THE BEDFORDSHIRE EAZ/LEA STUDIES SUMMARY

Research Results Summary

The Bedfordshire Education Action Zone (EAZ) decided to independently examine the effectiveness of the DORE programme in a number of different schools across the region. A number of separate projects were started at different start points. The independent report they have produced is an interim report on those pupils who had fully completed the DORE programme at a pre-determined cut off point in 2004.

The EAZ team decided to look at the 'value added' effects of the DORE programme in a range of pupils receiving three different levels of support and attending different schools. In this analysis 36 pupils were reported on with an age range of 10-16 years.

The research results from this project are very positive and show that the DORE programme has been effective at all the levels of ability and special needs support.

Briefly the results show:

- The more severely affected group (statemented) make the greatest progress in reading.
- The reading progress of the statemented group was **290%** more than it was prior to DORE treatment.
- The reading progress of the School Action group was **220%** more than it was prior to the DORE intervention
- Pupils for the first time in their lives are progressing in reading faster than their normal reading peers do. They are catching up.
- Writing improves by between **30%** and **70%** of the original level of performance.
- The usual decline in spelling skill with time is reversed with good improvements measured especially in the statemented and monitored group.
- Attention difficulties reduce significantly from a **60%** incidence of ADHD attention risk before the DORE intervention to **0%** at the end.
- **94.7%** report positive behavioural changes as a result of the DORE programme.

THE PROJECT

Bedfordshire EAZ was one of the first education organisation to approach DORE regarding the use of the remediation programme within their EAZ schools. Encouraged by the Balsall Common School study results they decided to independently assess the DORE programme in SpLD pupils receiving different types of educational support and attending a range of non-EAZ and EAZ supported schools. The aim of the project was to assess the value added effect of the DORE programme when used within schools under the supervision of a Learning Support Assistant rather than being used (as in the Balsall School study) as a home based therapy. The exercise therapy was performed under supervision each morning at school. However pupils were asked also to repeat the second daily session at home and twice daily at weekends. During school holidays the schools relied entirely on the parent supervising the child at home. Therefore compliance was only controllable once per day during school attendance.

Ruth Broomhall who is a project manager and more recently a consultant for special needs provision to the Bedfordshire EAZ and LEA and Jane Templeman who is a SENCO and consultant to the Bedfordshire EAZ were the two educators who independently designed the initial pilot and subsequent studies. They have also been responsible for the testing of interval literacy performance and the analysis of the data which has been summarised in this report.

The initial pilot used 12 pupils. Nine were from EAZ schools and 3 from non-EAZ schools. The pupils were aged between 10 -16 years old.
Following the initiation of this pilot a further 19 pupils were added (age range 9-10yrs) to the above group after additional funding from the LEA.

Since this time another 138 pupils have been put onto the Dore programme.

This is a report of the progress made in those pupils who had completed the DORE programme by the autumn of 2004, which was the deadline for assessing pupils and writing up the results.

The current report from the Bedfordshire EAZ has evaluated the data from a total of 36 pupils.
Of these pupils 6 were statemented and were being supported at that level. 13 were receiving school action or school action plus support. The remaining 17 were being monitored.

This report highlights the results with comparisons to prior progress before the use of the Dore programme using the independent data collected by the EAZ educators. Unfortunately complete data is not currently available for the specific

individual educational input for each pupil and the amount of time for which the support was being received prior to the Dore programme.

Theoretically from prior research data (Balsall Common study) DORE would expect firstly to see greater levels of academic improvement in those who have more severe levels of SpLD (i.e. the statemented group). Secondly those pupils who are on the DORE programme and concomitantly receive higher levels of educational support should see a more dramatic improvement in literacy (school action/SA plus group compared to the monitored group).

The Bedford EAZ project team assessed literacy using a range of tests.
For reading assessments the Kirklees test or NFER reading tests were used. Spelling was assessed using the WRAT Spelling test. Writing was assessed using a word per minute score for free writing.

In their report the Bedford EAZ team refer to comparative ratios and percentages to compare before and after changes in performance with the DORE programme. We have used where possible such comparisons to show differences in group performance and between group performance differences.

