

## Paper 5. Move4words in the Year 7 classroom

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### Abstract:

Data from 82 Year 7 students aged from 11 ½ to 12 ¾ years show that large, statistically significant improvements in reading age result from using the 12 week Move4words programme in the classroom. Students with reading age at or below their actual age improve their reading at 3.6 times the normal rate during the programme, while students with above average reading improve 1.6 as fast as normal.

### Results:

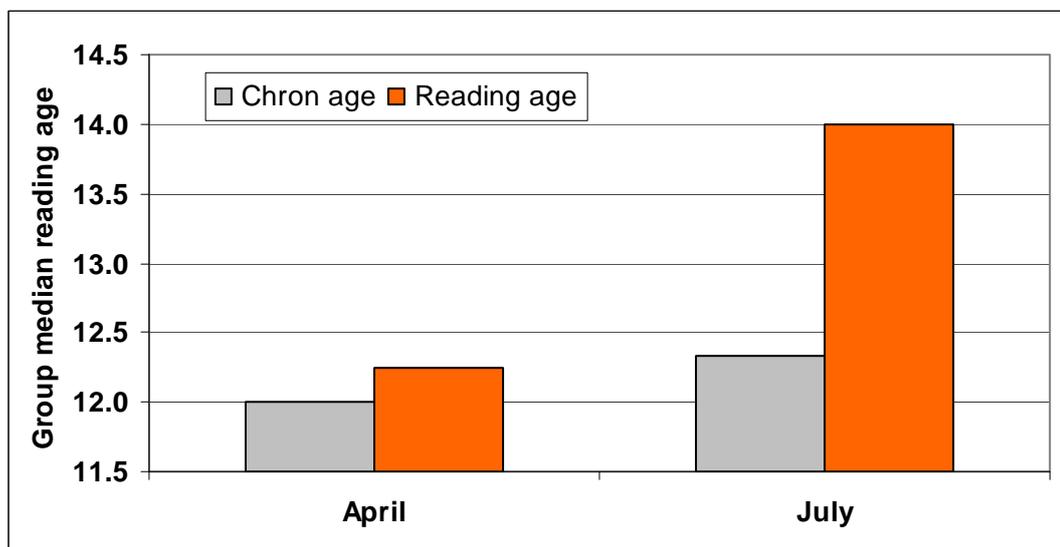
82 Year 7 students aged from 11 ½ to 12 ¾ years participated in the Move4words programme between April and July at three State Secondary schools. One was in North-West England, another in the North-East Midlands, and another in the South East, all in areas of considerable unemployment. One class from each school took part.

The teachers participating in this project attended a one-day training session given by Dr Buffy McClelland, and ran the Move4words sessions in class-time themselves.

Reading ages and Standardised Average Scores were assessed by teachers at each school and provided to us for analysis in anonymised form.

The students who did Move4words had a large range of reading ages from 6 years to 17 years 3 months.

Median reading age of all of the students was 3 months ahead of their actual age in April. After the 12 week programme, the median reading age of the group had moved much further ahead of their actual age, now being 20 months ahead. This is an increase in reading age of 17 months in four months elapsed time or a very impressive 4.25 months per month (Fig 5.1).

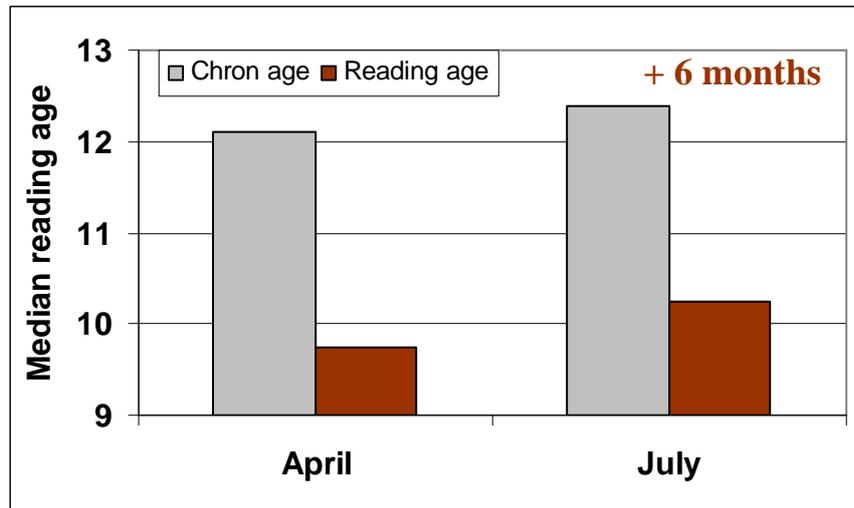


**Figure 5.1:** Year 7. Change in group median reading age after 12 week Move4words programme, combining data from 3 schools.

