

# **SPELLIT SUMMARY REPORT**

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## Summary of Research Findings

- Children as young as 7 who have literacy difficulties can be easily identified. The vast majority of children with literacy difficulties show the characteristics typical of dyslexia, but there are important individual differences that make a difference in terms of response to intervention.
- Systematic observation shows that many children with literacy difficulties are not fully engaged in classroom learning; many develop work-avoidance strategies and it appears that some of the more able pupils do this more successfully at a cost to their literacy learning.
- SPELLIT has provided objective, scientific evidence for the effectiveness of structured multi-sensory teaching methods but, importantly, has shown that these methods are more effective for some children than others.
- The 48 hours teaching in the DI Centres was highly beneficial for the children with the more severe reading difficulties, particularly those with significant phonological problems.
- SPELLIT has shown that parents can play a useful role in supporting their children using the Home Support Programme. Parental peer-group support was a positive factor in predicting successful use of the HSP. Severity of reading difficulty and attentional problems were negative factors in predicting success.
- The HSP was more effective for some children than others. One subgroup of children – those with relative less severe difficulties – did better on the HSP than did a comparable group of children who had structured teaching. It appeared that the HSP was providing important opportunities for the application and practice of literacy skills in different contexts, something not provided by either regular support in school or individual teaching sessions.
- Children who received teaching or home support programmes developed greater self esteem, but it was only those who received home support who showed a statistically significant increase. Qualitative analyses confirmed more general improvements in attitude and behaviour amongst those who had taken part in the learning programmes
- The gains from the learning programmes were sustained once support was withdrawn, although accelerated progress or ‘catching up’ to peer-group norms stopped.
- Children who receive no support fall further behind their peers and progress is made less quickly when support is eventually given – a compelling argument for early intervention

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## **Introduction**

SPELLIT stands for Study Programme to Evaluate Literacy Learning through Individualized Teaching. Within the programme of work are a number of distinct, but interconnected projects concerned with providing support for young children experiencing difficulties in literacy learning. The main aims of these projects were:

- to provide a scientific evaluation of structured multi-sensory teaching
- to explore ways of supporting parents to enable them to help their children learn
- to work in partnership with Local Education Authorities in order to help disseminate good practice.

## **Programme Activities**

SPELLIT included:

- Longitudinal scientific research project to investigate the effectiveness of different learning programmes for dyslexic children
- Development and publication of new learning programmes and materials
- Development and delivery of structured programmes of support for parents to support their children at home
- Delivery of training courses to participating schools
- Observational study of children in schools and in individual teaching sessions
- Interview and feedback meetings with participants – pupils, parents, tutors, classteachers
- Production of Practical Guidance and Case Studies to inform wider educational practice
- Exploration of the application of the support programmes with other groups who are socially disadvantaged by literacy difficulties.

## **Research**

The scientific research project was at the heart of the SPELLIT programme. The primary focus of the research was on the question of individual differences in response to three different learning programmes. These were:

- A Home Support Programme consisting of activities and exercises to be done at home for around 15 minutes per day, for 5 days per week over a 30 week period.
- Structured Multi-sensory teaching using the Dyslexia Institute's approach, twice weekly over a 24 week period in sessions each lasting one hour.
- A Combined programme involving 1 hour per week of structured teaching for 24 weeks and Home Support Activities in 15 minute sessions, 3 times per week over a 30 week period

The Research Design involved comparing the outcomes for the children receiving the three different learning programmes with the outcome for the 'control' group of children who received no additional support. Note, however, that the control group went on to receive a programme involving structured teaching input in a later phase of the project.

## **Participants**

Consultation with colleagues in LEAs led to the decision to focus on pupils who would be aged around 7 at the start of the study, so that they would take part in the programme over Years 2-3 or Years 3-4. The research addressed two basic questions: What sorts of difficulties do these pupils have, over and above literacy difficulties, and do these make a difference in terms of response to learning programmes?

Thus we aimed to provide important practical information about identifying those pupils who are at risk of failing to acquire literacy skills. In addition, the evaluation of the effectiveness of the different programmes would provide useful practical information about the most efficient ways of providing support for those who need it.

