words within that list should be taught phonically. And children should be told explicitly that they only have to learn a few words this way: because there are far too many words to remember every one separately they will also be taught how to work out new words for themselves.

2.1.3 Systematic, speedy and early

Essential features of good phonics teaching are that it should be systematic (see above), speedy and early, and not late, slow or incidental.

As I have already said and the NLS paper points out, the pace at which phonics is covered is speedy and has accelerated considerably since the introduction of the NLS; and the synthetic phonics programme used in Rhona Johnston's work with Joyce Watson in Clackmannanshire and Fife went at a much faster pace than the analytic phonics programme with which it was initially compared (in their second study they compared synthetic and analytic programmes which both went at a fast pace, and the synthetic programme's results were still better).

As Linnea Ehri explains in her paper, the National Reading Panel (2000; cf. Ehri *et al*., 2001a) also showed that introducing phonics in grade 2 or later was less effective than introducing it in kindergarten or grade 1. But the NRP findings still raise the questions of how early phonics should be introduced, and what form of systematic phonics is most effective.

2.2 How early should phonics instruction be introduced? (Issue 9)

Do the findings mentioned in the previous section mean that phonics should begin even earlier? It is already firmly embedded in Year R (NLS paper p.9), and in the light of successful teaching at that age there no longer seems any reason not to do this. However, phonics is now appearing in some nurseries because of the Early Learning Goals (see NLS paper pp.21-22), and here I would urge caution.

There is international evidence that an early start to compulsory (formal?) education correlates with a larger gender gap in attainment in reading. In the 1991 Reading Literacy Study, which was carried out in 27 countries among nine-year-old pupils, a difference in reading performance was found in favour of girls in every single country, and in 19 countries the difference was statistically significant (Elley, 1992, especially Table 6.1, p.56). Elley pointed out (p.58) that 'Three of the six countries with the largest gender gap start reading instruction at age five – New Zealand, Trinidad and Tobago, and Ireland.' These were also three of the only four countries in the survey with a school starting age of five.

No part of the UK took part in the 1991 survey, but in 1996 it was replicated in England and Wales by NFER (Brooks *et al*., 1996), and a significant gender difference in attainment was found, again in favour of girls. If England and Wales had taken part in the 1991 study, and if the same gender difference had occurred, it would have been the second largest in the study. Most recently, similar gender gaps have been found in Malta, where the school entry age is also five, in emergent literacy attainment at age six and in reading attainment at nine, in both Maltese and English at both ages (Mifsud *et al*., 2000; 2003, in press), and confirmed in Britain at age 15 in the PISA (Programme for International Student Assessment) 2000 study (Gill *et al*., 2002) and at age 10 in the PIRLS (Progress in International Literacy Survey) study in 2001 (Twist *et al*., 2003).

That there may be something about early entry to formal schooling that disadvantages some boys is suggested by Judy Lever-Chain's recently-completed PhD at the London Institute of Education (Lever-Chain, 2003; quotations are from her abstract). She studied summer-born boys who had had either full-time Year R education (N=29) or part-time nursery experience (N=31) before entry to Year 1.

'[B]oys who commenced school earlier were not advantaged in terms of reading achievement.' A plausible explanation was that parents' and teachers' heightened expectations of early starters 'affected the boys' attitudes to reading and their reading routines, often acting detrimentally on their reading development.'

Instead of an even earlier start to phonics, therefore, I would argue that we must search for methods which accelerate learning once begun without leaving a (subgroup of) boys behind. Ruth Miskin and Alan Davies claim that their methods accelerate learning, as do advocates of Jolly Phonics, represented at the conference not only by its deviser, Sue Lloyd, but also by a presenter who has used it in her research, Morag Stuart (who has used it with children as young as 3). The greater pace in phonics teaching and learning which the NLS has successfully championed is having the same effect. But what about the gender gap? It is reduced in Jonathan Solity's and in Key Stage 1 results (NLS paper p.12), there isn't one in Morag Stuart's, and in Rhona Johnston's it's reversed. If replicated, these results would suggest that we may be able to reduce or even eliminate the gender gap without necessarily beginning the teaching of phonics earlier than Year R.

A very tentative hypothesis for the ability of systematic phonics not to leave some boys behind is this. Many boys, through heredity and/or early upbringing, seem to thrive on technologies, and phonics (especially synthetic phonics) is a technology. Whatever the truth of that, the success of early (Year R), speedy and systematic phonics in reducing or eliminating the gender gap in reading attainment should be carefully monitored before introducing it earlier still. And where it is begun early it should, as the NLS paper says (p.13), not be formal but 'active, interactive, lively and fun'.

2.3 What form of systematic phonics is most effective? (Issue 12)

2.3.1 Definitions

Though there are other varieties, this debate largely concerns synthetic and analytic phonics. Both are, or can be, systematic, as shown by the studies analysed by Linnea Ehri and her team. In order to discuss the issue we need to be clear about definitions. Definitions which I have quoted with approval in the past (Brooks, 2002)

are those of Dorothy Strickland (1998: 31; quoted in NLS paper pp.17-18; cf. the National Reading Panel's simplified version quoted in NLS paper p.17):

> *'Synthetic phonics* refers to an approach in which the sounds identified with letters are learned in isolation and blended together. Children are taught to segment a single syllable word such as *cat* into three parts /c/a/t/ and to blend the parts together to form a word ...
>
> *Analytic phonics* refers to an approach in which the sounds associated with letters are not pronounced in isolation. Children identify the phonic element from a set of words in which each word contains the particular element under study. For example, teacher and students discuss how the following words are alike: *pat, park, push* and *pen*.'

