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## **2. Developing Reading Comprehension: What do we Need to Do to Make it Happen?**

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*Reading comprehension does not develop spontaneously in every child. As teachers, we need to encourage it to happen. In England, one approach to supporting that development has been Directed Activities Related to Texts (DARTs). DARTs have been around for over twenty years, and are now part of the national curriculum. They have even made the journey to specialist subject areas. But one major problem remains: how do children learn to do them well, and is practice alone enough? The answer is no – there needs to be not only practice, but also modelling of how to do DARTs, and both teachers and children need to be involved. This chapter will discuss definitions of comprehension, principles underpinning the development of comprehension, DARTs and how to model them, and some examples of the modelling process.*

### **INTRODUCTION**

#### **What is reading comprehension?**

What do we mean when we say that we want to develop reading comprehension? One way of beginning to answer this question is to look at how we define comprehension. Some dictionary definitions can be rather circular ('comprehension is what comprehension tests measure'),

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but I prefer the two definitions that were chosen by the International Reading Association to go into its *Dictionary of Reading and Related Terms* (Harris & Hodges, 1981). These were as follows:

Comprehension involves the recovery and interpretation of the abstract deep structural relations underlying sentences (Bransford and Johnson); and

Comprehension is a process of integrating new sentences with antecedent information in extrasentential structures (P. Thorndyke).

These definitions sound a little complicated, but the researchers who wrote them were choosing their words very carefully, and they take us to the core of what comprehension is about. Bransford and Johnson remind us that comprehension involves the deep processing of abstract information – this is why it is not a simple matter. It also involves accessing (‘recovery’) from the text and understanding (‘interpretation’) the relationships between different types of information that are organised within those deep structures. Thorndyke’s definition emphasises the fact that comprehension is an active, not a passive activity – it’s about linking up incoming information with what the reader knew before, and doing so in new ways: the ‘structures’ to which the reader is connecting new understandings are ‘extrasentential’, they go beyond the sentence, and go beyond the text. They involve connecting new information with ‘antecedent information’ – that information takes a number of forms. First, it has to include knowledge of vocabulary. Second, what we read has to connect up with our prior knowledge of the world, and this includes not only facts about science, history, geography and so on, but also social and cultural knowledge, such as what happens at a birthday party, or the concept of justice. Third, comprehension seems to depend quite a lot on a reader’s understanding of how texts work, for example knowing that stories typically have a plot that involves a problem, and that overcoming a series of hurdles will lead to a resolution of that problem.

Looking closely at these definitions not only helps us to understand what the term ‘comprehension’ means, it leads us towards some fundamental principles for the development of reading comprehension

### **Fundamental principles underpinning the development of reading comprehension**

Developing comprehension is part of reading development, and so it is wise to locate our understanding of how to develop comprehension against a wider background. Sometimes, governments talk as if the development of basic skills and competences are the fundamental principles that drive the teaching of reading, but they are not. As we seek to develop reading comprehension, the following six principles (for a fuller account of these, see Harrison, 2004) will provide a much more secure research-informed foundation:

1. Decoding and comprehension are two key components of reading, but this does not mean that they should be taught separately; the goal of decoding should be to find meaning, and learners need a sense of the rewards that meaning can bring (Adams, 1990).
2. Reading helps children develop not just decoding ability, but an awareness of self, and of self in relation to others. (Bruner, 2001).
3. Reading comprehension is an active, not a passive process: it involves a triangular relationship between reader, author and text, not simply a linear transmission of meaning from author to reader (Lunzer & Gardner, 1979)
4. Reading comprehension does not necessarily develop spontaneously: for most readers, it's helpful not only to practice reading, but also to see thoughtful and critical reading modelled by teachers and peers (Pressley, 2000).
5. Critical literacy is as important as literacy, and if anything, it is even more important when children encounter texts on the Internet (Leu, 2002).
6. Engagement is fundamental to developing reading comprehension, and engagement depends upon four things: a coherent curriculum, high motivation, sufficient instruction about strategic reading, and sufficient choice in all areas of reading (Guthrie & Wigfield, 2000).

