The Great Debate

Free translation, with some examples adapted to English, from the chapter 'Le grand débat' in J. Morais, 'L'art de lire', 1994. France: Odile Jacob.

The alphabetic method is without doubt the method of teaching reading which has been used for the longest time in the history of Western civilization. The child started by learning the alphabet, i.e. the names of the letters in their order. (In ancient Greece it seems that children learned to recite the letters forwards and backwards. For wealthy children each of the 24 letters was represented by a slave!) Then the child was taught to associate each name of a letter with a symbol. After that he or she was taught to combine consonants and vowels and to recite syllables without a meaning (ba, be, bi, bo, bu, etc.). It was only after months or even years that the child was finally faced with reading[1]. This kind of method has now been abandoned.

The great debate on methods has centred for over a century on the opposition between two concepts: emphasis on code on the one hand and whole language on the other. The former is the phonic method and the latter is the global method.

The *phonic method* was born from a finding that the child has difficulties moving from making associations between the names of letters to blending together the 'sounds' of the letters to obtain the pronunciation of the words. It seems that German educators were the first at the beginning of the sixteenth century to propose methods based on the teaching of the correspondences between the letters and their 'sounds'[2]. At that time functional reading began very early in the learning process, well before all the correspondences had been taught. The order in which the correspondences were introduced depended on functional criteria and not on the order of the letters in the alphabet. Children learned to make words by combining or subtracting letters. In the French-speaking world, the phonic method was advocated in the eighteenth century by the Jansenists and the school of Port-Royal. Later, many people simply came to associate it with interminable pronunciation exercises of the sounds of the letters. Its functional role was neglected.

The *global method* probably originated in the seventeenth century. In *Visible World*, written both in English and Latin, Comenius proposed starting by directly associating words with their meanings. The internal analysis of the words to enable new words to be read would only come later. In the United States the global method has been used since the middle of the nineteenth century. At the end of the nineteenth century and at the turn of the century the global method came to be linked to progressive ideas and concern for education focused on the child. One 'psychological' argument used was that, all things considered, the phonic method was not very natural. Later on this argument would be enriched with references to Gestalt theory although psychologists of that school were not concerned with reading. Moreover, as the psycholinguist Roger Brown noted, the basic idea of Gestalt, according to which learning results from establishing systematic relationships and underlying principles, was more consonant with the phonic method than with the global method[3].

In France and Belgium the global method gained ground at the beginning of the twentieth century, notably under the influence of Decroly. The teacher read a text

which he repeated to the children and which constituted the basis for the gradual identification of the words composing it. A variant of this method was later introduced by Freinet (the 'natural method'), which replaced the text written by the teacher with texts produced by the children themselves and dictated by them to the teacher.

However, in 1955 Rudolph Flesch published *Why John Can't Read – and What You Can Do About It*, which quickly became a bestseller[4]. Its success was owing more to the severity of deficiencies and delays in reading, which greatly concerned many parents and educators, than to the book's intrinsic qualities. Starting from the idea that letters correspond to sounds, he maintains in the same grandiloquent tone as his opponents that the phonic method is the only 'natural' learning method. More serious, he launches himself into political arguments, saying that the global method is undemocratic, that it treats children like dogs which can be trained, and he even alludes to a communist plot!

As Marylin Adams says[5], the question of how best to learn to read is the most politicised question in the whole field of education. Kenneth Goodman, former Chairman of the International Institute of Reading and a prestigious theoretician of the global method, states: 'Can we depoliticise the debate? No. Education, including the teaching of reading, is political'[6]. But let there be no mistake. We cannot say that any one method is part of the programme of a political camp or that it is left-wing or right-wing per se. That is a different question to which method is the best for the successful teaching of children to read who are in a disadvantaged socio-cultural position from the outset.

Flesch's work was not to have had the greatest influence on the resurgence of the phonic method in the United States; it is another publication, a report in fact, written by Jeanne Chall in the framework of an official report. *Learning to Read: The Great Debate*, published in 1967, was based on the scrutiny of 22 teaching programmes[7]. Chall visited over 300 classes in the most diverse social settings in the United States, England and Scotland. The quality of her research has never been contested. It should also be said at the outset that Chall had no *a priori* preference for the phonic method, and yet her study led her to the conclusion that the programmes for teaching reading to beginners which included early and systematic phonic instruction produced better results than those which did not.

Research on reading and learning to read carried out over the last 20 years in laboratories and schools, and in particular research which has used a rigorous methodology, is practically unanimous: teaching programmes which include direct, explicit teaching of the alphabetic code are the best[8]. However, this judgment is only of statistical value and does not absolve us from a fine-grained analysis of the different variables involved.

The scientists' convictions are shared neither by the majority of educators and teacher-trainers nor by the heads of government of many countries. In education faculties especially the dominant concept favours the global method. This concept is also particularly appreciated by private companies which have made reading and reading deficiencies into a commercial business. Perusal of *Reading Today*, the bi-monthly publication of the International Reading Association, is particularly edifying. For the Spring and Summer edition of 1993 the following were announced:

- a dynamic seminar on *Whole Language* ('Phenomenal! Will revolutionize teaching practices!') with Marie Carbo ($99 per person);

- seminars on *Literature Connection* ('A creative adventure into the joy of whole learning. The best investment of your time and money') ($269 all inclusive, entitling participants to a present worth $30);

- seminars on *Whole language in the classroom* ('Participate in a unique and powerful experience');

- conferences on *Pathways to Literacy* by Bill Martin Jnr ($269 for 5 days, ending in a certificate; if one followed a supplementary course one paid $130 extra but received the bestseller *Pathways to Literacy*, worth $45);

- seminars on the *Whole Language Umbrella* ('Expanding Our Horizons');

- seminars on *Whole Language Strategies* by Nellie Edge: use of rhythm, happy learning at nursery school, *whole* language, practical principles concerning the brain which will make your teaching more powerful, etc. ($98 each, refreshments included).

Finally, an announcement which smacks more of phonic instruction in the guise of a fashionable term (multisensory learning): *Sing, Spell, Read and Write*, the multi-sensory language development programme which transforms students – even late-learners – into winners.

In Europe we have not yet met this phenomenon. We will probably never know when we have managed to establish effective communication between researchers, educators, teachers, politicians … and parents.

Why are the ideas of the global method more attractive to the public at large? Why are many teachers hostile to the phonic method? Simple-minded grand principles such as 'reading is understanding' or 'we must give back to reading its true purpose' are more accessible and more seductive than linguistic analyses on the relationship between the spoken language and the written language, which calls upon a strange entity - the phoneme, and then goes into technical points. Moreover, the concept of the global method seems to imply faster progress for the child, in the entire system of language and cognition as well as the whole individual; it does not appear to use the apparently narrower concept of the phonic method. At first glance, the latter seems to concern reading only.