It seems that the label 'synthetic' arose because in learning to read by that method one of the learner's main tasks is the synthesising of phonemes into whole spoken words, otherwise known as 'blending'; and that the label 'analytic' arose because in learning to read by this method the learner's main task is analysing phonemic elements from whole spoken words, guided by the appearance of whole written words to make these inferences.

There is some confusion in the literature because the labels 'analytic' and 'synthetic' as applied to varieties of phonics do not correspond to other and more usual meanings of those terms. In particular, synthetic phonics for spelling involves analysis, namely the segmentation of spoken words into phonemes.

Moreover, Strickland's definitions of synthetic and analytic phonics apply only to reading, and need to be extended to cover writing. I would therefore want to revise them to read as follows (for the use of phonetic symbols see section 2.5.1 and Appendix B):

> *Synthetic phonics* refers to an approach to the teaching of reading in which the phonemes associated with particular graphemes are pronounced in isolation and blended together (synthesised). For example, children are taught to take a single-syllable word such as *cat* apart into its three letters, pronounce a phoneme for each letter in turn /k, æ, t/, and blend the phonemes together to form a word. Synthetic phonics for writing reverses the sequence: children are taught to say the word they wish to write, segment it into its phonemes and say them in turn, for example /d, ɔ, g/, and write a grapheme for each phoneme in turn to produce the written word, *dog*.

Analytic phonics refers to an approach to the teaching of reading in which the phonemes associated with particular graphemes are not pronounced in isolation. Children identify (analyse) the common phoneme in a set of words in which each word contains the phoneme under study. For example, teacher and pupils discuss how the following words are alike: *pat, park, push* and *pen*. Analytic phonics for writing similarly relies on inferential learning: realising that the initial phoneme in /pɪg/ is the same as that in /pæt, pa:k, puʃ/ and /pen/, children deduce that they must write that phoneme with grapheme <p>.

2.3.2 Evidence

When Marilyn Jager Adams (1990) reviewed the literature she concluded that it did show synthetic phonics to be more effective than analytic, in the sense that children taught by synthetic phonics made faster progress. The NRP's report and meta-analysis did not address this point – none of the studies they analysed seem to have directly compared the two approaches – but also provided no reason for revising Adams' conclusion. The comparative studies carried out by Rhona Johnston and Joyce Watson have been heavily criticised on methodological grounds by Usha Goswami, but do seem to me to lend support to Adams' conclusion, and the five-year follow-up reported in Rhona Johnston's paper is particularly useful. My interpretation of the experimental evidence is therefore that it does tend to show that synthetic phonics produces better progress than analytic phonics.

However, this conclusion does need more empirical backing. It could be re-investigated by carrying out a substantial randomised controlled trial (RCT) – but in order to do that large numbers of teachers would have to be convinced to take part and stick to the approach of the experimental condition they were assigned to. To do this would require extensive consultation and collaboration, and therefore carrying the profession with us. It could be excellent professional development as well as fundamental research.

However, it could be objected that such a trial would be unethical. Given the evidence that synthetic phonics is more effective than analytic, it could be seen as immoral to withhold the programme that is known to be more effective from what would have to be a large number of children, thus possibly blighting their education and their life chances.

However, the trial could be arranged in such a way that, as soon as the experiment was over, the children in the analytic phonics arm would immediately be given a catch-up synthetic phonics booster programme. Also, it is not as clear as it might be from the experimental literature that synthetic phonics is markedly more effective than analytic. As far as I am aware, there are rather few experiments, and all but one (Rhona Johnston and Joyce Watson's study in Scotland) took place in the United States; confirmation is needed that the same result would apply in England.

In any case, before a randomised controlled trial was authorised the existing literature on synthetic vs. analytic would have to be thoroughly evaluated through a systematic review and meta-analysis; if this provided convincing evidence from several trials in English-speaking countries then it would be unnecessary to carry out an RCT in England. If the review failed to provide convincing evidence, there would then be a case for mounting a study of 'naturally occurring variation' in the teaching of phonics correlated with children's progress. In the adult basic skills field, there has recently been just such a correlational study in the United States (Condelli *et al*., 2002): this has yielded rich data on factors within teaching that correlate with adult learners making better progress in English as a second language, and is providing guidance for a suite of such studies within the research programme of the National Research and Development Centre for Adult Literacy and Numeracy in England. Only if such a study on synthetic vs. analytic phonics for children proved inconclusive would it be right to set up an RCT.

