Teaching literacy:
Current research findings

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This article reports on the main findings from large reviews of research outcomes found in literature surveys and meta-analyses in the psychological literature on literacy. In addition, psychologists in the National Educational Psychological Service (NEPS) have been engaging in some action research projects into literacy teaching in mainstream education and this article reports on what is emerging from this literature and these local research projects.

While not all the studies carried out in primary and post-primary schools will be directly transferable or relevant to learners in Youthreach and adult education contexts, it is helpful to consider their findings and to take any useful learning from them.

Desk research findings

A number of broad literature surveys (or meta-analyses) have been conducted in recent years. These review what are considered to be well-conducted studies into literacy teaching and summarise what are emerging as consistent findings from them (e.g. Swanson and Hoskyn, 1998; Vaughan, Gersten & Chard, 2000; National Reading Panel, 2000; Scammacca, Vaughn, Roberts, Wanzek, Torgesen, 2007; Brooks & National Foundation for Educational Research (Nfer), 2007; Roberts, Torgesen, Boardman and Scammacca, 2008; Faggella-Luby and Deshler, 2008)

Not surprisingly, it has been found that not all teaching approaches are equally effective. It would appear that a combination of direct instruction and the teaching of reading strategies is more effective than doing just one or the other.

There is a lot of evidence that teaching on an individual basis or in small group settings (preferably two and no more than three) is more effective than teaching in larger groups. While some studies emphasise qualifications and expertise in the teachers, teaching assistants have been found to deliver effective reading interventions if they have appropriate training, use fairly structured programmes and work with no more than three learners at a time. Paired or shared reading experiences are helpful and paired reading with peers who have had difficulties with reading themselves can be very effective.

In general, structured, specialist tuition was found to be more effective than eclectic or mixed approaches. The essential elements of effective instruction would appear to be:

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o Training in phonological awareness, decoding and word study
o Guided and independent reading of progressively more difficult texts
o Writing exercises
o Engaging students in practicing comprehension strategies while reading a text.

Other factors that contribute to success include daily or near daily frequency of interventions (frequent short sessions are better than fewer long ones), the systematic, structured teaching of phonics using synthetic[2] approaches rather than analytic[3] ones, exposure to high quality books and a focus on fluency and on building a sight vocabulary. Also recommended are the giving of focused attention to language development, reading comprehension, spelling and writing skills.

Teaching older struggling readers
Adolescence is not too late to acquire literacy skills. With older struggling readers the research suggests that the following elements are critical to reading improvement:
1. word study
2. fluency
3. vocabulary
4. comprehension
5. motivation

1. Word study
Older readers are frequently able to decode single-syllable words but have difficulty with multisyllabic words. Their difficulties are not so much at the level of letter-sound correspondence but with dividing words into their syllable parts and word analysis. Instruction in word analysis focuses on
o word morphology – identifying sections of words that carry a particular meaning like prefixes (e.g. in-, pre-), suffixes (e.g. -ful, -less) and parts that indicate grammatical features (e.g. -s, -ed, -ing, ly, er)
o orthography – recognising common letter patterns (e.g. -ent, -ation) and syllable breaks (e.g. ad-dress, fol-low, div-id-ing, mo-tiv-a-tion)
o irregular words that do not follow normal patterns (e.g. guide, knight, sapphire)

2. Fluency
Fluency relates to the speed with which a word is recognised. As students increase the number of words they can read on sight they become increasingly fluent. Accessing the meanings of sight words is rapid and this increases their ability to comprehend what they are reading. Improving fluency therefore improves comprehension. The practice of reading is important for building fluency, especially where the target words being taught are embedded in text that can be read independently (i.e. where 95% of the words are known). Wide reading has the benefit of exposing students to new and different content, vocabulary and text types but works best if combined with systematic, explicit instruction in word study and comprehension strategies.

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[2]   i.e. breaking down to small units like single letters or digraphs (e.g. b - i - n; ch - a - t)
[3]   i.e. breaking down into larger units involving groups of letters (e.g. s - ent, stra - p)

3. Vocabulary instruction

The most reliable way of improving vocabulary is to read a lot, read well and read widely. However poor readers generally avoid reading and so have limited exposure to new vocabulary. Direct instruction in vocabulary is therefore recommended. This can take the form of

- o teaching lists of new words randomly chosen
- o focusing on words that are drawn from subject-area materials that the students need to know and which they meet quite frequently
- o learning new and challenging key words that are important for understanding subject-related concepts that occur in their texts, after they have first been defined and discussed
- o distinguishing the meanings of words that sound (e.g. their / there) or look (e.g. bear / bear) alike and in words that have multiple meanings (e.g. match)
- o learning how to use references aids like dictionaries, thesauruses and online resources
- o understanding how to use context and word analysis clues to make a guess at what the word might be

4. Reading comprehension instruction

The point of reading is to understand the meaning of written text. Good readers monitor their understanding by linking new information with prior knowledge and when comprehension breaks down by deploying appropriate repair strategies like reading more slowly or rereading certain passages. The research emphasises the importance of providing instruction in comprehension strategies of this kind.