The attraction that the global method exerts is also partly linked to the fact that it is based on good ideas that supporters of the phonic method neglect – owing to their desire to point out the importance of learning the code. It is evident that children learn to read more easily if they have a highly literate environment, if the parents themselves like reading and read stories aloud to their children, and inspire them with the desire to read.

The ideology of reading is one thing, and the reality of educational practice is another. It is rare nowadays that the method used in class is purely global or purely phonic. The expression 'insistence on the code', popularized by Chall, indicates that learning the alphabet code is understood in the framework of the

reading of words. As for the global method, its adepts frequently explicitly refer to the correspondences and accept decoding towards the end of the first year of learning to read.

Unfortunately, the ideologues of the global method and of natural reading try to discredit experimental scientific research. Their staunchly anti-phonic stance has considerable force in the milieus of officials in charge of primary education policy and organization as well as in teacher-training centres. New teachers start off their professional careers without any knowledge of the basic skills required for reading, the reasons for their importance and how to teach them[9]. It must not be forgotten that teaching to read is also a commercial business**.** We do not just mean the many seminars mentioned above. Above all there are the school textbooks. As the number of consumers is very high the profits for the authors and for the publishing companies are important. In these conditions groups of interests get established which are difficult to overturn; and inertia sets in with regard to teaching principles and methods. It is hard to reconcile these with research which by its nature never stops and is always moving forward … Censorship of research is a reality.

The superiority of the phonic method

Supporters of the global method are right to say, as Goodman did in another bestseller, *A Parent-Teacher Guide*, published in 1986[10], that readers look for meaning and not sounds or words. In general, this concept is not mistaken in what it says but rather in what it does not say: it does not say what is the most important thing to say about a method, i.e. how a child could get to the meaning without going through words. The global method encourages the use of the context and a strategy of guessing. That may lead to reading mistakes (reading, for example, ‘yoghurt’ instead of the name ‘Danone’ on a pot) which, according to Goodman, should be accepted by educators because they are not far from the meaning but would be ‘charming indications of growth in the sense of control of the processes of language’. This is, in fact, a panegyric of subjectivity (what the reader believes) against objectivity (what the text really says)[11].

Studies evaluating the effects of the methods generally show that children who learn to read by the phonic method have from the outset an advantage in the recognition of words[12]. Towards the end of the second or third year of study they overtake those who learned to read with the global method in speed and in silent comprehension as well as in vocabulary and spelling. This superiority of the phonic method could be even more marked for children from disadvantaged social classes.

[In an earlier chapter] we mentioned the work of Barbara Foorman and her team[13], comparing the reading and writing performance of children in the first year of primary schooling, according to whether they received a lot or a little teaching on the relationships between the letters and their ‘sounds’. There is no extreme opposition here between the phonic and global methods but the variable which distinguishes the two groups allows us to consider that one is ‘more phonic’ than the other. The results, which can be seen in the table below, speak for themselves.

	Word reading		Word spelling	
	Letter-'sound' instruction			
	Little	Much	Little	Much
Regular words				
October	30	30	16	14
February	48	71	36	50
Mai	60	84	45	65
Irregular words				
October	17	20	02	02
February	31	47	09	11
May	35	55	16	26

Percentage of words, either regular or irregular, correctly read or written in each of the three tests (October, February, May) by children receiving either much or little instruction over the letter-'sound' relations (adapted from Foorman et al., 13).

The advantages of instruction in the first year of primary school giving importance to the explicit teaching of the alphabet code, and thus the merits of the phonic method over the global, are clearly demonstrated for reading as well as spelling both for regular and irregular words.

These advantages also concern children who may present learning difficulties, as shown by a recent study carried out in North Carolina. Children still at nursery school were selected for possible risk of subsequent reading difficulties[14]. They were sent to classes using phonic methods or classes using global methods (which in fact included the teaching of phonic elements from the beginning of the second year). At the end of the second year of formal instruction the children taught by the phonic method seemed to have made more progress in general than the others but the difference between the groups was significant only for the reading of pseudo-words and the spelling of regular words. The superiority of the phonic method was less apparent in terms of average scores than for the number of children with reading difficulties. Thus, eight of the children taught by the global method (a third of the sample) against just one taught with the phonic method were one year behind in reading words. The phonic method thus appears to be the most appropriate for helping children at risk to catch up. Moreover, the fact

that the global method used also contained phonic elements probably contributed to reduce the differences shown.

The whole method is particularly problematic for children suffering from a socio-cultural handicap. This finding is illustrated by a study which our group carried out in the French-speaking part of Belgium on about 50 children in the first year of primary school from three schools from poor, average and high social backgrounds respectively using the global method and on about 40 children from the middle level attending a school which used a phonic method[15]. Even if we only take into account children with a higher social status amongst those learning to read by the global method, we observed that in their first year more than half of them were reading fewer new words (i.e. those not studied in class) than the worst reader from the group learning to read by the phonic method. Moreover the best reader from the group taught by the global method read fewer new words than nearly one third of the children in the group taught by the phonic method. The most worrying result is that, amongst the children from poor backgrounds, none of them were able to read more than three or four new words and most of them could not read any. The global method therefore seems to constitute a risk for children from disadvantaged backgrounds. For these children the chances of having parents or other people close to them who themselves read fluently and who could teach them the alphabet code are much smaller than for children from more advantaged backgrounds.

The phonic method has naturally had a very powerful effect on the development of explicit phonemic analysis, which, as we have seen, plays an essential part in the acquisition of phonological decoding. In another study comparing first-year children using either the global method or the phonic method, Jesus Alegria and I observed the specific contribution of the phonic method to phonemic skills[16]. Thus, the two groups were just as good as each other at inverting the syllables of an expression [‘sofa’ to ‘fa so’], but the average performance in inverting phonemes [e.g. ‘on’ to ‘no’] was much higher among children taught by the phonic method (58% correct answers) than among those taught with the global method (15%).

When learning a skill there are critical stages at which a particular acquisition must be made in order that the learning proceeds effectively. Children learning to play the piano are not asked to play masterpieces straight off. The relationship between the keys and the notes must be taught explicitly when starting to learn. The lack of certain critical elements of knowledge hinders the learning process, for the piano as for reading. In contrast to the global method the phonic method is based on the idea that there are obligatory stages in the learning process.