## **ACTIVATING PRIOR KNOWLEDGE**

Most teachers understand that it can be useful to clarify what pupils know already before moving on to read difficult material. What they may not realise is precisely why this is useful, and how important it can be. Some years ago, Judith Langer (Langer, 1981; Langer & Nicholich, 1981) developed a technique for identifying prior knowledge which Langer called PreP (Pre Reading Plan). This was a three-phase model for eliciting and classifying prior knowledge:

1. first students generated initial associations;
2. next they discussed and classified what they collectively knew;
3. finally they reformulated their knowledge, clarifying what they now knew as a result of the group or class discussion.

The results of research into activating prior knowledge in this way were impressive: Judith Langer showed that readers who engaged in prior knowledge elaboration learned more and retained more than those who did not, even though the teacher specifically refrained from introducing any new material herself during the elicitation phases. Langer argued that eliciting and organising prior knowledge makes the approach to new learning more meaningful, and activates schemata (cognitive frameworks) onto which new knowledge will be mapped, so that the teaching, when this does begin, will be much more effective. Langer also demonstrated that prior knowledge was a better predictor of learning than IQ, which suggests that if teachers elicit, clarify and organise prior knowledge, and thereby increase provisional understanding, processing and recall for all students will be increased. Other studies have also confirmed the value of activating prior knowledge (Langer, 1981; Langer & Nicholich, 1981).

### **The importance of teachers demonstrating the process of thoughtful reading**

Teaching comprehension systematically is a relatively new phenomenon. It has become more popular since the 1970s and 1980s, when important research was carried out that showed how valuable it could be, particularly for weaker readers, and the key aspect of that teaching has been to demonstrate, publicly, in ways from which others could learn, the

processes of thoughtful response, of the deep processing of abstract information to which Bransford and Johnson referred.

The most widely-cited studies on the value of teacher demonstration of process have perhaps been those of Gerry Duffy and Laura Roehler (Duffy et al., 1987; Duffy & Roehler, 1989). There were four aspects to the approach they recommended.

First, the teacher explained and demonstrated a strategy (in the case of reading, it might be the construction of mental images of what you are reading in a text, for example, or the practice of formulating your own questions prior to reading).

Second, the students then modelled publicly their attempts to apply the strategy, with the teacher monitoring, commenting, and inviting the students to contribute to the process of clarifying what the strategy looked like in action, in the context of an authentic reading task.

Third, the teacher gradually gave less and less feedback to the students, thereby shifting the responsibility for activating and using the strategy to the students.

Fourth, and crucially, the teacher prompted the students to use the strategy on occasions right through the school year, so that, although the students were encouraged to apply the strategy autonomously, this was not left entirely up to them. Thus the teacher not only demonstrated how to apply the strategy, but modelled how to recognise opportunities for applying it in authentic contexts.

Clearly this approach did not deal solely with teacher demonstration. In fact, the Duffy and Roehler approaches move from teacher demonstration to shared exploration, then to scaffolded pupil work and finally to consolidation. And there are other research studies that add support for these separate parts of the teaching sequence.

The emphasis on teacher demonstration leading to shared exploration, then to scaffolded application of new learning, is very much in harmony

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not only with the strategy, but with the current neo-Vygotskian movement in the UK. Vygotsky was a Soviet psychologist whose research was carried out in the 1930s, but whose significance was not understood in the west until his work became available in English in the 1960s. Vygotsky's *Thought and Language* (1986) offered the crucial insight that learning was a sociocultural phenomenon, and what followed from this was that the focus for research into learning should be the adult-child relationship, and not simply the child. The logical extension of this was that we should examine closely the role of the adult as an expert from whom the child is learning. The often-quoted 'Zone of Proximal Development' comes in at this point, since this is the distance between the child's current developmental level and the level that an expert (usually, but not always, an adult) can help the child to reach.

David Wood (Wood, Bruner & Ross, 1976) used the metaphor of scaffolding to describe the teaching support that enables the child to bridge the Zone of Proximal Development gap. Scaffolding is the process by which the teacher (though it could be another adult, or a peer) organises learning that is unfamiliar or beyond a learner's ability in such a way as to assist the child in carrying out the new task. In Wood's original study, young children were encouraged to carry out parts of tasks that were within their ability, and the adult 'filled in' or 'scaffolded' the rest.