2.4 Issues within synthetic phonics

2.4.1 The place of synthetic phonics within the NLS approach (Issue 7)*: Is the NLS's approach to phonics synthetic or analytic?*

In terms of the definitions I put forward earlier, the variety of phonics embodied in and advocated by the NLS is clearly synthetic, as the NLS paper claims (p.17). The clearest evidence for this is the passage from the NLS *Framework for Teaching* (1998, p.4) which is quoted in the NLS paper (p.5):

> 'At Key Stage 1 there should be strong and systematic emphasis on the teaching of phonics and other word-level skills. Pupils should be taught to:
> - discriminate between the separate sounds in words
> - learn the letters and letter combinations most commonly used to spell those words

- read words by sounding out and blending their separate parts
- write words by combining the spelling patterns of their sounds.'

This includes what I see as the defining features of synthetic phonics, namely grapheme-phoneme translation and blending for reading and phonemic segmentation for spelling. My judgment that NLS phonics is synthetic is reinforced by further descriptions on pp.5 and 11 of the NLS paper.

Not all advocates of synthetic phonics would agree. Jennifer Chew (2001) claims that 'most of the work on phonemes [in the NLS] leans towards the analytic end of the spectrum', and Sue Lloyd (2003, p.25) maintains that 'Synthetic phonics does not start with whole printed words. It starts with single letters, and the sounds the letters represent.' If this is meant to suggest that only this entirely bottom-up variety of phonics merits the name 'synthetic', this seems to me too extreme. I can envisage a 'whole-word synthetic phonics' which would begin with whole words but which, unlike analytic phonics, did use grapheme-phoneme translation and blending. It would be an approach which attempted to teach all-through-the-word phonics from the outset.

A 'whole-word synthetic phonics' approach might be an uneasy compromise, and might be less effective (because it did not start children off with the basic building blocks of the alphabetic system); but on the other hand it would show children right from the start that meaning-making is the aim just because whole words were used. It is an empirical question whether such an approach exists and, if so, how effective it is. I would certainly not advocate it; I only draw attention to it as a possibility.

Regardless of that, the NLS approach does advocate starting with single letters and is therefore a synthetic approach in Sue Lloyd's sense. This may not be clear from the *Framework for teaching* but is explicit in *Progression in phonics*, especially the Table on p.6.

Mention of that Table, however, leads immediately to Issue 6: The order in which phonic knowledge is taught. Here I break this down into two parts: In what order should letters and letter-sounds be introduced (Issue 6a)? How soon should all-through-the-word phonics and blending be introduced (Issue 6b)?

2.4.3 In what order should the letters and letter-sounds be introduced? (Issue 6a)
It seems to be common ground that what you must not do is work letter-by-letter through the alphabet. As Alan Davies eloquently argues, this reinforces the completely misleading (for English) notion that each letter has one sound value. Sue Lloyd also argues against it on the grounds that initial-letter-sound-only phonics encourages 'guessing words from the initial letters [which] is notoriously inaccurate and starts the children in the bad habit of guessing, which is a very hard habit to break.' A better rationale for the order of introduction of letters and letter-sounds is therefore essential.

The rationale which lies behind Steps 2-4 of the Table headed *Progression in phonic skills and knowledge* on p.6 of PiPs is not given in PiPs but on pp.8-9 of the NLS paper. PiPs should be revised to include the rationale so that it is accessible to teachers, but first this part of the Table (and with it the rationale) needs to be revised.

The criteria by which the phonemes and letters for Step 2 were chosen are auditory difficulty, visual memorableness and range of handwriting movements. These are interesting and valid to an extent, but it is unclear why no vowels feature in this Step (see next subsection). Also, the criteria do not include what to me are the most obvious and fundamental ones, namely frequency, phonic regularity and usefulness to learners.

The three most frequent vowel phonemes in English are the schwa vowel, /ə/ (as in the first sound of 'about'), plus /ɪ/ and /e/ (so-called 'short' i and e). (For the frequencies of phonemes in spoken English see Cruttenden, 2001, pp.148 and 216-7.) It would be odd to try to teach the spelling of the schwa vowel at an early stage since it occurs only in unstressed syllables and has no predominant spelling (its most frequent spelling, <a>, accounts for only 35% of its occurrences. For the frequencies of different graphemes as spellings of the phonemes of English see Carney, 1994). But the phonemic frequency data suggest that it would make sense to introduce /ɪ/ and /e/ very early, and their spellings are fairly regular – the graphemes <i> and <e> account for 64% and 84% respectively of the occurrences

of /ɪ/ and /e/, and <e> is the most frequent letter in English orthography (Concise Oxford Dictionary, 9th edn.). The phoneme /æ/ is only the ninth most frequent vowel phoneme (out of 20) but the grapheme <a> accounts for 99% of its occurrences; /æ/ and <a> should therefore appear very early. Whether <o> and <u> need to appear at the same time as <a, e, i> is open to discussion.

The four most frequent consonant phonemes in English are /n, t, d, s/, and their predominant spellings <n, t, d, s> account for 97%, 96%, 98% and 79% respectively of their occurrences. Moreover, <t> is the second most frequent letter. A possible sequence of introduction could be built on the frequency and regularity data.