READING

Many researchers use reading ratios as a refection of success of a reading programme. Many intensive reading programmes which often last only weeks assess reading at the beginning and end of the intervention and convert the success of the reading intervention into a reading ratio. Therefore an intensive programme lasting maybe 4 weeks in which 2 hours daily 5 times per week of one to one tuition as well as additional homework is involved is not uncommon. The success of such programmes is often reported as a reading rate change. So that 2 months reading progress in testing over a one month intervention is reported as a reading rate of 2.0, which appears quite high (a ratio of 1.0 being the average for all pupils indicating 12 months progress per 12 months).

However what is more important is whether such short term and immediate effects are sustained which would require serial testing over 1-2 years after the intervention. This is rarely performed. When it has been examined it is almost universally acknowledged that the effectiveness of these interventions decline over time.

Also the longer the time interval between testing the more accurate is the evaluation of reading rate. For example just performing two versions of the same reading test on the same day can produce quite differing results. The effect of this variability will be much more significant when testing changes over weeks rather than months or years.

Bedford were able to assess the historical reading progress of pupils and have calculated the reading ratios over several years (not weeks or months) as well as being able to look at the value added effect of the DORE programme over changes taking place in terms of years (not weeks or months). Thus such data is far more robust than most.

The assessment of reading was done using two tests. Either the Kirklees reading test or the NFER test. The same tests were used in repeat assessments so that each pupil would receive the same assessment to avoid inter test variability. The initial pilot (IP) and additional group (BP) received the Kirklees test. The further groups received the NFER tests.

The graphs below show the average group reading ratio before the DORE programme compared to that found on completion of the programme for the three groups. All reading reassessments were performed at or soon after the DORE programme had been completed to allow measurement of the true impact of the DORE programme.

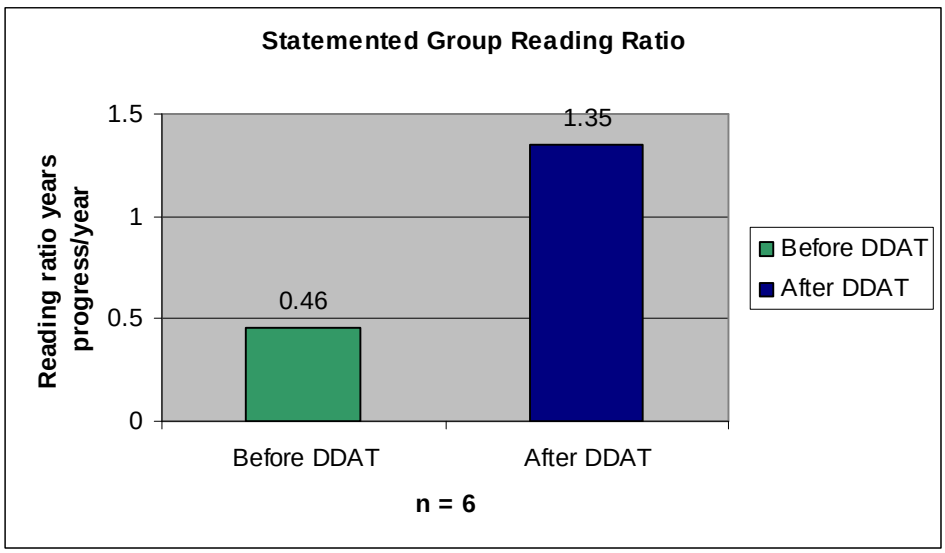


Figure 1

This graph (Fig 1) shows the reading changes observed in the group who have been statemented. These are those children who have been identified as being severely impaired with reading and statemented to receive the highest possible support. They are therefore selectively the worst group and receiving the greatest level of literacy support.

Their average reading rate before the DORE programme was 0.46. This indicates a progress in reading of 5.5 months year on year since starting to learn

to read. Thus they are falling further and further behind their peers as each year passes. This is in spite of statemented reading support.

When they had completed the DORE programme and were reassessed on average at 21 months after their previous tests this reading rate had increased to 1.35. This is an amazing 291% improvement on the prior rate of reading. This indicates that this same group receiving the same level of teaching support as were receiving prior to the DORE programme had improved their reading age by 16.2 months per year. Put another way in one year this group are now making the progress made over 3years previously.