## **Focus on literacy**

We took the decision not to seek only participants who were thought to be 'dyslexic'. Rather, it was decided to seek referrals from schools of those children who were experiencing difficulties with literacy learning. It was accepted that some of these children would be 'bright' and that others would have rather more widespread difficulties. We simply asked that their primary learning need be related to literacy. The intention was to be as inclusive as possible, rejecting only those who it was felt had needs that were too complex, or those with relative minor difficulties. In this way it would be possible to make statements about the effectiveness of the programmes that would readily generalise – we wanted to include the whole range of those with literacy difficulties in order to find out which factors or individual characteristics most influenced outcome. Selecting the sample in this way also allowed us to see how well children with literacy learning difficulties matched up with current theories about dyslexia. There are different views in the literature regarding the nature of dyslexia; we wanted to see how well children from across the range of reading difficulties compared with those views.

## **Findings**

We obtained data on almost 450 pupils, assessed about 350 and selected 240 to take part in the study. 215 pupils, who had been assessed at the beginning and end of the intervention period, were in our final sample of pupils.

Questionnaire data indicated that the SPELLIT sample represented a wide range of the population. Fourteen percent of the children were from single-parent families. Of those in two-parent families, about 10% of fathers were out of work. About a third of children came from families in which the mother was not in work and the majority of mothers who did work were in 'routine' jobs. Ninety percent of the children were described as 'White', 7% as Black and 3 % as Asian.

On average, the pupils were reading and spelling in the lower 10% on standardised tests – at around the 6 year age equivalent level compared to their chronological age of 7 ½. The sample covered a wide range on measures of general intellectual ability with the mean for the whole sample almost exactly 100, the expected population average.

Questionnaire responses from schools indicated that 97% of the pupils were below the expected (National Curriculum) standard in Reading, and 94% below the expected standard in Writing. Seventy percent were below the expected standard in Maths and 44% of the sample was below the expected standard in Science. Thus, despite General Intellectual Abilities covering the normal range, the sample as a whole were experiencing quite widespread difficulties in terms of National Curriculum attainments.

Parents and teachers completed behavioural rating questionnaires. Pupils in the sample, as a whole, were not rated as showing problems with sociability in general, but fully half of them were rated as having problems with hyperactivity/attention. Around a third of them were showing signs of behavioural problems related to conduct and a third were rated as showing emotional problems.

As is typically the case for those described as dyslexic, the sample, on average, had poor short term memory, slow naming speed, poor coding, poor phonological awareness in the context of average intellectual ability. However, it was also clear that there was considerable variation along these dimensions of ability. The main question to be addressed by research is whether differences on these dimensions of ability make any difference in terms of the outcomes of the different learning programmes.

## **Outcomes of the Learning Programmes**

One of the key findings from the SPELLIT research was that different children responded in different ways to the different learning programmes. The overall results therefore give only a partial picture. For technical reasons, it was only possible to make direct comparisons between Home Support (only), Teaching (only) and Waiting groups. Data from pupils in the Combined (Teaching plus home support) are given, but this needs to be looked at separately.

The teaching took place over a 9 month period. During this time the average reading age for those in the teaching group went from 5 Years 9 months to 6 Years 8 Months. This is reflected in a gain of just over 2 standard score points, on average, showing that there is some 'catching up' to age-group norms. The Waiting group, did make progress -- from 5 Year 10 Months, on average, to 6 years 4 months. This reflects progress at a slower rate than would be expected and thus they were falling further behind their age-peers. Their standard scores were, on average, 2 points lower than at the start of the programme. The Home Support (only) group progressed at a rate somewhere in between. Their reading increased on average, from 5 years 10 months to 6 years 7 months and their standard score increased by about 1 point, on average. Note that standard scores reflect ability in relation to age-group norms and it is generally accepted that the average range is from 90 to 110.