But an even more plausible approach might be based on those factors plus usefulness to learners. Many of the words which children are going to want to write early on, and many of those which they are going to encounter in the books they read, are regular CVC words. It would be logical to pick letters and letter-sounds which build up rapidly into a set which provides a reasonably sized vocabulary of regular CVC words, and the six letters suggested by Rhona Johnston, <s, a, t, p, i, n>, do just that. (The same six letters are used in *Jolly Phonics* and are derived from the Kathleen Hickey dyslexia programme – Augur and Briggs, 1992.) Other choices are also possible. For example, the frequency data suggest adding <e>. Similarly, even though 95% of the occurrences of /p/ are spelt <p>, /p/ is only the 15th most frequent consonant phoneme (out of 24). The frequency data (see above) might suggest <d> instead; moreover, if <s> features in the starting set of letters, children may use it to write /s/ in word-final position where /s/ is usually spelt <ss> and <s> is usually pronounced /z/. Which would be the most useful starting set of letters is an empirical question. I recommend that this should be investigated before the Table in PiPs and its rationale are revised.

2.4.4 How soon should all-through-the-word phonics and blending be introduced? (Issue 6b)

What also needs sorting out in that process is the point at which whole words are introduced. Since many four-year-olds are already experimenting with scribble writing and letter-like forms, and some with words (Gorman and Brooks, 1996), it would seem logical to equip them from early on with the means to write simple words; and this implies the means to read them too. The introduction of whole

words obviously entails the introduction of grapheme-phoneme translation and blending for reading, of phonemic segmentation for writing, and also of vowel letters, since no native English word can be written without at least one vowel letter. In my opinion, this transition should occur as soon as children have mastered a small starting set of letters and their sounds (such as that mentioned above).

This is rather different from the sequence proposed in PiPs, where Steps 2 and 3 contain no vowel letters, and children are introduced to six consonant phonemes and 14 consonant graphemes (10 single letters and four digraphs) before any vowels.

For the reasons given in this and the previous section I recommend that Steps 2-4 be re-organised.

2.4.5 Should grapheme-phoneme translation and blending for decoding be done without hearing the word? (Issue 13)

There is another issue involving blending. In Sue Lloyd's article and in comments on the NLS paper by Debbie Hepplewhite there is a strong claim that, in ('strict'?) synthetic phonics, children's grapheme-phoneme translation and blending for decoding must be based only on the printed word, and not on the printed word assisted by the teacher having said the word aloud. Both writers are critical of the NLS approach as described on p.11 of the NLS paper:

> 'The approach … is modelling the process by going from a segmented word back to the blended word… For example, children are asked to segment the [spoken] word 'ran', they respond with /r/-/a/-/n/, and place the correct letters together to make the [visible] word; they are then asked to say the letter[-sound]s in order again and blend them into the [spoken] word and they respond with /r/-/a/-/n/, 'ran'.' [Words in square brackets added by GB for clarification]

This approach therefore makes a complete loop from spoken word back to spoken word via phonemic segmentation for spelling, constructing the written word, producing the letter-sounds in order (grapheme-phoneme translation), and blending. It seems that this is intended to provide support, 'scaffolding', for children as they begin to learn to decode; in good Brunerian practice (or Vygotskyan: the 'zone of

proximal development') this support would be gradually withdrawn as children learn to do unaided tomorrow what they can do only with support today.

Advocates of strict synthetic phonics would instead, I think, see this as muddling up two processes which should be kept apart – phonemic segmentation for spelling, and grapheme-phoneme translation and blending for reading – and as not teaching children to decode unaided when faced with an unknown word. This may be logical, or it may seem like a 'North Face of the Eiger' attitude – success is only worthwhile when achieved by the hardest route. I recommend that the advocates of the two positions discuss and analyse this difference of opinion in order to design and mount relevant research.

Before moving to wider issues, I think there is one more within phonics to be tackled, namely:

2.4.6 How much phonics needs to be taught? (Issue 14)

Or, at what point do children catch on and begin to self-teach? How do teachers recognise this point, refrain from delving ever deeper into phonics mysteries, and concentrate on those who are still struggling? Do children who have apparently reached the self-teaching point still need occasional reinforcement, as the Ofsted report maintains? I think the answers to these questions are not obvious and that more work therefore needs to be done on this issue. The NLS paper (p.10) points out that the NLS, correctly in my opinion,

> 'breaks with traditional phonic teaching that consonant clusters have to be taught – it takes the position that single consonant [phoneme]s are blended for reading and adjacent consonant [phonemes are] segmented for spelling. There is no body of knowledge on "clusters" which has to be programmed into a series of additional weeks.'

Again I recommend that those with more detailed knowledge discuss this issue and come up with a design for appropriate research.

2.5 Wider implications

Here I mentioned just four out of potentially many: teacher knowledge, the searchlights model, the teaching of comprehension, and spoken language development.

2.5.1 What aspects of teacher knowledge might need improving? (Issue 15)

I have long believed that all teachers of language (all primary teachers and all those teaching modern foreign languages, including English to speakers of other languages) should possess an accurate understanding of the phonemes and graphemes of English and of the correspondences between them. Without this there is no common vocabulary for describing English orthography or for analysing children's errors, particularly in spelling. This was the main thrust of Alan Davies's paper and presentation, and I endorse the view he quotes in his paper from the 'Summary of Points Arising from Group Discussions' from the 1999 Ofsted seminar: 'Until teachers have the ability to segment words themselves and identify the number of phonemes they contain, they are hardly likely to be able to teach these skills well to their pupils.'

