Teaching reading to teach talking - important new evidence

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Abstract - 1995 may turn out to be a landmark year in which attitudes to teaching children with Down syndrome to read finally change, due to the publication of a book and two research papers. Earlier this year, Patricia Oelwein's book, 'Teaching Reading to Children with Down Syndrome' was published in the USA. In the next issue of Down Syndrome Research and Practice, two papers will be published by psychologists at The Sarah Duffen Centre. The first reports the initial findings of a longitudinal study of the reading progress of 24 children with Down syndrome, all at mainstream schools in our local area . They are all learning to read and showing steady progress with age. The second, compares the progress in language and memory development over four years of 7 children with Down syndrome who have learned to read during that time with 7 who have not and provides good evidence to support the view that teaching reading really does teach talking and improves both visual and auditory short-term memory.

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Introduction

1995 may turn out to be a landmark year in which attitudes to teaching children with Down syndrome to read finally change, due to the publication of a book and two research papers.

Practical evidence

Earlier this year, Patricia Oelwein's book, Teaching Reading to Children with Down Syndrome (1) was published in the USA. This is a practical guide for teachers and parents, giving a clear programme for teaching children to read and full of creative ideas for lessons. Its authenticity comes from her 23 years of teaching experience and from the stories of the progress of many individual children that she has taught, which she uses to illustrate her advice.

Patricia's views on reading are the same as ours at The Sarah Duffen Centre - that most children with Down syndrome can learn to read to a level that will have practical benefit for them and that reading will improve their spoken language skills. While 25 years ago, it was only a tiny minority of children with Down syndrome who learned to read, this was due to professional ignorance. As Patricia states ‘Not only was research on reading for these children virtually non-existent, but opportunities for them to learn to read were virtually nonexistent as well. Now in the 1990’s, I think that it is the non-reader with Down syndrome who is more apt to be the exception’.

Research evidence

In the next issue of Down Syndrome: Research and Practice, to appear in November, two papers will be published by psychologists at the Sarah Duffen Centre. The first, by Angela Byrne and colleagues (2), reports the initial findings of a longitudinal study of the reading progress of 24 children with Down syndrome, all at mainstream schools in our local area . They are all learning to read and showing steady progress with age. The second, by Glynis Laws and colleagues (3), compares the progress in language and

memory development over four years of 7 children with Down syndrome who have learned to read during that time with 7 who have not and provides good evidence to support the view that teaching reading really does teach talking and improves both visual and auditory short-term memory.

Before I discuss these findings in more detail, I would like to put them in historical context and explain the progress in our thinking over the past twenty years.

Background

The title of this article was first used by Leslie Duffen in 1974 in a booklet that he wrote which was published in England by the South East Branch of the Down's Babies Association (4). In this booklet, Leslie described the way in which he had taught his daughter Sarah to read, beginning when Sarah was only 3½ years old. Leslie taught Sarah by using a 'look and say' flashcard approach. While teaching Sarah to read Leslie made two observations, firstly that Sarah found learning the words on flashcards easy even though she was only just beginning to talk at that time and secondly, that it was the words and sentences that she read that she began to use in her speech.

There was already evidence available to suggest that Leslie's experience with Sarah might not be exceptional. For example, in an article published in 1966 entitled The Big Words (5), psychologists in Sheffield described the progress of Jonathan who could read 150 words at 4 years of age. Jonathan's parents had also started to teach him at 3½ years of age and while he only learned 4 words in the first month, after 3 months he knew 37 words, at 6 months 65 words and at the end of the first year 200 words. Like Leslie, they soon used the reading to help the child to build and to understand sentences.

The psychologists, at first sceptical that Jonathan could be doing any more than 'parrot' reading without understanding, ended up convinced that he really was reading and state:

'Comprehension is undoubtedly present and, together with the number of words acquired, singly or in combination, suggests an acquisition as near to ordinary reading as to a simple conditioning of verbal responses to visual stimuli. When it is also kept in mind that Jonathan is just over 4 years of age, with an IQ of 54, the findings do appear rather striking.The experiment has proved a source of great enjoyment to Jonathan and has greatly improved his articulation...The findings presented here therefore seem worth consideration as of potential value in a field where reading ability tends to be very retarded, if present at all and where progress of this kind must be extremely rare' (5).

In 1966 The World of Nigel Hunt (6) was published in the UK. Nigel Hunt had Down syndrome and the book was his autobiography, plus an introduction written by his father, describing how Nigel's mother had taught him to read and the prejudice and ignorance of the professionals that they had to deal with in trying to find Nigel an appropriate education.

At that time it was thought that only the very exceptional child with Down syndrome might learn to read. In the widely accepted textbook on Down syndrome (7) written by Canadian psychologist David Gibson in 1978, he states:

Dedicated parents or teachers have had some success with the brighter Down syndrome child, probably because they have made intuitive adjustments in teaching to accommodate the disability profile of the syndrome and of the individual (7).