The gains made by pupils in the Teaching and Home Support groups may sound like small gains, but they show that children are, on average, keeping pace with their peers at a time when their peers are moving ahead quite fast. This is underlined by the scores for the waiting group who, although they are making gains, are falling further behind their peers. Thus, the 'benefit' of the 2 hours per week teaching, in relation to the control group is 4 standard score points, and for the HSP group it is about 1 ½ points.

The Results for the Combined Programme were mixed. One group of children, all from the same school, who received this programme did not do particularly well. Unfortunately, we did not have children from this school in any of the other programmes and so we could not draw comparisons. It was clear, from other evidence, that the disappointing results in this case were at least in part, due to a 'school' or 'area' effect. In other areas, where pupils had an opportunity to take part in either the Home Support (only) or Combined Programmes, we found clear benefits of the teaching element. Thus we concluded that the Combined Programme can be effective, but much depends on the success in linking the teaching and home support elements. At least in some cases, parents appeared not to put as much effort into the HSP element when teaching was also taking place.

## **Predictors of Literacy Outcomes in Teaching and Waiting Groups – A 'Dyslexia Factor'**

We found that poor verbal short-term memory, in relation to other abilities, predicted smaller gains from tuition. We suggest that those with specific weaknesses in verbal short-term memory are more likely to be 'dyslexic' which is to say that they have specific cognitive weaknesses that make learning more difficult. It has been argued by some that there are no differences between 'dyslexic' and 'generally poor' readers and that there is no real value in distinguishing these groups on the basis of variables other than reading. Our results provide evidence against this view but evidence in support of a 'syndrome' of dyslexia. The sample as a whole displayed weaknesses in short-term memory, speeded information processing and phonological awareness, typical signs of dyslexia. The outcome of the teaching intervention is that those who 'look more dyslexic', in that they show specific verbal memory weaknesses, make less progress. We accept that this is a new, and perhaps controversial finding, and that further work is needed in order to understand how short-term memory, phonological awareness and naming speed are linked with reading and spelling development. We think it an interesting possibility that the ability to store and process spoken words, when tested over the short term is indicative of a more general capacity to learn the associations between spoken words and their written forms.

Testing of progress approximately 6 months after the programmes had ended indicates that the gains made were sustained. In general pupils were progressing at around the rate that might be expected, but they were not 'catching up' as was happening during teaching.

In the waiting group reading outcome was linked much more strongly to initial reading levels. However, rather unexpectedly, we found that lower Nonverbal IQ, relative to other abilities, was associated with greater gains in reading. We offer a number of suggestions for this result including the possibility that some of the more nonverbally able children found ways of occupying themselves at school in 'other ways' and steered away from reading and spelling activities. In the jargon, they might not have been engaging fully with the literacy aspects of curriculum.

## **Differential Response to the Teaching and HSP programmes**

We found that those pupils with more severe reading difficulties and more severe phonological difficulties responded particularly well to the teaching programme. Children with these characteristics did poorly in the HSP and Waiting groups. The difference in reading outcome between Teaching and Waiting groups was almost 10 standard score points. On the other hand, the pupils with relatively good reading and phonological skills did not respond particularly well to the teaching programme – they did no better than those in the waiting group. Children with these characteristics who had the HSP responded much better. This is a very important finding. It is not the case that one programme is always best; one programme is better for pupils with one set of characteristics and another programme is better for children with a different set of characteristics.

The children with weakest reading and weakest phonological skills were receiving most support in school, indicating that schools were generally identifying and supporting those with the severest difficulties. However, those in the teaching group were receiving no more support in school than those in the waiting group. This shows that the positive benefit of teaching was additional to any benefit of school support. An implication of these results is that the kind of support provided in school was not, on its own, effective for children with this pattern of most severe difficulties.

It was perhaps unsurprising that the children with relatively better reading and relatively better phonological skills responded best to Home Support Programme. However, it was surprising that children with these characteristics who had the HSP did better than similar children who had received 2 hours per week teaching. Both groups made more progress than children with similar characteristics in the Waiting group who were receiving support in school. This is a surprising finding since it is these children – those with the milder difficulties – who we might have expected to respond best to school-based support.