One of the NLS's own concerns about phonics practice focuses on this (NLS paper p.14). They find that all too often teachers are so relieved when a child manages to decode a word that they move swiftly on, without pausing to reinforce the child's learning. This could be done, for example, by writing out a word from the same 'family' and repeating the decoding. I think teachers would feel more secure in doing this if they had more precise knowledge of grapheme-phoneme correspondences. If a child has just decoded 'learn', for example, it might be good to introduce 'earn' and 'earth' and even 'searchlight', but potentially highly confusing to take beginners on to 'bear' or 'fear' unless they are already alert to orthographic diversity.

I also believe that, as part of that common discourse, all teachers of language should learn to analyse English pronunciation and transcribe it using a broad version of the International Phonetic Alphabet (IPA), and that this would help teachers enormously in applying their craft knowledge of phonics to help children overcome difficulties. The NLS paper (p.7) says that

> ‘Universal use among teachers of IPA, … though useful, was not considered feasible at the time *Progression in phonics* was produced. Instead, a highly simplified system was adopted in which the most common letter or … digraph was adopted to represent the phoneme.’

I recommend that ways of incorporating IPA into the training of all teachers of language, and of extending this knowledge to existing teachers, be explored. In comments on an earlier draft of this report Alan Davies stated that he has had experience of teaching IPA to teachers, and provided several positive comments from teachers about it.

Before teachers can be introduced to IPA, NLS materials will need to incorporate it; and a preliminary to that is the tidying-up of some details of its phonetic analysis (Issue 16) – see Appendix B.

2.5.2 The searchlights model (Issue 4)

At the London conference I said that this model seems to me to be widely misunderstood and not in conflict with the model Morag Stuart had presented. I am still of this opinion. It is all too easy to interpret the model as it stands as a model of (some aspects of) teaching, even though the NLS paper (p.3) points out that its purpose is subtly different from this:

> The rationale for the NLS was built up from the statutory requirements of the National Curriculum. Central to the National Curriculum is the model of reading and writing represented in the Strategy by the ‘searchlights’ metaphor.

That is, the model is meant to be no more than a graphic (in both senses) reminder of four aspects of the *processes* of reading and writing. It is not, however, a full process model, which would require many more elements, and specification of the relationships between them. The NLS paper goes on to say that the model is then *applied to* the teaching of reading and writing, while still not being intended as a model of or for teaching.

But the application of the model to teaching cannot (or should not) be read off direct from the model, because a simplistic reading of it would give the four aspects roughly equal prominence. This is a misapprehension - the four focuses are not

meant to have equal prominence for learners at all stages or in all situations, so that (for example) knowledge of context can 'take the place' of phonics for beginners – yet it seems that this is how it has been (mis)interpreted. Even putting phonics on top has not prevented this.

There therefore seems to be some truth in the criticism of the model in the Ofsted report (para 58):

> 'The "searchlights" model … has not been effective enough in terms of illustrating where the intensity of the "searchlights" should fall at the different stages of learning to read. While the full range of strategies is used by fluent readers, beginning readers need to learn how to decode effortlessly, using their knowledge of letter-sound correspondences and the skills of blending sounds together. The result has been an approach which diffuses teaching at the earliest stages, rather than concentrating it on phonics.'

The Ofsted report's justification for its criticism is somewhat overstated, namely in the claim that 'the full range of strategies is used by fluent readers'. Fluent readers do not sound words out and blend them, and research has shown conclusively that they do not use context to make predictions – their decoding and vocabulary are so advanced that they either know the words they encounter or can swiftly work them out. Stanovich (2000) recounts in detail how he came to realise from experimental evidence that Goodman's (1969) description of reading as a 'psycholinguistic guessing game' was incorrect; and Harrison (2001) in the second edition of the *Reading for Real Handbook* also concedes that Goodman was wrong. Only poor readers try to work words out from context, and they often guess wrong; the best way to help them overcome that is to improve their decoding skills – as the Ofsted report then correctly points out.

For that to succeed, as the Ofsted report also rightly points out, teachers need to concentrate children's attention (hence the searchlights metaphor) on phonics above all in the early stages.

In discussing the model I think the NLS paper makes an error of optimism when it says (pp.3-4): 'The more searchlights that are switched on, … the less critical it is if one of them fails.' It is instructive to compare the searchlights model with the famous 'attention versus automaticity in reading' model of LaBerge and Samuels

(1974). The diagrams in their paper all contain representations of various aspects of the reading process, and each diagram shows a *single* spotlight trained on one or other aspect. The spotlight represents attention, and the fact that there is only one is deliberate: from the 'divided attention' literature from the earliest days of experimental psychology onwards we know that it is extremely difficult to divide attention between tasks which call on the same cognitive resources (despite modern claims about 'multi-tasking').