The apparently paradoxical consequences of a method which wants to get straight to the point without worrying about intermediary skills are clearly shown in a study which examined the relationships between various abilities of children and their level of reading comprehension in 10 classes using the global method and 10 classes using the phonic method in the first year of primary school[17]. Whereas in the classes using the phonic method positive correlations were observed between reading comprehension and various measurements of the linguistic abilities of the children (syntactic development, average length of expressions, etc), in the classes using the global method these correlations were negative. At

first sight, these results are puzzling. Indeed, it seems paradoxical that the child who is better developed linguistically tends to understand texts less well. However, this can be easily explained in the framework of a theory which recognises the importance of the initial learning of the alphabet code. Exclusive or practically exclusive insistence on the child's general linguistic abilities at a stage when learning the code is crucial may hinder the development of word recognition and consequently the comprehension of texts. Recourse to the context and guessing, which are probably dominant in children who do not know the code but have good linguistic abilities, leads to mistakes of recognition which lower the odds of acquiring a good comprehension of texts.

In addition to the experiments comparing global and phonic methods it is important to know about results from the phonic method alone. Benita Blachman has redefined from a phonic perspective the programme of learning to read in two primary schools with a relatively low socio-economic level in the State of Connecticut[18]. She gave the teachers, educators and re-educators intensive training and mobilized them to put the programme into action. Before her intervention the children's average scores in the fourth grade were below the national norm of seven months and one year respectively in the two schools. However, when the first cohorts of pupils taught with the new programme reached the fourth grade they found themselves, not below, but above the national norm, by seven and six months respectively. One of the schools had progressed from a ranking of 17.5 out of the 24 schools of the region to rank 5 and the schools ahead of it were all from a higher socio-economic level. Of course, part of this success was not due to the phonic method per se, but to the enthusiasm and sense of education of Blachman and of the school teams. In the same way many remarkable educators are found amongst those advocating the global method. I am not discussing the commitment, intelligence and sensitivity of either group but the quality of the methods they apply.

The phonic method the best, but how?

The problem is not knowing whether to teach the alphabet code or not, but how to teach it.

In the 1940s the linguist Bloomfield proposed working on little groups of words ('Dad had a map. Pat had a bat. Nan had a fat cat. A fat cat ran at a bad rat.') so as to maximise the chances for a child to discover the alphabet principle for himself or herself[19]. This procedure, which we may call 'implicit phonic', does not have to be followed, since […] the child does not discover the alphabet principle without explicit instruction in phonemic analysis and of the grapheme-phoneme correspondences.

The phonic method, when well used, does not make less use of the child's skills than the global method. The child's first task is to understand the alphabetic principle. Without that understanding there is no progress (other than in exceptional cases) in reading. Understanding of the alphabetic principle enables the learner to acquire a set of simple rules for correspondence and to use them, provided that he or she also can also fuse them phonemically when reading short words. However, the child is faced also with a series of situations in which the association of a phoneme with a letter without taking into account the adjacent

letters does not guarantee the correct pronunciation of the word. A relatively large number of contextual rules determines the pronunciation of many words. Some of these rules may be made explicit, but this is not an intrinsic feature of the phonic method. In fact it is probably less effective and more boring to teach children a large number of contextual rules than to lead them through practice in reading to build up units longer than the letter by which ambiguity of pronunciation is resolved.

The problem of the extent to which contextual rules must be taught is only one of the many questions posed by the implementation of a phonic method adapted to the child's learning abilities. Should the names of the letters be taught, or only their 'sounds'? In what order should we introduce the correspondences between graphemes and phonemes? Should the child be trained to fuse consonants and vowels? Should the correspondences be taught apart from the reading of words, or should the two activities be combined? Should one wait for the child to be able to recognise an appreciable number of words before presenting him or her with whole sentences? When, in relation to reading, should spelling activities start?

The answers to these questions are not simple especially as, for most of them, there is not enough sufficiently rigorous empirical data, and also equally reasonable arguments can be made on either side[20]. Often what is useful at one stage of the learning process is less so, or downright harmful, at a different phase.

However it seems more effective to start teaching the correspondences with letters whose 'sounds' can be pronounced individually, for example 'f', 's', and 'm'. Vowels can also be pronounced individually and are moreover amongst the most common letters. As vowels are necessary for creating a syllable, it seems that they should be introduced from the outset even though the vowel letters of the language differ in pronunciation according to context (e.g., 'a' and 'au'; 'e' and 'eu'; 'i' and 'ie'; 'o' and 'ou'; 'u' and 'ui'; […]).

Many children know the names of some letters before they know their 'sounds'. Knowledge of the names can create difficulties in understanding that the letter does not correspond to a syllable but to part of a syllable, which in many cases cannot be pronounced in isolation. In particular consonants which should be taught first, for example, 'f', 's' and 'm', have names which do not start with the 'sound' that they represent. According to the Soviet psychologist Elkonin[21], children who know the names of the letters before learning to read tend at first to assemble the letter names instead of trying to fuse their 'sounds'. For him this is one of the worst habits when learning to read. On the other hand, knowing the name creates a consistent relation to the letter which is necessary when the child must understand later that a letter can be pronounced differently depending on the neighbouring letters.

What should we think of copying exercises? Copying letters at the outset of learning is not a mechanical activity devoid of interest as many maintain. Repetition contributes to motor control and enables the child to consolidate mental representations of the traits of letters, which are necessary to identify them. Associating letters with imaginative pictures also contributes to this. Similarly, in another register, associating gestures and pictures to producing elementary speech sounds enables attention to be drawn to the sounds and their

individuality (*mmmm*…for the enthusiasm of a gourmet for strawberry icecream, *vvvv…* for the noise of a jet, *ssss*… for the hiss of a snake, *rrrr*… for the terrifying roar of a lion, etc.).

Knowledge of the abstract identity of letters is a necessary condition for the acquisition of phonological decoding and of spelling patterns. Therefore learning to recognise letters should start very early, probably before formal instruction at school begins. This engages the responsibility of parents and nursery-school teachers. Spontaneous writing activities, starting from the few known pairs of letter-'sounds', should be encouraged as they contribute to the understanding of the relationships between the written and spoken form of words. With these activities, the pre-reading children are in fact making phonic discoveries. A certain amount of tolerance is needed towards the inaccuracy of these spontaneous written productions. The situation is not comparable with the one I criticised above concerning the encouragement of guessing which accompanies learning by following the global method. Spelling errors are far from being as serious as errors consisting in attributing the wrong name to the letter, not only because bad spelling has never prevented 'good' writing (frequently cited examples in this respect are Stevenson, Hemingway and Agatha Christie) and because it is a lesser evil when computer spelling checks are used but also because these errors tend to disappear in most children as soon as their experience with reading expands.