Scaffolding is quite a complex process: it is not simply about giving general support to the child. Scaffolding involves:

- ❑ activating and maintaining the learner's interest;
- ❑ then (crucially) reducing the number of choices available to the child;
- ❑ keeping the child on task;
- ❑ highlighting critical aspects of the task;
- ❑ but also controlling the child's frustration;
- ❑ demonstrating the whole process to him/her.

(Wood, Bruner, & Ross, 1976)

Tutors who had been specially trained to identify accurately the learner's level of achievement were not only better at gauging progress – their approach led to better learning. One further point on scaffolding: it can be unwise to dismantle it too early. Scaffolding becomes unnecessary once the learner has reached the point of having a shared perspective with the teacher. But in order to be able to apply the new learning independently, the pupil needs to be able to apply the new understandings in unfamiliar contexts, and to take the role of the teacher in asking appropriate questions of himself or herself, and others. This is a major transfer of responsibility, and it does not happen rapidly or spontaneously for the whole class. Variability in pupils' ability to draw inferences and to reason logically will effect how rapidly they can do without the scaffolding.

Another approach to developing comprehension involving demonstration was the 'reciprocal teaching' approach advocated by Palinscar and Brown (1984). In an experiment to demonstrate the effectiveness of reciprocal teaching, teachers modelled various aspects of reading behaviour, thinking aloud as they did so. After several weeks of practice over about 20 lessons, students scored significantly higher on tests of reading comprehension than control-group students who had been given intensive reading practice but who had not practised reciprocal teaching. Scores of the reciprocal teaching group on science and social studies tests also went up, and these differences lasted at least eight weeks after the experiment ended, which suggested that the children were transferring their learning to new reading contexts.

The strategies which were taught as part of reciprocal teaching were as follows:

1. Summarising – developing the ability to identify the most important information and to communicate it in a succinct fashion.
2. Questioning – involves students in generating their own questions, in thinking about what they don't know, and what they need to know or would like to know about a passage. The aim here is to promote purposeful reading, and a sense of personal meaning-making.

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3. Clarifying – the key skill here is monitoring one’s own comprehension, identifying when there has been a comprehension breakdown, and then taking the necessary action to restore meaning.
4. Predicting – requiring students to utilise given information and background knowledge in order to form a hypothesis about the text type, and where the text was likely to lead.

When introducing reciprocal teaching, these four strategies are directly presented, explained, and modelled by the teacher. Once students are familiar with the strategies, they are invited to take the role of the teacher, and conduct their own reciprocal teaching dialogues with their peers, using new text material. At this point the teacher’s role shifts from providing direct instruction to monitoring progress and providing feedback. As they become more confident, students are given greater independence from the teacher, working in pairs to coach one another, ask questions, summarise, predict, clarify, and think aloud about what they are reading. This small group work therefore becomes a key element in bridging the gap between teacher-directed instruction and independent reading.

Research reports are in agreement: reciprocal teaching has been successfully taught at every level from primary school through to college, but the research indicates that this procedure may be particularly effective with less proficient readers, and is especially effective with expository texts. At this point it is worth taking a moment to consider why, if reciprocal teaching activities are so worthwhile, teachers everywhere have not adopted them as a fundamental part of their classroom planning. Perhaps the answer is related to one of the less publicised findings of Palinscar and Brown, which was that good readers have much less need of such scaffolding. The other side of this coin is that weaker readers need more support, and studies in both the UK and the US suggested that they generally do not get such support.