They are also for the first time catching up with their normal reading peers. This has never been documented before in these age groups where there is usually limited impact from interventions

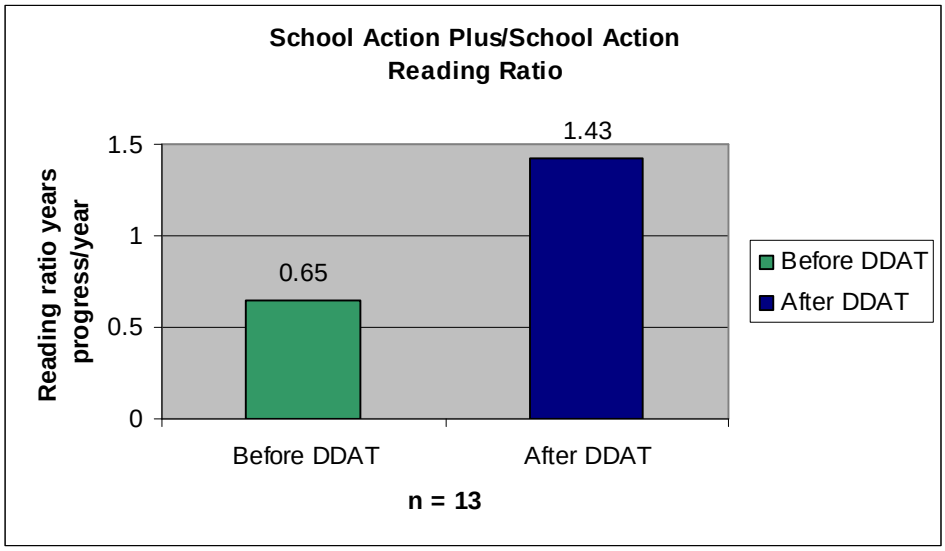


Figure 2

This graph (Fig 2) shows the school action and school action plus groups. These pupils had a reading rate of 0.65 prior to the intervention which was better than the statemented group and represented an average reading progress of 7.8 months per year.

So they were still falling behind their peer group but not as severely as that seen in the statemented group. After the DORE programme their reading rate rose to 1.43 which is equivalent to 17 months progress in reading per year. This is 220% improvement over this group's prior rate of reading progress.

In one year of the DORE programme this group are making the progress they were making previously over 2 years and 2 months. More importantly they are for

the first time in their lives catching up with their normal reading peers by making more progress than the peer group average.

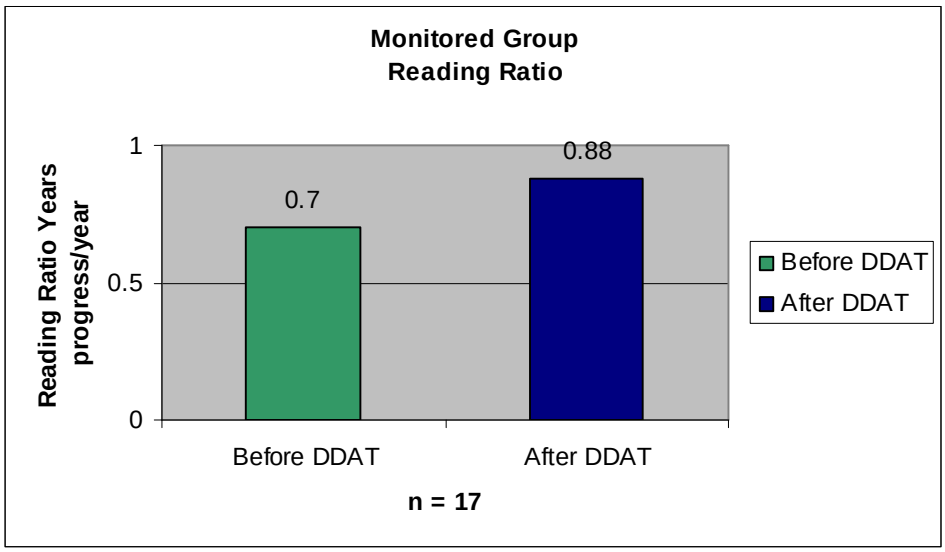


Figure 3

The above group contained pupils considered ‘at risk’ but were currently not receiving specific structured support. In fact nearly half were reading at a level which was superior to their chronological ages, some substantially so.