What relationships should be established between decoding and meaning? Correspondences may and must be learned within the context of words. Not only can the child's interest be captured more easily but the phonic exercises with words also help to focus the child's attention on each letter of each of the words and thus to create a mental representation of their spelling patterns. Copying and writing words which have just been learned to dictation reinforce the representations of their spelling patterns.

It is essential that the texts given to beginner readers at the very start only contain words whose spelling is regular and, as far as possible, depend on simple rules. Excessive discrepancies between phonic lessons and correspondences encountered in texts run the risk of disturbing the child and preventing him or her from absorbing the teaching. Phonic teaching and the reading of words and sentences must interact in a positive way.

Exercises on digraphs and trigraphs such as 'ou' [and 'igh'] are necessary to correct the idea of a simple relationship between letter and phoneme. After having discovered that a phoneme may be represented by a group of letters, the child can build orthographic representations of units larger than the phoneme (rime and syllable). Exercises consisting of fusing phonemes, necessary from the outset to establish the decoding procedure, may contribute to the building of these intermediary orthographic representations as long as the fusion exercises are carried out on written material.

Let us see how these relatively sparse suggestions can be put into practice. The ideas that I present below come from the book *Facts and Fads in Beginning Reading: A Cross-Language Perspective* published in 1988 by Dina Feitelson, who was Professor at Haifa University until her recent death[22]. In the book which

renders a valuable service to the cause of reading she describes the so-called Viennese method of learning to read[23], a striking example of the possibility of teaching the alphabet code within a reading context which is both meaningful and relevant to the life of the child.

In this method, letters are introduced one by one and identified by their ‘sounds’. However, there is never a letter or syllable without a meaning. All the material imparts meaning. Thus the first pages of the 1964 manual concern the letters ‘A’ and ‘M’. ‘MAMA’ (‘mum’) is written next to the picture of a young woman and in other illustrations we see mum engaged in a series of activities. For example, for mum cooking, ‘MAMA’ is followed by the word ‘AM’ (‘to’ in German). This sequence of words may, by varying the illustrations, represent many different sentences at the initiative of the teacher or the child himself or herself. We are very far from ‘A fat cat ran at a bad rat’. The situations are very close to the life of the child who can already become active and productive after having learned only the phonemic correspondences of two letters.

The third letter presented is the vowel ‘i’, always pronounced /i/ in German, which helps form ‘MIMI’ (a girl’s name), ‘IM’ (‘inside’ in German) and ‘MAMI’ (another way to refer to mum). Now, with only three different letters, and still with the help of illustrations, one can form an enormous number of phrases: ‘Mimi is in bed, at the window, mum is in the kitchen or in the shop’, etc. The distinction ‘MAMI-MAMA’ furthermore enables attention to be focused on graphemes to bring out subtle differences in processing when naming the same object. Attention to the order of the letters is as indispensable as the identification of the words.

In this method, the learning of the correspondences neither precedes nor follows the learning of written words and their meaning. All levels of representation are activated at the same time, although the child only starts by knowing one consonant and one vowel, then one consonant and two vowels, and then (through the introduction of ‘T’) two consonants and two vowels, and so on. At the beginning, only capital letters are used, which allows reduction of the memory load. The child can concentrate on the process of fusing phonemes that leads to the recognition of words. The names of the letters are only provided to the child in the second year. As an author at the beginning of the twentieth century noted, with this type of method, the child is initially taught only about ‘what letters can do’ [their sounds].

In a more recent version of this method (dating from 1978), the central character is ‘MIMI’, a paper doll with mobile arms and legs, which the child receives together with the textbook and which becomes his or her friend in a whole series of games before teaching starts. Many little stories are based on the actions of ‘MIMI’ and other characters.

Dina Feitelson observes that this type of method is also used in other languages such as Finnish, Russian, Malay, Hebrew and Arabic. In one of the first pages of an Arabic textbook we see Bad’r thumping his sister Rabab (a situation well-known to many sisters in all countries), and this image is described with only three consonants and a vowel. We could think that this type of method is only usable in languages with a transparent orthography. This is not true. We could easily

imagine adaptation into French, which would start with ‘M’, ‘I’ and ‘A’. This would enable the writing of ‘MIMI’, ‘MAMI’, ‘AMI’ (‘friend’) and ‘MA’ (‘my’).

This method is characterized by the fact that the child proceeds by synthesis: the correspondences are taught directly and are used to form words. Several studies suggest that ‘direct-synthetic’ methods are more effective than the ‘indirect-analytic’ ones that start by presenting words with a view to an increasingly fine analysis down to the letter-‘sound’ level. A requirement of the ‘direct-synthetic’ methods is that the phonemic fusion skill comes into play each time a new correspondence is learned. There is no reason why this crucial reading skill should not be involved and automatised from the start. It is essential not only for phonological decoding but also for forming spelling units larger than a letter. In this respect, Feitelson distinguishes between ‘final fusion’ (/m/ /a/ /s/ /k/ /o/ /t/: mascot) and ‘successive fusion’ (/m/ /a/ /ma/ /s/ /mas/ /k/ /mask/ /o/ /masko/ /t/ /mascot/: mascot). She suggests that the child who has had enough opportunities to learn the results of fusions at the same time as individual letters can adopt a decoding procedure which is much less demanding for the memory, and much faster (e.g. /mas/ /kot/ /maskot/: mascot).

The phonic method is the supreme route to phonological decoding and in this respect it creates the conditions for independent reading better than any other method. This does not imply, however, that beginner readers should be left to their own devices. Individual monitoring is necessary to monitor children’s progress and detect their difficulties. Based on her experience, Feitelson suggests that teachers replace the reading system of the child in a group by a system in which the teacher listens to the child read in a one-to-one situation. Even when there are very large classes (from 35 to 40 pupils) each child could be heard at least twice per week. A recent study carried out in the United States on five individual monitoring programmes appears to confirm the effectiveness of this suggestion[24]. Moreover, the positive effect of individual monitoring is greater when it is carried out by qualified teachers than when it is done by para-professionals. It also seems that individual monitoring is much more effective than reducing the size of the classrooms (an experimental measure introduced in certain schools in Tennessee, New York City, Toronto and Indiana), although the cost of the two alternatives is comparable.