It has been found that teaching what good readers do to poor readers in an explicit and targeted way improves reading and comprehension (see *What skilled readers are doing*, also in this section of the website).

Teachers can help students understand what they are reading by using overt and explicit instruction techniques, such as the following:
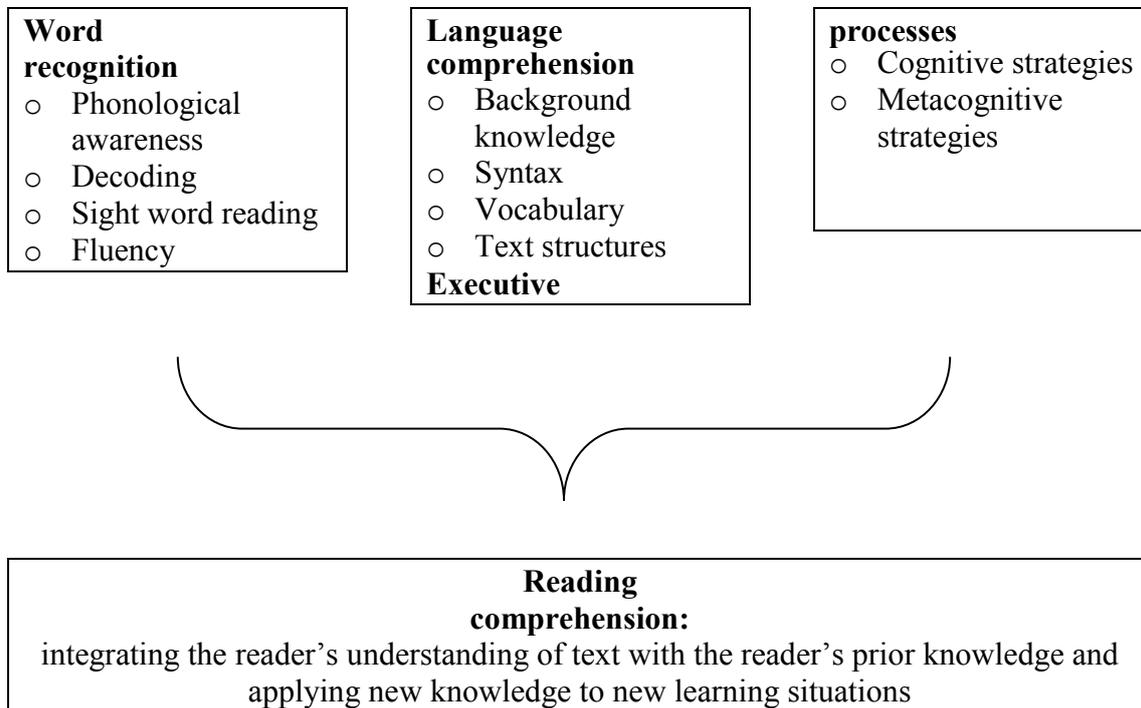
- o Previewing headings or key concepts and predicting what might be in the text before reading it.
- o Using visual representations that assist the students in identifying, organising and remembering important ideas from what they read and which can help with writing summaries, reviewing the main points and making connections
- o Teaching comprehension-monitoring strategies which enable the students to track their understanding and to implement repair strategies when it breaks down e.g. by asking themselves questions
- o Teachers modelling how to use the strategies e.g. by summarising as they read
- o Scaffolding instruction by starting with short easy passages and working up to more lengthy and difficult ones
- o Matching questions to where the information is likely to be found (e.g. a question about a factual detail is likely to be found verbatim in the text while a question about the main idea is not)
- o Providing instruction and support to help students self-regulate their use of strategies – to know which one to use, when to use it and why.

5. Motivation

Motivation tends to be more important with older struggling readers than it is with younger children. Comprehension of complex text involves the conscious application of effortful strategies and students who are engaged with the content are more likely to want to understand it and therefore to make the effort. Finding ways to motivate and engage students in reading is an essential feature of adolescent literacy instruction. Four features considered critical are:

- o   Providing interesting or relevant goals for reading
- o   Supporting student autonomy
- o   Providing interesting texts
- o   Increasing social interactions that are related to reading e.g. through cooperative learning and peer coaching

Most of the above is summarised in the figure below, which shows the relationship between the different skills needed for reading comprehension:

Word recognition
- o Phonological awareness
- o Decoding
- o Sight word reading
- o Fluency

Language comprehension
- o Background knowledge
- o Syntax
- o Vocabulary
- o Text structures

Executive

processes
- o Cognitive strategies
- o Metacognitive strategies

Reading comprehension:
integrating the reader's understanding of text with the reader's prior knowledge and applying new knowledge to new learning situations

Figure 1: Adolescent reading theoretical model (Faggella-Luby and Deshler, 2008)

There is increasing interest in the US and Ireland[4] in the use of a tiered model of instruction for supporting poor readers. This involves different levels of intervention depending on learners' degree of difficulty, with increasingly intensive, systematic, explicit instruction of content, strategies and skills being made available to those who

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[4]   See, for instance, NCSE (2006) *Guidelines on Educational Plans for Children with SEN* and NEPS (in press) *A Continuum of Support for Post-Primary Schools*

need it.   As well as involving different levels of support this model also entails different levels of involvement in instruction by staff, as indicated in the following table.