One of the most widely-cited UK research studies of reading across the curriculum in schools in England, and which came to be regarded as a champion of shared exploration of texts through small-group activity,

was The Effective Use of Reading project (Lunzer & Gardner, 1979). The project looked at a number of aspects of using and developing reading in both primary and secondary schools, and included an eighteen-month classroom observation study of how much children read in lessons in school. What the team found was that at both primary and secondary level, reading accounted for between 10% and 15% of the time-sampled minutes of a child's day, but that most of the reading in school occurred in small bursts of less than fifteen seconds, with very little intensive reading. And there was often very little interaction with text. For example, in one observed lesson, a fluent Year 7 reader who was doing a reading comprehension exercise spent less than two minutes out of 45 actually reading the text. It turned out that a reading comprehension exercise was mostly about writing, since she spent 25 minutes composing and writing down her answers. Furthermore, she had no interaction with any of her peers whilst doing the exercise, and no feedback during the lesson in order to scaffold any comprehension monitoring behaviour.

### **DIRECTED ACTIVITIES RELATED TO TEXTS (DARTS)**

The wider implications of what was happening here are important. For a good reader, reading easy material, a lack of interaction or lack of feedback can be unfortunate, but for a weaker reader, it can be disastrous. Proficient readers can monitor their own comprehension, and detect and repair their own comprehension difficulties, but weaker readers cannot. So from this point of view, a comprehension exercise done without interaction or feedback might function simply as a test, confirming the level of a reader's ability, but not offering any scaffolding or input to improve it. So it is difficult to avoid the conclusion that traditional comprehension exercises are likely to be a waste of the pupil's time if they are easy, and frustrating and unproductive if they are difficult. In any event, with this analysis in their minds, the Effective Use of Reading team set out to consider the alternatives, and to explore and evaluate these. What they finally argued for, and obtained further funding to explore, were DARTs activities (Directed Activities Related to Texts; Lunzer & Gardner, 1984; Davies & Greene, 1984). Some of the best known DARTs activities are cloze

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(or various types of word or phrase deletion), sequencing, prediction, highlighting or underlining, diagram completion, and segmenting the text. They have much in common with the strategies advocated by Michael Pressley (2000), and there is thus strong evidence that they can be very valuable for developing comprehension.

There were two reasons why Lunzer's team devised DARTs. One was a wish to encourage small-group reading strategies; the other was the need to support readers in meeting the challenge of getting information from school texts, particularly when the text structure was non-narrative. Most novels, folk tales and oral tradition stories tend to have a deep structure that in key respects corresponds to the canonical 'story grammar' forms identified by Mandler and Johnson (1975) and Applebee (1978). But the majority of information texts do not have a story structure, and this makes for a double problem for the reader: a textbook will tend to have not only unfamiliar vocabulary and concepts, it will be likely to have a structure that is unfamiliar and complex, and this will make comprehension, storage and recall all the more difficult.

No one owns DARTs. Although the acronym came from the University of Nottingham, all DARTs are variations on classroom activities which have been around for decades. When readers do a DART activity, they begin by reading the text in a pair or small group. Having one group member read the passage aloud to their partner can be a crucial first step, since this can often encourage more close attention to the text than if one student is reading to the whole class. During the DART activity, discussion and sharing of ideas is crucial, and if the DART is working as it should, a very important thing happens – the processes of comprehension, of gaining meaning and drawing inferences from a text, are brought out into the open, and it is from this that one reader can learn from another how to become a better or more thoughtful creator of meaning.

How does this development of comprehension come about? Consider the following example: if readers are doing a cloze or deletion exercise on their own, filling in blanks in a text, they may appear to be reading closely, but no modelling of the process of being a fluent and thoughtful reader occurs. The reader is either capable of doing the exercise or not,

depending on his or her own prior knowledge, reading ability and degree of motivation. But if two readers are reading the text, and have a discussion about what the missing word might be, one reader can lay bare the process of being a fluent reader for the other. The moment when this happens is not when one person says, 'I think it should be this word', but rather when another reader asks the question, 'And why do you think it should be that word?' and the first reader then starts pointing to words in the text, and saying how he or she drew inferences, and used the evidence available in the text. This is where the processes of comprehension are opened up to scrutiny, and it is from this that another reader can learn to be a better reader. But both readers gain from this experience: just as teachers learn a topic more deeply if they have taught it, so readers become more reflective as they are required to explain to another person how they gained meaning from a text.