The use of the principles of the phonic instruction within the framework of a method such as the Viennese method is of course no guarantee of success. It does not cancel out any of the phonological deficits a child may have any more than it cancels out the habitual machinery of selection by schools. A longitudinal study from the second to the eighth year of schooling covering 458 Viennese children showed persistent phonological decoding problems[25]. Children who show such problems are weak readers from the start; they do not read outside school and do not take advantage of free time at school to read. Moreover, they benefit less than the advanced readers from reading time in school because they read more slowly. All this contributes to the creation of gaps which become ever wider. This is cultural selection. It is interesting to note that, as far as performance is concerned, the most glaring difference between these children concerns skills of phonemic analysis. Only an educational policy, more exactly a re-educative and even preventative one, which goes beyond the simple choice of a phonic method for the whole class can counteract this cultural selection.

Preparation for reading

Many parents ask at what age children are able to start reading. For children with a normal cognitive and linguistic development, the answer is probably that they can start learning to read well before starting primary school. Bruce Pennington and his team from the University of Colorado studied an early reader who was able to identify letters and to read several words at 12 months[26]. At the age of three he was reading story books as fast as children from the second and third year of primary school. He could read pseudo-words and irregular words as easily as regular ones. He thus appeared to have the two procedures for recognising written words. Apart from the precocious nature of his reading nothing else seemed 'abnormal' about him.

This case is of course not typical of the great majority of children. We can say however, that from the strictly cognitive point of view, most children can learn to read from the age of about four, or even three. Cognitive capacities must not, however, constitute the only criterion. In respect of reading efficiency there is no point to a child learning to read before the age of five or seven when British and Scandinavian children respectively start. Unless we want to put children to work in early childhood (pretty unthinkable, given our moral values, or at least so I hope), there is no social advantage in learning to read earlier than usual. It would be sad for parents to promote early learning just to calm their anxiety or to satisfy a misplaced pride. I do not therefore consider it justified to change the law on the age for starting reading. This said, if young children under the age of five want to learn to read of their own volition and are not pushed by their environment they should not be discouraged from doing so.

Should the child be prepared for reading, at home or at nursery school? The question must be split in two. A distinction can be made between a relatively general preparation and a more specific preparation.

Children from an average or high-level sociocultural background usually find the best possible general preparation in their daily experience. They hear a rich language and are bathed in a literary environment. […] The problem therefore rather more concerns children from disadvantaged backgrounds. Can nursery schools do anything for them? It is part of their responsibility to help reduce the gap in the general level of preparation for school and in particular for reading, which separates the 'rich' children from the 'poor' ones.

It is important to talk to children, to make them talk, to put them in situations where they search for knowledge, process information, solve problems, critically evaluate actions and judgments and, above all, to read, read, read to them. I have already had occasion to emphasize the importance of adults reading to children. Here I give a supplementary example which concerns the particular situation where children who have to learn to read in a language (or dialect) that is not the one spoken at home or generally in their life outside school. In 1993 Dina Feitelson and her team published a study on Arabic children living in Israel[27]. Their maternal and usual dialect is ammiyya but they have to learn to read in Fusha, 'literate' Arabic, the language of the Koran and of classical Arab literature. Learning Fusha is not only important for religious and cultural reasons; the language also serves to unify people speaking various vernacular languages. The

problem for the Arab child comes from the fact that ammiyya and Fusha are very different (from the point of view of phonology, vocabulary and syntax) and that they know little of the official language. The difficulties encountered by children in the Arab schools are considered to arise in part from this situation.

The first stage of the work carried out in Haifa University found that only 2% of the Arab families in Israel read books to their children of nursery school age. In six families out of ten, parents tell stories that they remember from their own childhoods. A more recent study had stories read every day by Arab teachers in Fusha to 258 children in the last year of nursery school. The tests carried out before and after showed that these children progressed much faster in comprehension of spoken language and in producing stories orally in Fusha than children in another group which had followed the official general linguistic programme. It is thus possible to start immersion in the official language successfully before reading is started in that language. The effects on learning to read were not tested, but it is probable that they would also have been very positive. Acquisition of the second language, at first spoken and later also written, takes place without abandoning the first language.

This situation is paradigmatic of all the cases where differences in dialect might handicap the child in learning to read. Preparation for the language used at school must be envisaged in these cases, as well as for all children generally, through reading aloud by the teacher. Furthermore, the teacher must be trained so that he or she is sensitive to the situation of child who speaks another language or dialect.

In Israel, where the Arab community has national aspirations, teaching in the Arabic language responds as much to these aspirations as to the Israeli wish not to integrate the Arabs. The bilingual question is also posed in other countries, but in some cases without any convergence of interests. In the United States or in Germany, for example, schemes for putting children whose mother tongue is Spanish or Turkish into primary schools in their mother tongues may have to do with a policy for non-integration of immigrants and thus social exclusion, which does not serve their real interests.

The study of the Haifa team suggests that there is no cognitive justification for not teaching reading in a language other than that used at home. Another study carried out in the United States on Spanish-speaking children in the first grade of primary school showed that it is possible to transfer the phonological skills necessary for learning to read from one language to another[28]. These children were taught in Spanish but started to learn English orally. Their performance in a task involving the learning of English pseudo-words followed by English words combining the onset and rime of different pseudo-words (e.g. ‘ball’ would be formed from ‘ber’ and ‘nall’) showed important positive correlations with their phonemic analytic skills in Spanish and with their capacity to read in Spanish. In other words, children who were more advanced in phonemic analysis and in reading words in Spanish found it easier to decode English words. As long as children develop their oral knowledge of the non-mother tongue there is no reason to place them in a special system for foreigners when learning to read.

The second type of preparation for reading which I alluded to above is preparation for skills specifically linked to reading and which can be seen as contributing to its learning. Amongst these skills, explicit phonemic analysis is the most important. Should the child be prepared for reading by trying to teach him or her phonemic analysis as early as nursery school?

My answer is no, for ideological rather than scientific reasons. Learning phonemic analysis is also learning to read, as the two skills are inseparable. It just means starting to read at nursery school. I share the arguments developed by Feitelson against the early training of the 'underlying skills' of reading, i.e. essentially of teaching the correspondences, phonemic analysis and fusion. Focusing on these underlying skills can only widen the gap between children from advantaged and disadvantaged backgrounds. The former continue to be exposed to positive stimulations from their background, whereas the latter remain with limited access to such stimulation. Later on, when decoding has been taught to everybody, the missing exposure to linguistic experience in children from culturally poor backgrounds will be felt and may risk hindering the development of reading ability and its use in acquiring knowledge. Time at nursery school must not be wasted with what will in any case be taught at the start of teaching in primary school.