I would therefore argue that there is only one spot/searchlight. It can be switched on (or off), but it can only be directed to one aspect of the cognitive task of reading at a time. For example, it is well known that children who focus on decoding may lose the meaning of the text, while those who infer meaning from the context or an illustration are not learning to decode. Teachers must therefore never assume that children are attending to more one of the focuses in the searchlights model at a time, and must teach children explicitly when to switch from one searchlight to another; for example, if a child manages to identify a word from the context, the teacher should immediately switch the child's attention to decoding the word (if it is sufficiently regular) in order to reinforce the message that decoding is a more powerful way of identifying words accurately (and reduces the memory load).

I suspect that part of the intention of the model was precisely to alert teachers to the need to get children to switch their attention between aspects overtly, but if so this part of the message seems to have got lost. I therefore conclude that, although the model does not need revision at this stage, its status and the messages it is trying to get across need to be made much clearer. In particular, explanations of it need to emphasise the overriding importance of phonics in the early stages and for poorer readers. This will support the message to teachers, mentioned in the previous paragraph, that often they need to reinforce children's learning just when they have succeeded in identifying a word.

I am still of the opinion that the searchlights model and the model Morag Stuart presented on the day need not be in conflict. Both are important and required. Morag Stuart's very powerfully emphasises the need to differentiate between two aspects of reading: word recognition and language comprehension (see next

subsection). A fully explained and understood searchlights model can function as an expansion of the word recognition dimension of hers; and the two will then need supplementing with an expanded model of language comprehension.

2.5.3 How can research on and the teaching of comprehension be improved? (Issue 17)

In all the discussion around phonics, we must not lose sight of meaning. It seems to me that reading comprehension is seriously under-researched in Britain, and may therefore not be well taught, and that the wider debate needs to move on from phonics to this aspect of reading. Morag Stuart's paper presents a powerful case here, and will be indispensable in this process. She would be a most valuable consultant in the process, as would Colin Harrison (University of Nottingham), who has done a great deal of research on this area and whose book on the subject is about to appear (Harrison, 2003).

2.5.4 Spoken language development

Several of the papers for the London conference mentioned well-developed spoken language as the indispensable prerequisite for literacy learning. I support this, and take the argument further. I think this should one of the main focuses of the Foundation stage, that attention to oracy should continue right through primary and secondary education, and that good speaking and listening skills should be valued not only as the foundation of literacy but also in their own right. But this is another story.

3. Conclusions and recommendations

My overall conclusions are that:

- as David Hopkins said in summing-up at the conference, **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.**

To help guide those revisions and research, I make the following recommendations:

Revisions of the NLS

1 Make it clear that, within the 100 most frequent words, only those that are irregular should be taught as sight words.

2 Convene a focused debate between experts to design and mount research on

- The need to differentiate phonics for reading and phonics for spelling
- Whether grapheme-phoneme translation and blending in reading should be taught with or without hearing the teacher say the word
- How much phonics needs to be taught.

3 Re-organise Steps 2-4 of the sequence for teaching phonics in accordance with the criteria of frequency, regularity and usefulness.

4 Tidy up the phonetics.

5 Strengthen the explanations of the status and intended application of the searchlights model, adopt Morag Stuart's model alongside it, and add a model of reading comprehension.

Focused research

6 Before starting phonics even earlier, check if current initiatives are reducing the gender gap in reading attainment.

7 Carry out a systematic review and meta-analysis on the relative effectiveness of analytic vs synthetic phonics.

8 Research which letters and letter-sounds are most useful to beginners.

9 Investigate incorporating International Phonetic Alphabet training into initial and continuing teacher education.

And above all

10 Move the debate on to researching and improving comprehension.

References

Adams, M.J. (1990). *Beginning to Read: Thinking and Learning about Print.* Cambridge, MA: MIT Press.

Augur, J. and Briggs, S. (eds) (1992). *Hickey Multi-Sensory Language Course*. London: Whurr.

Brooks, G. (2002). 'Phonemic awareness is a key factor in learning to be literate: how best should it be taught?' In M. Cook (ed.) *Perspectives on the Teaching and Learning of Phonics*. Royston, Herts: UK Reading Association, 61-83.

Brooks, G., Pugh, A.K. and Schagen, I. (1996). *Reading Performance at Nine*. Slough: NFER.

Campbell, R. and Butterworth, B. (1985). 'Phonological dyslexia and dysgraphia in a highly literate subject – A developmental case with associated deficits of phonemic processing and awareness.' *Quarterly Journal of Experimental Psychology,* **37A***,* 435-75.

Carney, E. (1994). *A Survey of English Spelling*. London: Routledge.

Chew, J. (2001). 'Is the phonics element of the NLS synthetic or analytic?' *Reading Reform Foundation Newsletter*, no.45 (February).

Cruttenden, A. (2001). *Gimson's Pronunciation of English*, 6th edn. London: Arnold.

Ehri, L.C., Nunes, S.R., Stahl, A.S. and Willows, D.A. (2001a). Systematic phonics instruction helps children learn to read: evidence from the National Reading Panel's meta-analysis.' *Review of Educational Research*, **71**, 3, 393-447.