While Gibson is probably right about the teaching having been adapted to the learning needs of the children, the use of the word 'brighter' to describe these children is problematic. How do children become bright? Leslie Duffen states:

'My own experience with my daughter Sarah involved many periods of boredom and rebellion. I persevered because I believed in the immense importance of the development of language and its association with the development of 'intelligence'.

Maybe Gibson's 'brighter' children are brighter because they learned to read not, as he assumed, that they learned to read because they were brighter at the outset. As Patricia Oelwein says about Nigel Hunt,

'He was considered the 'exception' to the rule that person's with Down syndrome could not learn to read ... However, I must confess, I do not believe that Nigel Hunt was the exceptional one: his parents were the exception'.

So, by 1980 when Leslie Duffen drew my attention to the possible significance of reading, we already had a number of interesting hypotheses:-

1. that children with Down syndrome can learn to read from the age of 3 years,
2. that such reading instruction will develop the children's speech and language skills,
3. that such reading instruction may make the children 'brighter'.

What evidence do we have on these issues in 1995, 15 years on? Many of our readers will already know that at the Sarah Duffen Centre we have been studying these questions for the past 15 years, thanks to Leslie and Sarah Duffen, hence the name of the Centre.

Early readers

In 1980 we set up our first study and found several children like Sarah and Jonathan. The very first child that we introduced flashcards to, Joanna, learned to read 30 words in a month at the age of 2½ years. Jamie found the task just as easy at 3 years of age. Warren, Trudy, Daniel and Matthew all took a little longer to learn the words but were making steady progress when we filmed all the children in the study in 1983. This study was published 1985 (8) and the film is still available from the Centre (9).

Until 1990, we could only collect case study data as the only pre-school children with Down syndrome being taught to read were being taught at home by their parents, with the help of a pre-school teacher if they were lucky. We did collect many such case studies and they all confirmed the first two hypotheses. Children being taught to read did learn to read and it did lead to better than average speech and language skills. The number of children that we could follow after 5 years of age became even smaller as many of the children went into classrooms where teachers did not believe in the teaching of reading, so their preschool progress was wasted. We know a number of teenagers in this district who left special schools at 16 reading less than they did at 5 years old.

Reading progress

The children who did receive good literacy teaching in school continued to make the progress we would predict. We recorded some examples of such children in a recent chapter which we were invited to write for a new book coming out in 1996 (10). We are aware of many other children making good progress. In just the last month we have seen several junior school children at the Centre who are reading and spelling at an 8 to 9 year level, most of whom started as pre-schoolers and we have seen some current pre-schoolers reading at 3 years of age.

While I am certain that those that start to read as pre-schoolers will gain maximum benefit, both in terms of reading levels reached and in improved speech and language skills, our children will benefit from learning to read at any age. We know a number of competent readers of 10 to 15 years who started to learn in primary school. We have taught teenagers to read and we also know of young adults in the USA and in Ireland who have made good progress when they had the opportunity to learn to read for the first time after leaving school at 19 years of age.

Case studies

While individual case studies such as these are valuable, they do not allow us to generalise about the potential for literacy for all children with Down syndrome. In order to do so, we need to study the reading progress of representative groups of children with Down syndrome over many years.

The groups must include a typical range of children with Down syndrome, not just those that seem more able, and they must all be receiving good reading instruction.

It has only been possible to establish such studies of the reading development from this research centre since 1990, as this was the time when most children with Down syndrome in this area were offered places in mainstream classrooms and so had access to good literacy teaching with their peers.

Group studies

With graduate students, we have set up three longitudinal studies since 1990, one designed to study memory development which included reading measures and two designed to study reading development and its effect on language skills. We are now beginning to publish data on the reading progress of the children in these studies and its significance for their cognitive or mental abilities.

Angela Byrne is following the progress of 24 children with Down syndrome, age range 4 years 11 months to 12 years 7 months at the start of the study, and comparing their progress with a group of their mainstream classmates who are matched with them on reading age, as well as classmates who are average readers for their age. The study is recording the reading, writing and spelling progress of the children, looking at the cognitive strategies they are using to read and at the links between reading, language and memory skills. Angela is now publishing the first set of data from the study (2) and readers interested in the full data can consult the journal article.

Reading ability

All the children with Down syndrome are learning to read and their reading ages range from 5 years to 8 years 5 months. They show uneven cognitive profiles, with reading ages higher than would be predicted from their achievements in other areas. Mean scores for the group on the reading and spelling measures range from 6 years 3 months to 6 years 6 months, while the mean scores for number and language measures range from 4 years 1 month to 4 years 5 months.

The typically developing children identified by their teachers as average readers for their age demonstrate even cognitive profiles over all the reading, spelling, number, language and memory measures, whereas the slower readers for their age in the same classes turn out to be significantly delayed relative to the average readers on all these measures. The children with Down syndrome, while matched with the slower readers on the reading measures, are significantly behind them on the number, language and memory measures. In other words, the children with Down syndrome show advanced reading ability compared to all their other cognitive skills at this time.