Training in phonemic analysis is premature outside the learning-to-read situation, but this does not have to lead towards eliminating any meta-linguistic activity from nursery school. On the contrary, one of the aspects of linguistic development is the growing capacity to think about language. It is useful that in nursery school children are made sensitive to the 'well formed' or 'badly formed' character of phrase structures, morphology and the fact that spoken language has expressive properties and is made up of sounds. We have seen that the capacity to analyse the spoken word into syllables is usually present in children of four and five before they read or write. The teacher must pay attention to the presence or otherwise of this capacity in the children in his or her class. Early help or a more intensive training in phonological skills at the start of learning to read can be useful for children at risk.

Against the medicalisation of reading difficulties

For those who think that deficient reading (dyslexia) is an illness, the remedy is seen to lie not in adapted support but in … medicine. But let us be more correct. Many neuropaediatric doctors, while sharing a coherent approach with their medical training, see medication merely as a complement to adapted support.

The history of the use of drugs [for 'altering the mind'] in order to 'treat' dyslexia is long and varied[29]. There have been megavitamins, anti-histamines (it was believed that there was a lesion in the cerebellum and vestibular apparatus) and psycho-stimulants (amphetamines, in particular). There has even been chiropractic treatment (as it was believed that there was damage to two cranial bones). It may be instructive to examine some of these attempts at helping children with dyslexia in slightly more detail.

Let us start with vitamins. At a congress of the Association for Children with Learning Disabilities held in Atlanta in 1981, a speaker described a lengthy study of deficient child readers to whom doctors had prescribed large doses of vitamins.

A good number of those children were reported to have made progress at school according to the analysis of the data … which were collected over the telephone! According to the speaker, this 'solid and incontestable research, as well as an enormous quantity of clinical data, demonstrate that megavitamin-therapy is the treatment of choice for learning and behaviour problems[30]'. No comment! After all, we must respect freedom of speech. Much more serious is the use that the media, probably influenced by other interests, make of some results published in medical journals. Thus, in 1988 the journal *Lancet* published an apparently well-run study reporting the improvement in non-verbal IQ following vitamin treatment of 30 children for 8 months[31]. The press and television gave the results enormous coverage. Give our children huge doses of vitamins to make them more intelligent! But the media did not give the same coverage to another article which appeared a little later in the year in the same journal: a study based on five times as many children which gave no positive results[32]. This publicity campaign did not help to boost intelligence; it rather served to boost sales of vitamins and thus to make money for vitamin companies.

For years nutrition and dietary research foundations in the United States and the United Kingdom devoted a lot of attention to working out a diet based on vitamins and mineral salts which would be most suitable for the child with learning difficulties. How much money and time could have been better directed towards education and adapted support! Sick children who have metabolic deficiencies or who do not eat properly may need a supplement of certain fatty acids, mineral salts or vitamins. But even if we exclude these cases which are rather exceptional in our countries we cannot help thinking of other parts of the world … In Rio de Janeiro, for example, the authorities distribute meals for the schoolchildren of the 'favelas' (shanty towns). This treatment, which I would not dare to call a dietary treatment, should certainly contribute to improving their mental state, besides contributing to a boost in school attendance.

The scientific bases for treating reading difficulties with antihistamines are no more solid than those underlying vitamin treatment. Antihistamines were advised by an author who attributed a cerebellum-vestibular deficit to dyslexic people[33]. This kind of problem was reported to be shown by symptoms similar to sea sickness where the text might give the impression of swaying. There is, however, no confirmation of this symptom and no neurological evidence for its origin[34]. According to that author, nearly 90% of the dyslexics treated with antihistamines had showed signs of improvement. But these results came from information given by the parents. At any rate the studies reported did not include the necessary controls for placebo effects.

With regard to treatment with psycho-stimulants, in particular with methylphenidate, seven out of eight studies showed no long-term effect[35].

Today piracetam is in vogue – a psychotropic on sale in 85 countries, essentially used to treat memory deficits in the elderly. In Belgium, for example, a medicine based on piracetam, which costs about [12 Euros] for only a dozen or so days, has been reimbursed at 40% since 1989 by the Social Security funds for the 'treatment' of dyslexia on condition that the dyslexic also consults a speech therapist (logopède)[36].

The exact way in which piracetam works is unknown. It is thought to act on ATP which governs energy transfers in the brain, favouring oxygenation and micro-circulation. The results of several methodologically serious studies do not allow us to conclude that groups of deficient readers treated with piracetam make greater progress than placebo groups [37]. In any case, this drug does not seem to have an effect on the reading of isolated words. This is hardly surprising given, on the one hand, the highly specific nature of this functional problem and, on the other, the apparently global effect of the drug. At the very most (but this remains to be confirmed) it might have an effect on reading speed and perhaps also a slight effect on comprehension levels. Furthermore, it is unknown whether these effects are long-lasting.

Methods of adapted support for readers with difficulties

Tinted lenses may be prescribed by ophthalmologists as a treatment for reading difficulties; I shall not revert to that nonsense. Certain ear, nose and throat specialists are involved here too, the most famous case being that of Alfred Tomatis, whose ‘electronic ear’ was sold in great quantities (with official approval!) in France, Belgium and even in Canada. This apparatus was designed to effect ‘audio-psycho-phonological’ training for dyslexics and was based on the idea that dyslexics have problems in hearing, especially at high frequencies. Auditory stimulation was combined with vocal exercises. A serious scientific study carried out in Canada showed absolutely no advantage in this method compared to a placebo treatment[38].

It would be taxing for me as well as for the reader to draw up an exhaustive inventory of the proposals for intervention from psychologists and speech therapists. For a long time, work on laterality (going as far as to bind a recalcitrant left hand or to bandage a dominant left eye), and the sense of rhythm or visual perception have been the subjects of belief in this field. I shall consider here only one method of intervention which dates from the beginning of the 1970s and which looks very promising to me, perhaps because it developed in the context of an approach to reading in terms of the relationship to speech and phonological structure.

This method insists on inducing an awareness of the articulatory movements and on relating them to the perception of speech sounds and their graphical symbols[39]. Patients’ attention is drawn to what they do to produce the various elementary ‘sounds’, for example by making them watch the shapes that their lips make in a mirror when pronouncing a ‘p’ or a ‘b’. Each ‘sound’ can then be represented by a drawing of the mouth or of the vocal tract and coloured blocks can be used to represent the number, order and identity of the ‘sounds’ which make up a given word. The coloured blocks are then replaced by letters. A recent study (carried out by a research group in the State of Florida) conducted on 10 children with serious reading deficits showed that after an average of 65 hours of this type of intervention the children made very good progress not only in metaphonological skills (which is normal, given the nature of the training) but also in the reading of pseudo-words. Furthermore, there seems to have been a certain generalization of this phonological decoding skill to the reading of real words[40].