Ehri, L.C., Nunes, S.R., Willows, D.A., Schuster, B.V., Yaghoub-Zadeh, Z. and Shanahan, T. (2001b). Phonemic Awareness Instruction Helps Children Learn to Read: Evidence from the National Reading Panel's Meta-analysis, in *Reading Research Quarterly*, **36**, 3, 250-87.

Elley, W.B. (1992). *How in the World do Students Read?* Hamburg: International Association for the Evaluation of Educational Achievement.

Gill, G., Dunn, M. and Goddard, E. (2002). *Student Achievement in England: Results in Reading, Mathematical and Scientific Literacy among 15-year-olds from the OECD PISA 2000 Study*. London: The Stationery Office.

Goodman, K. (1970). 'Reading: a psycholinguistic guessing game.' In H. Singer and R.B. Ruddell (eds) *Theoretical Models and Processes of Reading*. Newark, DE: International Reading Association.

Great Britain. Department for Education and Employment (1998). *The National Literacy Strategy Framework for Teaching*. London: D*f*EE.

Harrison, C. (2001). 'The reading process and learning to read: an update.' In C. Harrison and M. Coles (eds) *The Reading for Real Handbook, 2nd edn*. London and New York: RoutledgeFalmer, 3-26.

Harrison, C. (2003). *Understanding Reading Development*. London: Sage.

Howard, D. and Best, W. (1997). Impaired Non-word Reading with Normal Word Reading: A Case Study.' *Journal of Research in Reading,* **20**, 1, 55-65.

LaBerge, D. and Samuels, S.J. (1974). 'Toward a theory of automatic information processing in reading.' *Cognitive Psychology*, **6**, 293-323.

Lever-Chain, J. (2003). The impact of age of entry to school on boys' reading attitudes and skills during Key Stage One. Unpublished PhD dissertation, University of London Institute of Education.

Lloyd, S. (2003). 'Synthetic phonics – what is it?' *Reading Reform Foundation Newsletter*, no.50 (Spring), 25-7.

Mifsud, C., Milton, J., Brooks, G. and Hutchison, D. (2000). *Literacy in Malta: The 1999 National Survey of the Attainment of Year 2 Pupils*. Slough: NFER for the University of Malta.

Mifsud, C., Grech, R., Hutchison, D. and Street, J. (2003). *Reading Attainment in Malta: The 2002 National Survey of the Attainment of Year 5 Pupils*. Msida: University of Malta.

Moustafa, M. (1997). *Beyond Traditional Phonics: Research Discoveries and Reading Instruction.* Portsmouth, NH: Heinemann.

National Reading Panel (2000). *Report of the National Reading Panel: Teaching Children to Read: An evidence-based assessment of the scientific research literature on reading and its implications for reading instruction: Reports of the sub-groups*. Rockville, MD: National Institute for Child Health and Human Development Clearinghouse.

Ofsted (2002). *The National Literacy Strategy: the first four years 1998-2002.* London: Office for Standards in Education.

Seymour, P.H.K., Aro, M. and Erskine, J.M. in collaboration with COST Action A8 network (2003, in press). 'Foundation literacy acquisition in European orthographies.' *British Journal of Psychology*.

Stanovich, K. E. (2000). *Progress in Understanding Reading: Scientific Foundations and New Frontiers*. New York: Guilford Press.

Strickland, D.S. (1998) *Teaching Phonics Today: A Primer for Educators.* Newark, DE: International Reading Association.

Stuart, M. and Howard, D. (1995). 'KJ: A developmental deep dyslexic.' *Cognitive Neuropsychology,* **12***,* 793-824.

Twist, L., Sainsbury, M., Woodthorpe, A. and Whetton, C. (2003). *Reading All over the World. Progress in International Reading Study: National Report for England*. Slough: NFER.

Appendix A: List of participants in London conference, 17 March 2003

Presenters

Alan Davies, THRASS
Professor Linnea Ehri, City University of New York Graduate Center and (US) National Reading Panel
Professor Rhona Johnston, University of Hull and Clackmannanshire and Fife research
Ruth Miskin, literacy programmes
Dr Jonathan Solity, University of Warwick and the Early Reading Research programme in Essex schools
Dr Morag Stuart, University of London Institute of Education and Tower Hamlets research

Standing Group members

Shirley Bush, Senior Numeracy Consultant, Lancashire LEA
Gavin Davies, Triangle Primary School
Neil Davies, representing the National Governors' Council in place of Chris Gale
Wendy Hiscock, NLS Strategy Manager, in place of Tony Parker, NNS Strategy Manager, Bath and NE Somerset LEA
Dawn Horton, Stile Common Infants and Nursery School
Do Hulse, Primary English Coordinator, Sheffield LEA
Ann Keen, NLS Senior Consultant, in place of Ray Shostak, Director of Education, Hertfordshire LEA
Marion Murray
Sue Pearson, Headteacher, Lache County Junior School
Professor David Reynolds, University of Exeter
Carol Robinson, Headteacher, William Ford CE Junior School
Jenny Rogers, Langford Primary School
Ken Sainty, NLS Strategy Manager
Craig Voller, Headteacher, Sir Francis Drake Primary School
Diane Wright