When the results of the more disabled readers in this group (Fig 3) were examined it was found that their prior reading rate was 0.7 which was equivalent to 8.4 months per year. So the selected children in this group were still falling behind their normal reading peers but not as much as the other two groups with more severe reading impairments.

By the end of the DORE programme the reading rate of this group had improved to 0.88. This is equivalent to 11 months progress per year. So in this group who were not receiving more structured levels of support and were only borderline in their reading difficulties improved their reading rate up close to the expected average required for unaffected normal reading pupils.

This is what might be expected in those not severely affected by a reading disability.

SPELLING

Spelling is a notoriously difficult skill to improve in reading disabled children. Most interventions used for reading recovery rarely impact on spelling at all. In fact in the USA national reading panel (2001) which examined over 1000 studies of reading interventions report that the impact of reading interventions on spelling is not significant. So to see any improvements in spelling scores at all is a bonus for such interventions.

The EAZ reported on spelling using the same groupings as above and examined standard scores (SS). Standard scores between 85 and 115 are generally considered to reflect the normal range. To maintain the SS at the same level

from year to year in reading disabled children is usually an achievement in itself. To improve it is a real bonus.

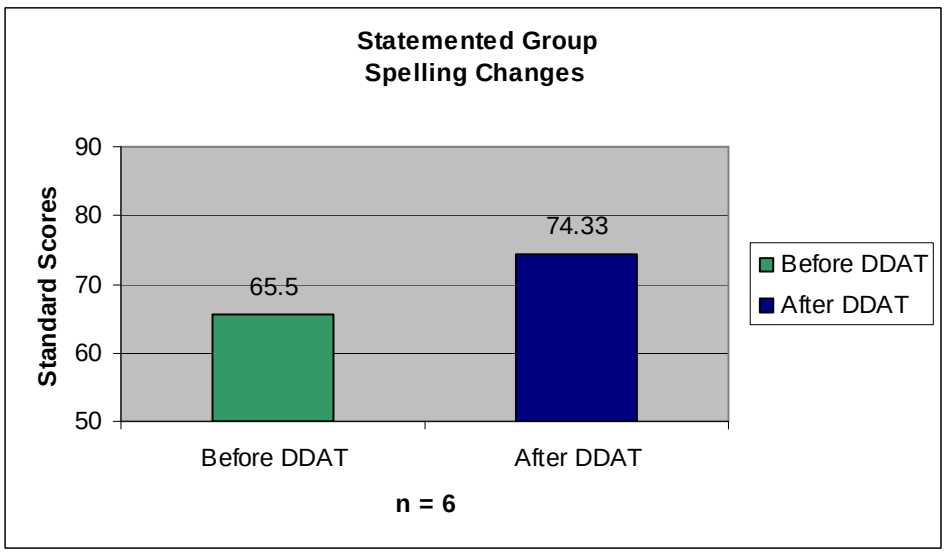


Figure 4

The above graph (Fig 4) shows that the statemented group were well below average in spelling with a SS of 65.5 at the start of the programme. SS scores below 70 indicate that only 2% of the population score below that level. This suggests that there has been a gradual decline in SS over time since learning to spell began. They were severely disabled in this area.
By the end of the DORE programme the SS of the group had increased to 74.33. This was a very significant improvement of 9 standard scores points overall especially when a decline was forecast from current trends and known performance factors. This represents a 13% improvement in the score. More significantly the poorest spellers in the group made the greatest improvements with an average improvement of 23 standard score points.