It is clear that the acquisition of the concept of the phoneme may be stimulated by this type of technique, which is based on justified theoretical foundations. However, it would be artificial to use such a method to prepare for reading. It can be useful when combined with the first steps of phonic reading instruction for any child on condition that too much time is not spent on it – time that is precious for reading itself. Above all, this type of method can be extremely useful in helping beginner readers at risk for phonological deficits in individual sessions and in helping children with specific reading difficulties who have a phonological deficit.

In general, for every perceptual or metaphonological exercise that is combined with teaching the alphabetic code attention must be drawn to the intrinsic link that these exercises have with reading or writing. Thus tests consisting in counting phonemes or inverting phonemes may reflect the subject's ability to carry out operations on phonemic codes but these operations do not occur as such in reading or writing. It would therefore be inappropriate to conceive of exercises of this type for intervention. Conversely, an attempt to produce the phonemes of a word separately as well as to fuse phonemes is much closer to what the child must do when he or she starts learning sequential phonological decoding.

Many readers with difficulties have good comprehension skills for the spoken language at the same time as great difficulties in recognizing words - the majority in phonological decoding. For these children, the reading comprehension level is a kind of compromise between these two capacities, with weakness in decoding being partially made up for by their cognitive capacities. One can hope that remediation for decoding skills and more generally for their overall phonological skills would be very useful to them. Remediation for readers with phonological deficits is not easy but it is not impossible. The specialist must bear in mind that his or her efforts, if they are to be productive, are highly gratifying both for the reader with difficulties and for him or herself. Indeed, when there is no additional cognitive deficit, once the phonological barrier is passed the level of reading can be very high.

Other children have important deficits both in decoding and in their general cognitive level. Their deficits in decoding cannot be partially compensated for and consequently their level of reading comprehension is weaker than in those of the former group. One has to work at the two skills at the same time in order to help them.

The computer in learning to read

It is not necessary to debate the increasing place of computers in our working life, at home and … of course, in schools. Computers can help the pupil and the teacher and their role in learning to read in particular is and will become even more important.

The most sophisticated programmes for computer-assisted reading and writing use a text – spoken-word conversion technique to help the reader to develop his or her knowledge of words and comprehension of texts[41]. Speech produced by the computer can come either from stored samples of natural speech which has been digitalized or from synthesis by the computer. Computer-produced speech is generally of high quality. For example, with the DECtalk programme marketed by

Digital Corporation, which is the most widest used by researchers working on literacy, readers with difficulties as well as normal readers obtain recognition levels of about 94.5%, which are barely below the recognition levels for the same words in natural speech (98.5%)[42].

One of the first studies carried out on the use of ‘speaking computers’ in teaching reading was published by Richard Olson and his team from the University of Colorado in 1986[43]. Readers with difficulties were required to read stories on the computer screen during two sessions of one hour each. During the first session, they targeted the difficult words and those were immediately highlighted and pronounced by DECtalk. The second session proceeded like the first one, except that the targeted words were no longer pronounced. It was found that the information for pronunciation supplied during the first session enabled better learning of the targeted words and improved the level of comprehension of the stories. Generally, the children said that they wanted to continue to read with the tool.

Long-term studies of training were also carried out using a data-processed dictionary of over 20,000 words[44]. The children who had replaced part of their usual learning programmes by half-hour sessions on computers for one term made more progress in reading pseudo-words than those who had followed the usual learning programme. Compared to the control group, the experimental group made four times as much progress in the reading of pseudo-words and twice as much progress in the reading of real words.

What is more, the greatest individual progress was observed in children who received the most supervision and encouragement from the experimenter. This suggests that the computer does not replace the teacher but that the assistive help provided by the computer in a situation of independent reading, together with the explanations of the teacher, combine in an efficient manner.

What are the advantages of using talking computers? As we have just seen, children who have difficulties in recognising written words, especially in decoding them, can obtain the pronunciation of the unknown word with a minimal delay. They then no longer have to guess by relying on the context. Thus reading without the direct support of the teacher no longer risks becoming a source of frustration and subsequent lack of interest in reading because of the excessively high number of unknown words. Assisted by his talking computer, the beginning reader can develop a feeling of independence, confidence and competence. The computer is not seen as a judge or censor by the child who is making mistakes. He or she can admit his or her ignorance. However, in order to benefit from this help, the reader must be aware of its deficiencies, an awareness that can progressively develop during the course of the inter-active process established with the computer.

At the cognitive level, the co-occurrence of the written and spoken forms of words can contribute to the reinforcement of the association between their orthographic and phonological mental representations. Moreover readers can also target unknown words and immediately obtain information on possible meanings and derivations. In other words, the reader is faced simultaneously with the four most important types of information (orthographic, phonological, semantic and

morphological) relating to each word for which there is a particular type of difficulty.

A possible learning technique for reading consists of presenting a word on the screen after which the subject tries to read, possibly aloud. The subject then asks the computer to pronounce the word in question and can compare his or her own pronunciation with the correct pronunciation supplied.

Several studies have been carried out on the type of segmentation of written words and of their phonological forms which can contribute to the best way to learning them[45]. Thus, when the reader targets a word, for example, ‘READER’, the computer can either highlight it in its entirety and produce its name in one go or else highlight it in parts, from left to right, and ‘pronounce’ these parts one by one. The parts may be ‘syllables’ which conserve the morphemic structure (READ-ER), onsets and rimes (R-EA-D-ER) or graphemes-phonemes (R-EA-D-E-R). The results of this comparison with first and second-year primary school children showed that presentation by grapheme-phoneme leads to markedly lower scores than those obtained under other conditions.

This is essentially due to two factors. We have already seen that each attempt to pronounce an isolated phoneme, when dealing with the voiceless consonants [corresponding to ‘b, ‘d’, and ‘g’], resembles the pronunciation of the name of the letter, except that the pronunciation of the ‘sound” ends with a neutral vowel with little energy. For example, we say ‘beuh’ instead of ‘bee’, but the phoneme /b/ can never be pronounced in isolation. As the fusion which takes place in decoding is a fusion of phonemes, that is of abstract representations, and not of sounds, any attempt to fuse sounds ends in failure (‘keuh’+’aah’+’teuh’ gives ‘keuh-aah-teuh’, whereas it should read ‘cat’). Pronunciation by the computer (or by the reader aloud) of each elementary sound thus recreates a situation that supporters of the phonic method fear. Attempts to pronounce a word phoneme by phoneme can only disturb the child.