## **Qualitative Analysis**

Interview and questionnaire data indicated that two main aspects of the teaching programme delivery characterised the improved or less improved children. Those children who made good literacy gains had relatively good attention and learning habits, and were committed to their lessons, whilst those who did not do as well had more difficulties settling to their work. This appeared to be due to the attitude and motivation of the children, as the parents in the main were very supportive of the programme. Some of the parents of the less improved children, however, seemed to find it hard to either help their child with their homework, or to encourage the child to complete the homework. There was therefore not such a firm link between home and the teaching lessons as with some of the children who did make good progress.

Analysis of responses of those who had the HSP also identified two aspects of programme delivery that characterised the improved or less improved children. Those children who made good literacy gains had followed steady routines, whilst those who did not do as well had worked less consistently. This was often due to the interest and motivation of the children rather than the commitment of the parents. Furthermore, amongst the children who improved most, more appeared to have followed a streamlined programme where the various elements of the teaching were integrated. The success of the programme was thus, to some extent, dependent on the parents ability to adapt and extend the work.

## **Emotional and Behavioural Factors**

Behaviour ratings by parents and teachers revealed a high incidence of behavioural difficulties amongst the sample. A very high proportion of the pupils were rated as having Hyperactivity problems by both parents (50%) and teachers (40%). About a third of the children were rated by their parents as having peer problems, emotional problems and conduct problems; teachers' ratings were lower with 15 to 20% seen as having problems of these kinds. A good baseline for comparison comes from a study by Adams et al (1999) which found hyperactivity problems to be present, on teacher ratings, in 12% of the primary population and conduct problems in 8%. Thus the incidence of behaviour difficulties was substantially raised in this sample of children who were initially chosen as having literacy difficulties. Qualitative and quantitative analyses revealed problems with attention and hyperactivity to be a significant additional barrier to successful learning, although some very good results were achieved by some of these more challenging pupils through one-to-one teaching.

## **Changes in Self Esteem**

Results of the Harter Self esteem questionnaire showed that there was a significant overall improvement in self esteem over the course of the intervention. However, when the groups were looked at separately, only the home support children's self-esteem results improved significantly. Both the Teaching only group's and the Combined group's self-esteem increased from baseline to post-test but analysis showed this increase was not significant. Those children in the Waiting group showed a decrease in their level of self-esteem but this proved not to be significant.

## **The Interaction between self-esteem and Reading Improvement**

We had thought that we would find a relationship between improved reading and improved self-esteem – that children who improved in reading would feel more positive about themselves. Such a pattern did emerge, but not in a straightforward way. To our surprise, we found that the children in the Teaching group who began with low self esteem improved more in reading than those who began with high self esteem. One might have predicted the opposite: those with more positive beliefs about their abilities would make greater gains. It was less of a surprise that those with low self esteem also improved more in self esteem, but this may partly be due to methodological factors. Overall the results are consistent with a view expressed by practitioners that children will respond best to individual teaching when they have accepted that they have a need for it. A more positive way of putting this is that children's feelings about their difficulties should be taken into account when deciding on the optimum time to provide support.

## **Literacy Difficulties as a Barrier to Curriculum Access**

We were interested to investigate in what ways literacy difficulties might prevent children from taking part fully in class activities. This was done by observing a sample of children who were part of the SPELLIT research project in their classrooms.

## **The SPELLIT observation sample**

We were able to observe a sub-sample of 32 SPELLIT children in their schools using a semi-structured observation technique.

Children with literacy difficulties were found to spend a third of the time 'off task' and, of the remaining time, the majority was spent engaged only partially so that only for 24% of the time were they fully engaged with work.

A number of children were also observed whilst receiving teaching in the Dyslexia Institute centers in a one to one or paired teaching situation, Not surprisingly, they achieved much larger on task times than the

children who were observed in the classrooms. During their teaching intervention lessons the children were on task for 90% of the time with 75% of the total time fully engaged.

It became clear that we needed some reference points against which to compare the behaviour of the children with literacy difficulties. A sample of children identified by their teachers as 'average' children were observed.