Officials

Steve Anwyll, NLS
Janet Brennan, Ofsted
Dr Kevan Collins, NLS
Professor David Hopkins, D*f*ES
Dr Sue Horner, QCA
Dr Laura Huxford, NLS
Keith Lloyd, Ofsted
Andrew McCully, D*f*ES
Gail Treml, D*f*ES
Lesley Staggs, D*f*ES
Sarah Truan, D*f*ES
Matthew Young, D*f*ES

Other attendees:

Professor Usha Goswami, University of Cambridge
Sue Derrington, Bristol LEA

Professor Greg Brooks, University of Sheffield
Debbie Hepplewhite, Reading Reform Foundation
Sue Lloyd, Reading Reform Foundation and Jolly Phonics
Professor Kathy Sylva, University of Oxford
Carole Torgerson, University of York
Diane Hofkins, Times Educational Supplement

Appendix B: Suggested revisions to the phonetics of the NLS

Spoken English, in most of the accents found in Britain, has about 44 phonemes – Alan Davies's THRASS analysis gives one list, and PiPs a slightly different one, with 45. I think the PiPs list (pp.5-6) needs some small revisions.

For current English there is no need to distinguish the consonant phoneme sometimes transcribed as /hw/ and usually written <wh>. In many accents this phoneme has disappeared, so that, for example, *where* and *wear* are now homophones. Speakers whose accents retain this distinction may be at a slight advantage when it comes to spelling.

There is also a problem with distinguishing between /au/ as in *h**aul*** (the IPA symbol looks roughly like /⊃:/, where the colon indicates the vowel is long) and /or/ as in ***tor**n*, which is labelled as 'regional' (here let's adopt an IPA-like symbol /⊃:r/). What this relates to is the fact that some accents of English (most North American accents; Scottish and West Country, etc., in Britain, hence 'regional') are 'rhotic', that is, have 'r-coloured vowels' such as the /⊃:r/ in *pore* and the /a:r/ in *bar*, which for them are distinct from /⊃:/ in *paw* and /a:/ in *bah*. Speakers of rhotic accents probably have an advantage when it comes to distinguishing the spelling of words with and without the /⊃:r/ versus /⊃:/ distinction – but then why set up separate symbols for this distinction for the majority of accents in England which don't have it, or why set up separate symbols only for this distinction and not for the difference between *cart* and *fast* which is also labelled 'regional'? I agree with Alan Davies that the separate symbol for /⊃:r/ as in *torn* should be dropped.

The two previous recommendations would reduce the PiPs list to 43 phonemes. I recommend that the phoneme /u∂/ as in *fewer, brewer* and conservative pronunciations of *poor* and *moor* should be added, even though it is both rare and disappearing in many British accents.

The two consonant phonemes which are both given the symbol /th/ are different (voiced in *then*, voiceless in *thin*) and in my view need different symbols. If only letters of the Roman alphabet are to be used for this purpose, then the voiced phoneme could be represented as /dh/ - but it would be much easier if we all knew the IPA symbols /ð/ for the voiced consonant in *then* and /θ/ for the voiceless consonant in *thin*.

The vowel phoneme /I∂/ is represented as /ear/, which might seem logical since it is the sound of the word *ear*, but may be misleading. This is because the grapheme <ear> has two other pronunciations, /∂:/ as in *heard* and /e∂/ as in *bear*. If the non-IPA symbols are retained, it would be better to represent /I∂/ as /eer/. Although this is one of the less frequent spellings of /I∂/ at least it is unambiguous – the grapheme <eer> has only this pronunciation.

In the *PiPs* CD-ROM, the phoneme /r/ is pronounced as a burr sound – think 'urrr' – when in most British accents it is a plain labio-dental glide and should be pronounced as such on the CD-ROM.

On page 5 of *PiPs* is the statement ‘there are approximately 44 phonemes in English represented by 26 letters in about 140 combinations.’ Here I think we need to distinguish two senses of ‘combinations’ and adopt separate terms for them:

(1) Because English has more phonemes than letters, phonemes cannot always be represented by single letters and are often represented by sequences of two, three and sometimes four letters (e.g. /u:/ spelt <oo> in *too*, <oeu> in *manoeuvre* and <ough> in *through*), and the sequences are sometimes split by a consonant letter, in the ‘magic <e>’ patterns (e.g. /u:/ spelt <u.e> in *prune*). For all these ‘combinations’, plus single letters representing phonemes unaided (e.g. /u:/ spelt <o> in *do*), we should use the term ‘graphemes’. Scholars give varying estimates of the number of graphemes in English spelling depending on the assumptions they make and the system they adopt. My own estimate is that there are about 90 graphemes in the main system of English spelling, and about 230 in a reasonably full analysis (that is, one which does not go deep into all the obscurest oddities).

(2) It is well known that the relationships between the phonemes and graphemes of English are very complicated. For the various ‘combinations’ in which they stand, both regular and irregular, we should use the term ‘correspondences’. Again, estimates of the number of correspondences vary. My own is that there are about 130 in the main system of English spelling, and about 500 in a reasonably full analysis.

The Table on p.6 of PiPs uses the symbol V to indicate ‘long vowel’ but this is not explained. A note needs to be added.