Level	Intervention	Teacher involvement
1	Enhanced content instruction: Critical content of lesson explained to all regardless of literacy levels	Subject teachers
2	Embedded strategy instruction: Strategies woven routinely within and across classes using large group instructional methods	Subject teachers
3	Intensive strategy instruction: Intensive-explicit instruction to ensure mastery of specific strategies	Subject teachers and learning support teachers / literacy tutors
4	Intensive basic skill instruction: Regular instruction to ensure mastery of basic literacy skills	Learning support teachers / literacy tutors
5	Therapeutic intervention: Support in relation to the underpinning language skills needed for the curriculum and for general learning	Speech and language therapists

Table 1: A continuum of literacy instruction (adapted from Faggella-Luby and Deshler, 2008)

Waterford study

NEPS psychologists in Waterford carried out a research project with teachers in ten secondary schools. The rationale was to explore the effectiveness of reading interventions that can be used by teachers with students who have reading difficulties.

The particular programmes used were
- *Acceleread / Accelewrite*
- *Paired Reading*
- *Precision Teaching (SNIP)*
- *Toe by Toe*

The study took place in the ten schools between February and May 2008 and involved 55 students. The average age of these students was 13 years10 months and their average standard scores were 84 in word reading and 83 in sentence comprehension (where the norm for that age group would be 100).

Findings
The numbers involved in this study were small and so it is important to treat the results with caution. Over the period of three months the average gain made across

the four programmes was 12 months in word reading (from 9:09 to 10:09) and 6 months in sentence reading (from 10:00 to 10:06). In some cases the gains were particularly good – one student who used *Toe by Toe* went from 6:09 in sentence comprehension to 12:00 while another, who used *SNIP*, went from 6:06 to 10:09 in word reading.

When the results between the different programmes were compared *SNIP* was found to have led to the greatest improvement in word reading scores, followed by *Toe by Toe*. Sentence comprehension improved most under *Acceleread / Accelewrite* and *Toe by Toe*.

The results are presented in standard score form. Standard scores are adjusted measures which take account of a student's age and place his/her score in relation to the scores of other students the same age. A child can make progress in reading, but this may not amount to a standard score gain if their improvement is less than the amount of time that has passed. For example, a child's reading may improve by 4 months but over a 6 month period and so would be considered to have regressed further in terms of their standard score while an average student who makes a year's progress in reading over a chronological year makes a zero gain in their standard score. An actual gain in standard scores shows that the gap between a weak student and their better peers is closing and this is the desired outcome from a reading intervention.

Programme	Average standard score gains in word reading	Average standard score gains in sentence comprehension
Acceleread / Accelewrite	+ 0.67 (N=6)	+ 1.86 (N=7)
Paired (peer) reading	+ 0.78 (N=23)	+ 0.65 (N=23)
Precision Teaching (SNIP)	+ 10.13 (N=8)	+ 1.0 (N=8)
Toe by Toe	+ 4.50 (N=16)	+ 1.76 (N=17)
Total	+ 3.30 (N=53)	+ 1.20 (N=55)

Table 2: Standard score gains in word reading and sentence comprehension, by intervention, with number of participants (N)

There were other gains too that were not so easy to measure. As one teacher said '*The scores don't really show it, but we can really see huge progress, both in their reading and in their confidence*'.

So as well as benefiting the students by raising their word reading and sentence reading scores, the researchers found that the intervention generally had increased the students' self confidence and desire to read and led to greater independence. The programmes had their own particular strengths. For example, *Toe by Toe* was found to improve phonic and word attack skills, *SNIP* to boost self confidence and self-belief, *Acceleread / Accelewrite* to increase independence and *Paired Reading* to lead

to greater positivity towards reading, confidence in reading aloud and improvements in comprehension, independence and class group cohesion. Each programme also had some negative features.

The researchers summarised the advantages and disadvantages of each programme in the following table:

Programme	Advantages	Disadvantages
Toe by Toe	• Well laid out and easy to use • Students can see progress • Brings whole school literacy to the fore	• Can be boring • No pictures • Not suitable for parent use • Not suitable for group use
Precision Teaching (SNIP)	• Structured and easy to use • Can be delivered in short sessions • Free download • Can be done in groups	• Can be boring • May not be suitable for below average students
Acceleread / Accelewrite	• ICT use – students love it • Convenience • Modern • Good to build relationship with pupil	• Monotonous for some • Cost • Doesn't help comprehension
Paired Reading	• Cost effective • Fun and buzz • Increased sense of student responsibility and independence • Socially very good for 1st Years	• Time and organisation involved • Time tabling difficult • Hard to keep a check on progress

Table 3: Advantages and disadvantages of each programme

Conclusions
The conclusion of the Waterford study was that using a structured programme helps to improve reading and that short daily sessions (even 10 minutes) is more effective than longer, less frequent ones. In this project *SNIP* and *Toe by Toe* showed the most positive results

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