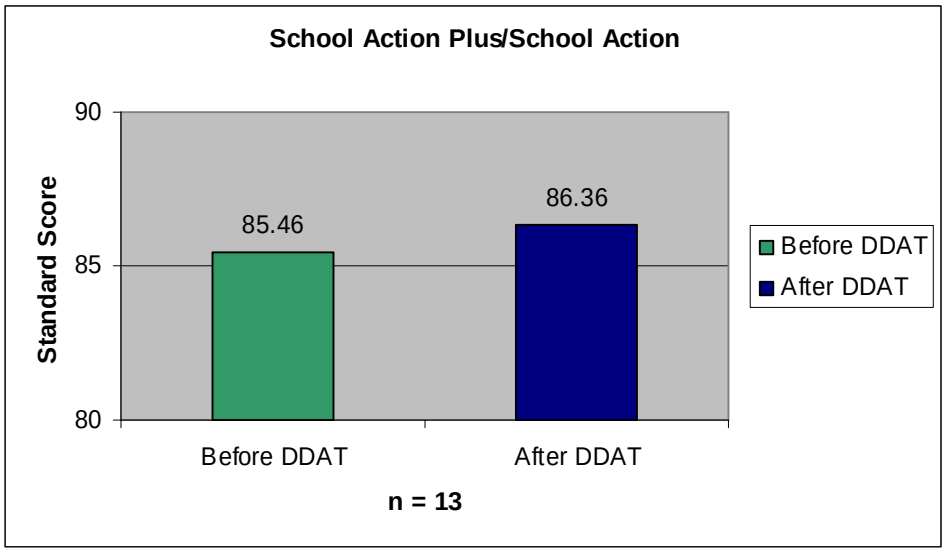


Figure 5

The School Action group (Fig 5) show they are already performing at the 85th SS at the start of the programme showing that they are on the lowest point in the 'normal' range.

By the end of the programme not only has the SS been maintained but has improved a little to 86.36 SS.

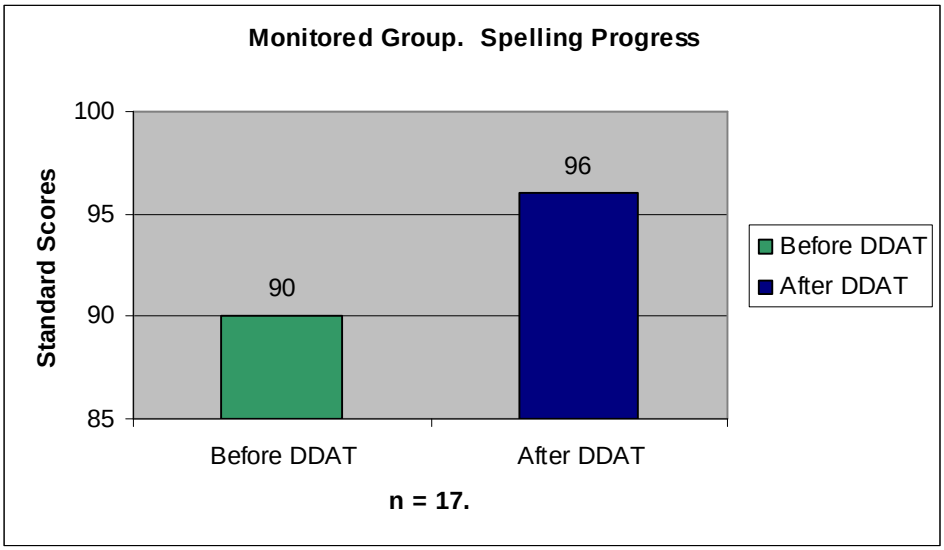


Figure 6

The Monitored group (Fig 6) shows that they are at the lower limit of the normal range with an average SS score of 90. By the end of the DORE programme this has risen to the 96th SS. An increase of 6.0 SS points.

Again not only has there been a reversal of the downward trend in spelling performance for age usually seen but a significant improvement to lower levels of the normal range.

So we can see in all groups the spelling decline predicted has not only been reversed but there have been some significant improvements in SS scores.

WRITING

Literacy is not just about reading and spelling but also about writing and the construction of written work. This involves both the motor skill of writing itself and also the ability to mentally construct written work, formulate this into coherent sentences and maintain this information in working memory long enough to write those thoughts onto paper. All essential skills needed to perform well in examinations and tests.

The EAZ looked at writing in terms of words written per minute from self composed free writing tests. This will therefore be assessing not only the speed with which words can be written down but also the ability to think and construct what is to be written. Both tasks are difficult for those with Specific Learning Disabilities.