The second factor which has contributed to poor results obtained with the presentation of graphemes-phonemes is linked to the fact that this type of presentation implies a decoding process called ‘final fusion’. Such a process implies keeping in memory a large number of elements before being able to perform a series of fusion operations afterwards. Intuitively, this seems counter-productive, and the results obtained with talking computers confirm it. The conditions should allow the fusion to be made each time it can be done, and so that each fusion operation only includes two elements.

The ineffectiveness of ‘final fusion’ must not be interpreted as calling into question any form of decoding. This discussion shows that when one opts for the phonic method one is still far from having made the right choice. Any one application of the phonic method is not necessarily right; some can be downright harmful. The talking computer can be put at the service of the best versions of the phonic method. Thus the Viennese method described above may be easily simulated on a computer. A programme of this kind, exploiting a bank of pictures as well as the possibility of manipulating the letters easily, could enable the exchange or substitution of letters (whilst keeping within in a meaningful context) so that the

reader can compare the effects of these transformations on the pronunciation of the whole word.

Progressive fusion can also be simulated on a computer. For example, for the word ‘pit’, the computer would highlight ‘p’ first and then ‘pi’, and would pronounce [pi]; then it would highlight ‘pit’ and would pronounce [pit]. More detailed studies would enable it to be determined whether the apprentice-reader passes through this type of sequence in learning, or whether he or she simultaneously makes the various fusions within the same syllable. As one sees from this example, the use of talking computers in experiments involving this type of manipulation can help to solve questions which are both theoretical and practical.

Long-term training experiments carried out show that amongst seriously deficient readers, syllabic division leads to better results in reading pseudo-words than whole-word pronunciation[46]. In these children phonological decoding is probably made difficult by the absence (or insufficient development) of mental representations of the syllabic boundaries in a sequence of letters so that when the computer marks these boundaries these deficient readers are greatly helped. Attractive games could be specifically designed to stimulate the composition and processing of orthographic and phonological units that are intermediate between the letter and the word. A programme for the automatic processing of groups of letters in words has already been in existence for several years (SPEED). It uses a game based on ‘motor-racing’. The reader must indicate as quickly and precisely as possible whether or not a polysyllabic word contains, for example, the unit ‘ga’ (as in the word ‘alligator’). As the child gains skill the programme presents larger and larger units.

It is easier to set up programmes incorporating correction information in learning to write than in learning to read. In writing, the computer starts by dictating each word that the child is supposed to write[47]. Once the child has pressed the keys of his or her choice, the computer displays this response on the screen and highlights the letters which are correct. Given the possibilities for word-synthesis which enable the production of sounds corresponding to any acceptable combination of vowels and consonants, the computer can also ‘tell’ the child how to pronounce what he or she has just written, so that the child can evaluate the exact nature of his or her mistakes. He or she can thus hear the difference produced by changing ‘bin’ to ‘pin’.

Barbara Wise and Richard Olson have used a programme of this type, called SPELLO, to study teaching possibilities for readers with difficulties[48]. Each of the participants has several commands. By targeting a little rectangle marked ‘Repeat’ on the screen they can hear the word to be written as often as they want, and on targeting ‘So Far’ they can check the pronunciation corresponding to their choice. If the child’s choice does not contain any vowels, which makes the sequence of letters unpronounceable, the computer asks, ‘Please add A, E, I, O, U or Y so that I can pronounce what you have written’. When the child correctly writes the word requested, the computer says ‘Well done!’ and awards 100 points (with 90 for a correct response at the second attempt, and 80 at the third attempt).

The study of Wise and Olson showed that the children who worked under these conditions behave differently from those who did not receive interactive

responses. The former worked faster and asked for information more often than the latter. The authors also evaluated the effects of writing training on the reading of pseudo-words. The progress made was much greater where there was interactive feedback, which suggests that this situation helps children to draw attention to the systematic relationships between graphemes and phonemes.

Research into the best possible uses of computers in the learning of reading and writing is still in its infancy but it will doubtless surge ahead in the years to come. Collaboration between psychologists, teachers, specialists and IT professionals is mandatory for developing tools that are tailored to learning capabilities, and which are motivating and user-friendly.

Family and school

Learning to read is a play for three actors. The main protagonist is of course the learner and yet it seems as if the other two, the family and the school, do not see it that way. In a study by Barbara Tizard, only 12% of the parents and 16% of the teachers who were interviewed considered that the child was the main factor for success or failure. Teachers tended to attribute the greatest part of the responsibility to the parents … and vice versa[49].

Parents and teachers are right to minimize the child's role, for in the current situation they bring, despite themselves, all their social and cultural weight to the child's future. The child who arrives at the threshold of formal reading is no longer, as we have seen, an innocent, but neither is he or she yet a liberated agent. The child is one or the other to very different degrees. Depending on the child's knowledge of letters, their shapes, their 'sounds' and their role, children take their place in a long queue and, as a general rule, the teacher tries, without intending to, to keep the child's place in the queue. The child who can already read will receive books, whereas the child who cannot yet write his or her name will still have to get to grips with paper and pencil. Teachers do not suspect that what they think is a measure based on common sense in fact prolongs a prior discrimination. The queue stretches over the years with tortoises seeing the hares ever ahead of them.

And yet, for parents as well as for teachers, there is another way to influence the future of the young reader. Appropriately informed parents can better prepare the child; and properly trained teachers can give extra attention to disadvantaged children and put catching-up strategies into place. Today parents and teachers tend to reject their responsibilities to each other. If they were to assume their own responsibilities they would become responsible in a different way. They would then give back the main role to the young reader if they ceased being the instruments of a mechanism for cultural selection and started to be really responsible.

Recognising this role is both to facilitate the acquisition of the cognitive processes implied in the art of reading and to guarantee the freedom to exercise that art. As we have seen, many children no longer like reading after nine or ten because reading is no longer an adventure into the imaginary world but just a way to satisfy the requirements for success. Reading at school or for school quickly turns into something obligatory and into a pure demonstration of knowledge. Parents

are accomplices in this very pragmatic enterprise. Reading is the opposite. It is eating and breathing. It is also flying. Teaching to read is teaching children a technique for flying, showing them the pleasure of flight and enabling them to practise it. If the birds had not enjoyed flying, they would have let their wings drag and walked on foot. But with humans as with birds the pleasure taken in natural acts lies in the genes. Conversely, the pleasure of reading is our creation. This pleasure is therefore our responsibility, just as much as reading itself.

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