This modelling of how to be a thoughtful reader does not necessarily happen, of course. If one reader is dominating, or bullies the other, the demonstration of the process of constructing meaning does not occur – but this demonstration is the goal. As teachers, the challenge facing us is to make these processes public, and to give students the metacognitive skills to monitor their own reading behaviour, so that they can be aware that this making public their own reading and thinking processes is an important part of developing their own reading skills.

### **Setting up DARTS**

The next sections of this chapter offer some examples of how to set up DARTs activities in class, and how to prepare the texts for them. The list is not exhaustive, but it does give some guidance. Many teachers have found that the best way to develop confidence in using DARTs is to agree with a small number of colleagues to experiment with some DARTs lessons, and then to meet up to evaluate how they have been going, and to exchange good ideas and pitfalls to avoid a few weeks later. The key point, however, in all the activities that follow, is to ensure that everyone understands that the emphasis is not purely on getting meaning; it is on making explicit the process of getting meaning.

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#### ***Deletion (1): single words***

Give the students a copy of the text from which some single words have been deleted (generally it is beneficial to retype or scan in a text, since then you can avoid giving a clue to word length). Take out words (but not too many) that are in some way critical to the meaning (often 10 or so is a working maximum). Ask your pairs to agree replacements for the missing words that are syntactically and semantically (and possibly stylistically) apt. Unless the text is a scientific one, the usual approach is for the students to have a worthwhile discussion, and to justify their decisions, rather than to guess the exact word. Compare students' insertions with the original passage.

#### ***Deletion (2): phrase or sentence***

Deletion DARTs can involve deleting just one key phrase or sentence, provided that it generates plenty of opportunity for hypothesis formation (for example the title of a piece, a key date, the last line).

#### ***Deletion (3): leaving only a skeleton***

Give the students, for example, the first and last paragraphs of a passage and ask them to read these and then comment on what they think the missing pieces are about, and why. This can be a useful technique to prepare for the reading of the passage as a whole.

#### ***Underlining or highlighting the text***

This is a simple idea as old as schools, although it has become more vivid since the invention of the fluorescent highlighting pen. It just involves asking the students to underline, highlight or indicate in the margin in some way bits of the text that deal with one issue rather than another, or to identify patterns and connections that seem to be there. Two very useful examples of text marking are: (a) getting students to highlight sections they understand/don't understand in a text; and (b) getting them to highlight in different colours facts versus opinion. The physical marking is a prop for close attention and the chat involved is a preparation for whatever broader discussion is to come. Highlighting using colours often brings out issues of text information structure, and can be very useful in handling difficult information texts. Being given permission to say that

you don't understand is often much appreciated by readers, and of course this is a key factor in comprehension monitoring.

### *Selective substitutions*

Give the students a text, and tell them that some of the words/phrases/sections have been replaced by less good alternatives. The reader's job is to look through and recast any parts in any way they feel would help. The range of possible strategies for substitution – semantic, aesthetic, syntactic, logical, surreal – are considerable.

### *Prediction*

This takes deleting all but the skeleton one step further. Divide the passage or short story into instalments (choosing the stopping place with care) and give them out one at a time. Ask your groups to work out what they think is going to be the next instalment by thinking about what has happened in the one they've got. The important question to ask about a particular prediction is: where is the evidence for it? Then compare predictions with what was actually written. This works best with texts with a strong narrative line, but it can be effective with non-fiction texts in which information is released a little at a time. Prediction can also be effective with a mixture of small group and large group talk using an overhead or a data projector.

### *Sequencing*

This involves serious doctoring of the text. Make copies of it and cut these into pieces (perhaps paragraphs or half-paragraphs or stanzas). Don't make too many pieces, otherwise it can become tricky to organise (10 is usually the working maximum). Then give all the bits to your pairs (use an envelope!) and ask them to assemble the bits into an order that makes sense to them. The idea is to focus discussion on the structure of the text. (Note – open windows can play havoc with this DART!).

### *Finding boundaries*

This is sequencing the other way round. Ask the students to divide the text into what they think are its sections, describing what makes one section different from the next. It's made easier if you tell them at the beginning the number of sections you think there are, and let them work from there.