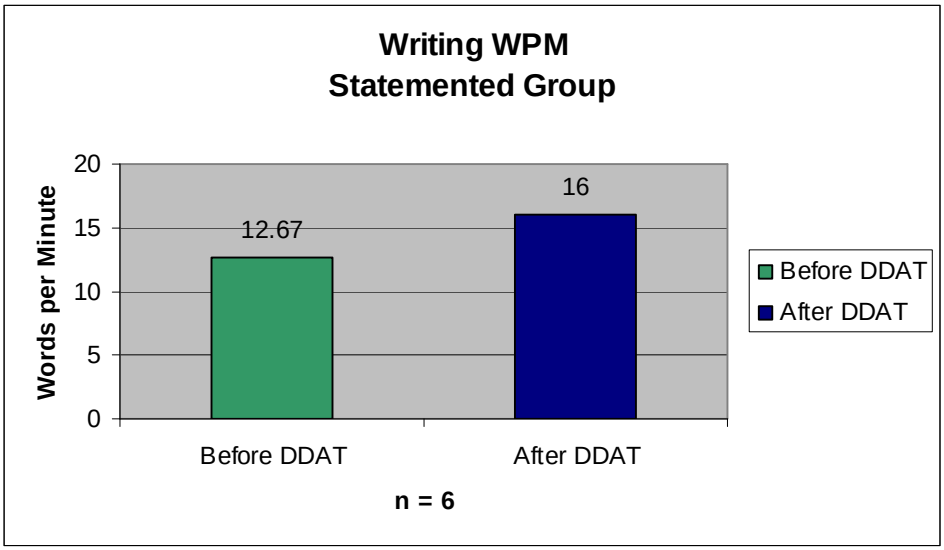


Figure 7

The Statemented group graph (Fig 7) shows how this group improved from a rate of 12.67 words per minute (WPM) at the start of the programme to 16 WPM at the end. This represents a 32.5% improvement over their previous performance ability. Essentially what this means is that a piece of written work which would have taken 30 minutes to write now takes 23.75minutes. Or put another way there is now over 6 minutes more time to write further text and hence improve performance under timed assessment conditions.

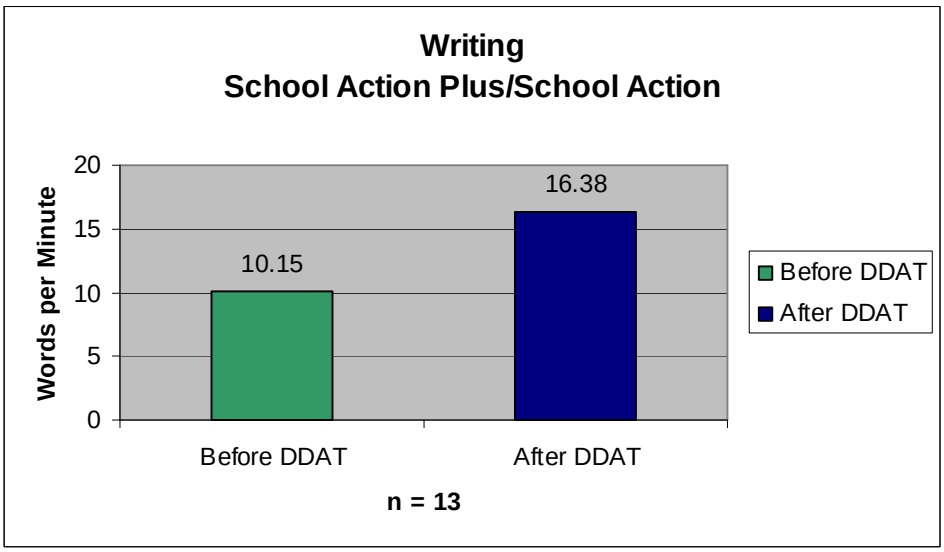


Figure 8

The school action group graph (Fig 8) shows how this group started with a WPM score of 10.15 prior to the DORE intervention which has improved to 16.38 at the end of the DORE programme. This is a highly significant improvement of 70% over the previous performance. Essentially this will reduce the time taken to

produce a 30 minute piece of work to 18.6 minutes. This allows a further 12 minutes to produce more additional written work than was previously possible. This is again something which will be most important during timed assessment conditions.