The outcome of these observations was striking. The children with no literacy difficulties spent 86.6% of their time on task, and 13.4% of their time off task. The difference in an 'hour long lesson would be almost 15 minutes (40 minutes compared to 54 minutes) or, putting it another way, the children with literacy difficulties are engaged at only 75% of the expected level.

## **Promoting Best Practice**

Through the SPELLIT into practice extension work, we have attempted to influence wider educational practice in a number of ways. Awareness and training courses have been provided for 30 schools that were involved in SPELLIT and, in many cases, materials and training have been given so that schools can apply some of the same teaching approaches that were used in the Teaching and Home Support Programmes. A number of the LEAs involved in SPELLIT – notably Darlington, Hull, Sheffield, Lewisham and Portsmouth – have initiated or strengthened a partnership with the DI to deliver services, provide advice and training or work on further research projects. Through collaboration with 3 LEAs in Glasgow, the DI in Scotland has become involved in a project to develop home support materials and the experience of SPELLIT will be put into that.

The findings from SPELLIT have begun to be disseminated through meetings, conferences and written presentations. Written Guidance and Case Studies have been written in a form designed to be accessible to practitioners.

## **Future Development**

### **Home Support Development**

The research evidence has led us to take forward the HSP in two different ways. Working with colleagues in Hull LEA, we are developing a mentoring programme in which Learning Support Assistants will be trained to support parents in using the HSP. The objective of this project is to see whether the programme can be made accessible to a wider range of families, including those in which there are family literacy difficulties. A Home Support Pack is also being developed for commercial production, based on the core activities that were found to be most beneficial in the SPELLIT research. We have also explored with colleagues how some of the principles of the HSP could be used in other settings. Using the HSP with looked-after children in Hull has been discussed; interest has been expressed by the Youth Offending Team in Manchester, the Probation Service in Nottingham and the Adult Learning Partnership in Leeds. The Home Support Programme will be brought to the attention of the Prisoner Learning and Skills Unit at the DfES to consider its use with volunteer mentors.

### **Development of New Models of Learning Support Delivery**

The evidence of SPELLIT has led the Dyslexia Institute to reflect on its current models of practice and to consider how these might be developed and extended. Plans are under way to:

Develop more short-term, programmes of support to move pupils on more quickly in the initial stages of literacy learning.

Incorporate more text-level work in individual learning programmes to promote greater generalization of skills.

Provide an Assessment and Home Support Package, as an alternative option to teaching in Dyslexia Institute Centres.

Develop more collaborative approaches to providing support, working alongside Teaching Assistants in schools.

Explore the feasibility of delivering short-term intensive individual teaching to achieve more rapid gains in literacy skills

## **CONCLUSIONS**

SPELLIT has demonstrated how significant advances in educational theory and practice can be achieved through collaboration between voluntary sector, state sector and private sector organisations. Our explicit aim has been to provide solid evidence on which effective practices can be built; we have always kept in mind the practical needs of parents, teachers and learners. Through the involvement of the Community Fund, SPELLIT has focussed on wider issues about the impact of literacy difficulties on social and emotional well-being and the way that literacy difficulties can create barriers to full participation in lifelong learning. The involvement of WHSmith has been invaluable in helping to keep a focus on the needs of 'customers' and on ways of reaching as many people as possible who need specialist advice. The DfES and partners in Local Education Authorities have helped to keep the needs of the class teachers, teaching assistants and special educational needs co-ordinators in mind. The Dyslexia Institute has provided the 'test bed' for the development and evaluation of the new programmes in its National network of Centres and its teachers have played a crucial role in developing and delivering effective learning programmes to almost 250 children. Collaborators at the University of York have overseen the collection of the data and ensured that the claims being made do not go beyond the available evidence. Effective partnerships have been developed and strengthened amongst colleagues in LEAs and knowledge and expertise has been widely shared. There is now a great opportunity to move together collaboratively to change policy – and the implementation of policy – so that those with dyslexia can be supported and taught in the most effective manner.

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