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(It's possible to use this technique to work on a single paragraph, though that is usually a more demanding). Boundary marking can be brilliant with a difficult poem, since it does not require full understanding; equally, it can work well with a complex information text.

#### ***Drawing and diagrams***

This simply means asking the students to present some of the information in a text in some visual form (e.g., a drawing, a flow-chart, a table or a Venn diagram). This technique could be used, for example, to focus attention on the relationship between characters in a story, or their points of similarity and difference. It may also be useful for reassembling ideas in an information text, as a way of preparing for note-taking of various kinds. (Note- making a flow-chart often requires a high degree of understanding of a text; this can often usefully be preceded by a simpler DART, for example text chunk boundary-marking.)

#### ***Question-setting***

Instead of giving the reader a set of comprehension questions, turn the usual procedure around by asking the students themselves to make up a small number of questions to which they would really like answers. It's more difficult than it sounds to put this across, and students will usually tend to go for questions of the banal kind to which they are accustomed. Classifying questions to which the answers are (a) on the lines, (b) between the lines, or (c) beyond the lines, may provide a useful temporary crutch.

There are a number of possible routes students can take after they've worked out their questions. One is to pass one pair's questions on to another pair to see if they can answer them. Another is to collect all the questions in and get a couple of more able students to make a list of the five questions most often asked. Then, next lesson, discuss those as a class.

Alternatively, students can work in pairs to make a poster of their questions, with a key question in the middle and others radiating out from it. These posters can then be presented to the class and discussed. When this activity goes well, the students will say 'Wow! I've just

realised – we thought we were just discussing questions, but in fact we've answered all our questions, and a lot of other people's as well!

### *Wide Angle Questions*

This is a safe start for students in pairs. Give them, say, three questions to discuss on the passage, poem or short story. They must be questions to which there is no obvious single right answer, and of a kind that will encourage a ranging over the text as a whole. Try and make the questions a bit eccentric. So, for example:

‘Is this the right title for the passage?’ (or if there is no title: ‘Can you think of a good one?’)

‘What kind of book do you think this extract comes from?’

‘Can you think of anything the writer has left out here?’

‘What idea of the writer (like age, sex...) do you get from this piece?’

Give a time-limit: no written answers, but a quick report-back session involving the whole class and discussing how evidence was used is useful.

### *Responding to statements*

This is a superior version of multiple choice, and a fairly painless way of focussing discussion on critical issues in a text. Make up a short list of statements (some controversial and/or contradictory; perhaps one or two to do with the writer's intentions) that can stand as overall comments about the piece. Put the statements on card so that they can be put on the table and manipulated. Ask your pairs to work through them and decide which two or three they consider to be most important/ appropriate. A simple ‘prioritizing’ system can then show the consensus of opinion in the class as a whole; a class discussion can start with those who chose unpopular statements justifying their decisions.

### *And finally... some alternatives to précis and summary*

Here the written material (or some of it) is re-presented by the students in their own words, possibly after earlier work with some of the techniques mentioned above. For example, a text book section or descriptive piece might be condensed and ‘translated’ into a news

bulletin or short newspaper article; a piece with a non-user-friendly structure or tone might be rewritten to mesh more comfortably with the needs of a given target audience; or characters from the text might be asked to justify their actions or outlook in a short written statement.

### **A CONCLUDING WORD**

When we first used DARTs in classrooms, our team was excited at how well students engaged with the texts. Teachers in chemistry, geography and religious studies told us how well DARTs worked, and this made us happy. But gradually we became uneasy. We saw students who were engaged, but we weren't always convinced that they were becoming better readers. And the reason we were uneasy was the same reason we were unhappy about the use of reading comprehension exercises: DARTs do not necessarily provide modelling of good reading behaviours. Small group reading, even with lively discussion, is not enough – not if, for example, one group member is dominating the conversation, and simply asserting their opinion. There has to be modelling of good, close reading, in a conversation that makes transparent the processes of being a fluent and reflective reader. Only then are students really learning how to recover the deepest layers of meaning, and learning to connect them to a richer understanding of the text, and of the world.

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