Reading progress

When the children with Down syndrome are divided into 3 groups on the basis of age, there is steady progress on every measure with age for the children, though it must be remembered that this is cross-sectional (different children in each group) not longitudinal (same children followed over time) data. We will have longitudinal data for all these children in due course.

For most measures, the gains made by the oldest group (mean age 9 years 7 months) compared to the middle group (mean age 8 years 3 months) are much larger than those made by the middle group compared to the youngest group (mean age 6 years 8 months). The middle group show a mean gain on the reading, spelling, number and language measures of 5.7 months with a 19 month mean age difference. The oldest group show a mean gain of 11.1 months on the same measures and their mean age is only 16 months older. There seems to be a spurt in development here which could be linked to progress in reading and we will be able to be more certain about this as we follow the same children over time.

Reading and other abilities

Glynis Laws has just collected and published (3) another set of data which supports the hypothesis that learning to read develops language and memory skills. She has been assessing a group of children who took part in the memory training study funded by the Trust which started in 1991. We have data on these children collected over a four year period, which includes reading measures. Of 14 children that Glynis has just assessed, 7 are now readers and 7 are non-readers, age range 8 years 8 months to 14 years 10 months in 1995. The children who are reading have significantly higher scores on language and memory measures now than the non-readers, yet four years ago the scores of the two groups were the same.

The 7 children who have learned to read have been in mainstream classes and the 7 who have not learned to read have been in special schools. We suspect that the latter group have not had the same opportunity to learn to read, that is, that literacy teaching will not have the same emphasis on the curriculum in the special schools. It is possible that another difference in the children's experience is that the mainstreamed children have been in a more typical and stimulating language environment than those in the special schools. Maybe this is why they have higher scores on the language and memory measures and it's not just due to reading.

However, when Glynis analysed the scores of all the special school children assessed at the start of the study, those who had learned to read had significantly higher scores on the language and memory measures than those who had not and they are all in the same kind of language environment. So we are beginning to get more evidence of the beneficial effect of learning to read on the development of language and memory skills from these group studies to support the case study evidence.The measures used in these studies were all taken from standardised ability tests such as the British Ability Scales so children who score higher will be considered 'brighter'.

Teaching teenagers

In the two studies of primary age children just described we have measured language comprehension for both vocabulary and grammar knowledge on standardised tests. We have not assessed the children's spoken language skill though we expect that it will be better for the children with better comprehension scores.

From research that I conducted several years ago (11), we do have some evidence that print can be used to teach teenagers to speak in longer and more complete sentences. To my surprise, it was the 'least able' teenagers who benefited the most from reading the sentences during training even though they were the non-readers at the outset. This was probably because these were the teenagers with the smallest auditory memory spans and, without a written 'visual' prompt for the sentences, they could not repeat a six word sentence during the teaching sessions. This illustrates the significance of the poor 'listening' memory span for language learning and may explain why learning grammar and longer sentences is so difficult for most children with Down syndrome if they only have the opportunity to learn from listening to speech. Maybe these teenagers were the 'least able' because their very poor listening memory skills had prevented them from learning.

Starting as pre-schoolers

With Michele Appleton, we are following the progress of 20 children with Down syndrome who are being taught to read from around 3 years of age. Michele is comparing their reading progress over time with a typically developing group of children from a local nursey school and a group of deaf children. This study will allow us to follow a representative group of children to see how they progress with reading and its effects on their early language development. Their parents are doing the teaching and keeping detailed diary records for us.

Conclusions

There is an increasing amount of practical and research evidence to indicate that:

- most children with Down syndrome can learn to read and will be able to read and write to a level that is both useful and enjoyable
- reading instruction will improve the children's speech, language and memory development
- reading instruction will improve the children's scores on standardised tests and lead to them being assessed as brighter

It is important to stress that all the benefits of reading instruction are seen when children are still at the early stages of reading and may only have reading ages of 6 or 7 years on tests. We see the benefits for speech when children have learned only a small sight vocabulary.

The evidence should encourage all parents and teachers to teach children with Down syndrome to read from about 3 years of age. If a child has not learned early, it is never too late to start and we would use the same teaching approach whatever the age of the child, that is,

- read lots of books to and with your child, whatever their age
- teach a 'sight' vocabulary first of words the child understands and can use in everyday talk
- build phrases and sentences and write as soon as possible, so choose 'sight' vocabulary with sentences in mind
- learn letter sounds for initial sounds in words the child can read, and develop 'phonics' for reading and spelling from there
- make daily 'conversation' diaries with a sentence about an activity the child has engaged in during the day so that they can read it at home and at school
- make it meaningful and make it fun!

These are the principles we follow but you can design many games and activities to keep the child's interest. Our books and videos and Pat Oelwein's excellent book all contain more detailed advice on how to teach reading using a language teaching approach. Pat's book has ideas to use with children of all ages and you can purchase copies from the Sarah Duffen Centre.

I hope that this article will encourage you to teach your child and to share this article with teachers. As far as we know, we are the only research group in the world engaged in this kind of research though we know of practitioners and parents in many countries who have tried teaching reading using our approach and found that it works!

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