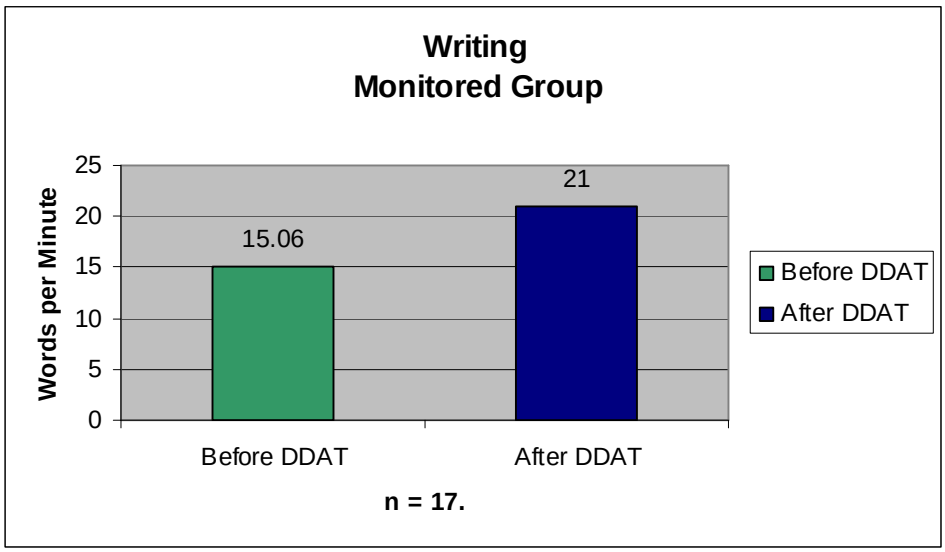


Figure 9

The Monitored group (Figure 9) started with a WPM score of 15.06 and finished the DORE programme at 21.0 WPM. This represents a 40% improvement in writing skills. It means that a piece of written work previously taking 30 minutes to complete will now take 21.5 minutes. This also allows nearly 9 minutes of additional time compared to prior progress in which to write further text during timed assessments.

Obviously these changes will have a huge impact on the ability to perform under timed testing conditions where many children with literacy difficulties have a very hard time. This should reflect especially during performance in GCSE and other examination conditions.

Outside of examination environments it will also allow quicker completion of work projects and homework allowing more time to be spent on other forms of learning or to even to reduce the large amounts of time taken to complete work and hence reduce frustration which often leads to written work avoidance or refusal.

BEHAVIOURAL QUESTIONNAIRES

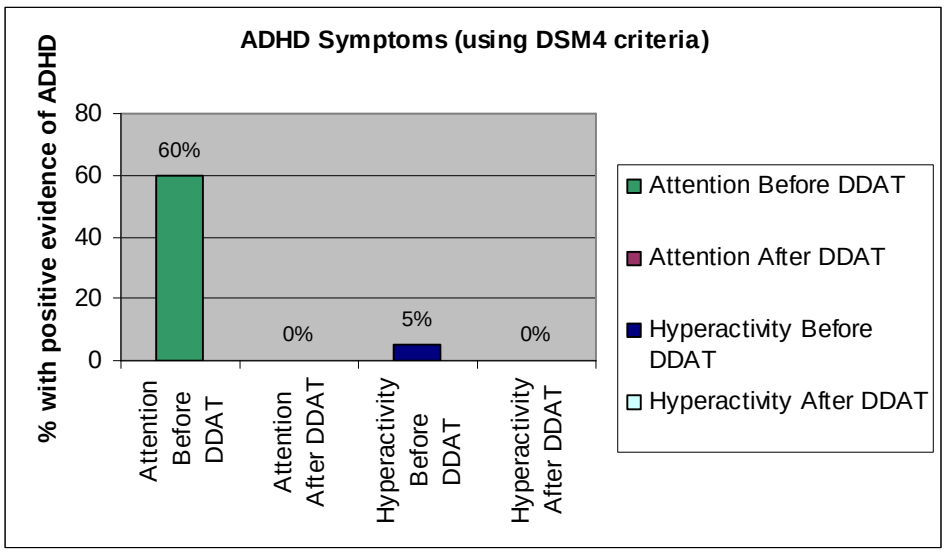
The EAZ team also developed a specific behavioural questionnaire which asked for graded responses (-5 to +5) for changes they were subjectively aware of as a result of being on the DORE programme.
These questions covered areas of students' lives within and outside of the school environment. They covered social skills, completing work, handwriting neatness, concentration, motivation/attitude, behaviour, confidence, memory, mood, self esteem, organisation, coordination.
The questionnaire was completed by parents and students. Generally the parent reporting was more positive than the student. The student data only was used in the reporting.

The results of this have been reported by the EAZ using an overall composite score system where all scores in minus and plus areas were added to give an overall score for each pupil.

From these reports 94.7% showed a positive overall score. Only one pupil reported an overall negative response.

ADHD ASSESSMENTS

As part of the DORE assessments clients are assessed for ADHD risk using the most widely used assessment tool the DSM4 assessment for ADHD. This is a behavioural assessment which asks specific questions about attention and impulsivity/hyperactivity. These behavioural problems need to be happening in more than one setting (e.g. school and at home) and have been present for more than 6 months from the age of 7 years.
Having examined the records of the above groups as one cohort it was found that the initial attentional problems seen were quite significant with more than 60% reaching levels of severity to indicate the possibility ADHD attentional problems. One child showed evidence of an ADHD combined risk where both attention and impulsivity and over activity levels are present.



When this whole group were reassessed at the end of the project it was found that none of them had risk levels to indicate any significant ADHD risk. 75% of those with at risk levels of ADHD showed maximum scores on the assessment (with 9 positive responses). Only 25% showed borderline but normal levels of attentional difficulties at the end the other 75% were showing none or only minimal behavioural symptoms of attentional difficulties. The one child with a combined ADHD (attention and hyperactivity/impulsivity symptoms) showed no attentional problems (0 positives) and only minimal hyperactivity symptoms (2 positives) at the end of the DORE programme.

CONCLUSION

This project was the first conducted by an EAZ/LEA which has allowed DORE to not only get independent appraisal of the effectiveness of their programme but has provided invaluable feedback about working with LEAs and EAZs. The lessons learned and valuable input made by the EAZ team have allowed DORE to develop an excellent package for working with schools and LEAs/EAZs.

This was an interesting project as it allowed the EAZ and DORE to assess pupils from a variety of backgrounds as well as from different levels of the educational support strata.

It has been the experience from data collected at DORE as well as the analysis of the Balsall Common study that the more severely affected children seem to do better in terms of academic recovery than do less severely affect children. This apparent paradox might be explained in terms of what the Dore treatment is doing. From an educational viewpoint teaching will obviously have greater impact the more able the child might be to learn and respond. The DORE approach and

philosophy is that by addressing purely physiological issues which then impact on cognitive function and therefore the learning process the more severely impaired who have greater improvements to make will therefore improve to a greater extent. This will impact on transfer to learning skills and hence a more robust response to teaching.

The three groups assessed by the Bedford study show clearly how historically the response to reading support has impacted less in the statemented groups than either the School Action or Monitored groups. This is despite a much more intensive and structured approach in the statemented group.

When looking at the response to the DORE programme we see a graded level of response with more impact occurring in the more severely affected groups. So the DORE programme is not just highly effective in accelerating learning and response to good teaching support but is selectively favouring the more severely disabled readers. This is the converse to that seen for most school based literacy interventions and suggests that a combination of these two methods would reap the maximum benefits.

Many students in this study were from different schools, ethnic backgrounds and socially deprived environments. Despite this the effectiveness of DORE appeared to be global and the improvements were linked to severity of the disability rather than other environmental and social factors involved.

What has also been equally noticeable in this study is the affect on behaviour and mood. All but one of the students reported positive behavioural changes. Looking at the ADHD analysis we see a massive impact on attention and impulsivity/hyperactivity performance. It must be acknowledged that positive affect and good attention skills are very important for the learning processes to be effective. Learning is about attention. If attention cannot be focussed then learning cannot take place. If a child can focus only 20% of the time when being taught and also has a disability in learning, the response to teaching is minimal. Not only is DORE able to significantly improve attentional abilities but is also impacting on cognitive performance. Couple this with the measured changes in confidence, mood, self esteem and self belief and the recipe can only be for the benefit of such a programme to the support of the teaching method.

The above results speak for themselves. DORE believe that all children who are found to be struggling with literacy, attention and motor learning difficulties should be able to access this programme and preferably via the school or LEA systems.
Much has been learned from this and other projects. We now feel confident that such programmes can be delivered safely, easily and effectively within the school environment.