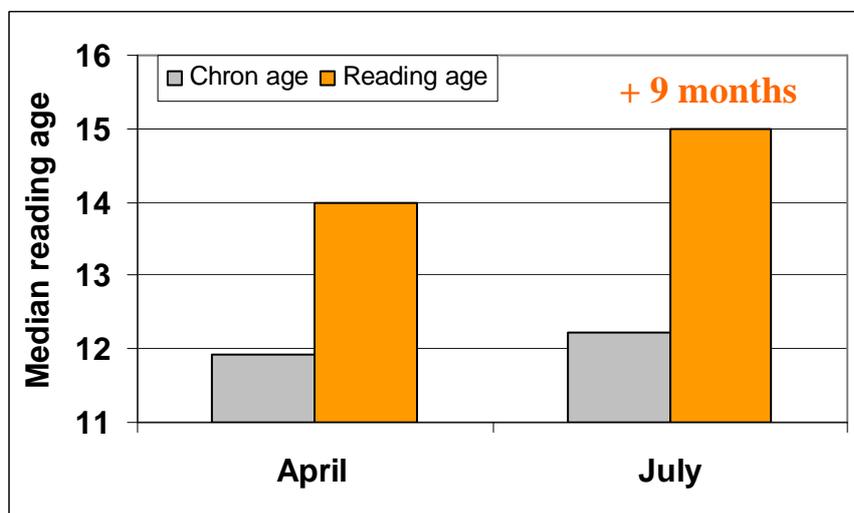
Grey bars indicate chronological age, orange bars indicate group median reading age.

We used Standardised Average Scores to do statistical tests for significance of this result. This improvement is statistically significant, and the whole group SAS score increased by 3.5 points (Paired T-test,  $T = 2.38$ ,  $p = 0.012$ ,  $df = 76$ ), (see our paper on statistical testing for discussion of statistical tests used).

We also looked at the effects on good and below-average readers, splitting the data into two groups, one with reading age in April above their actual age ( $N = 47$ ), the other group with reading age at or below their actual age ( $N = 34$ ). Results for the two groups are shown in Figures 5.2 and 5.3



**Figure 5.2:** Year 7. Change in group median reading age for below-average readers after 12 week Move4words programme. Grey bars indicate chronological age, purple bars indicate group median reading age.



**Figure 5.3:** Year 7. Change in group median reading age for above-average readers after 12 week Move4words programme. Grey bars indicate chronological age, hatched purple bars indicate group median reading age.

The 34 below-average readers were 28 months behind in reading age in April, but only 22 months behind in July, indicating a 6 month improvement in reading age over the three month period (2 months/month). These students were struggling with reading, and typically students with this level of reading difficulty fall further behind as time progresses. The normalisation of

the reading test indicates that the normal expectation for reading age improvements for students of this reading ability would only be 0.55 months per month, so the reading age improvement brought about by Move4words is 3.6 times the normal rate.

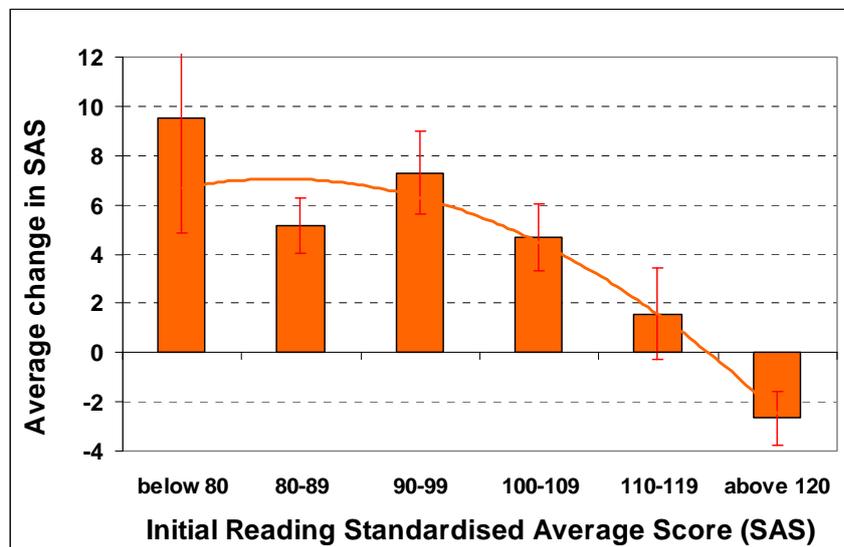
There are sufficient data to analyse the data for the lower-than-average readers separately. This improvement is statistically significant, and the whole group SAS score increased by 7 points (Paired T-test,  $T = 8.07$ ,  $p = 0.000$ ,  $df = 27$ ). This is a very large improvement in reading.

The 47 good readers were 24 months ahead in reading in April, then moved to 33 months ahead in July, indicating a 9 month improvement (2.25 months/month). Again we looked at the normalisation of this test, which suggests that students with this ability level are expected to improve by about 5 ½ months in reading age over a four month period, so the higher ability students appear to improve 1.6 times as fast as normal on the Move4words programme.

Statistical analysis of the above average readers data shows that this change is also significant, and the whole group SAS score increased by 3.5 points (Paired T-test,  $T = 4.60$ ,  $p = 0.000$ ,  $df = 26$ ).

How does the effect of Move4words vary with initial ability of the students involved in this trial? Figure 5.4 shows that the improvement in SAS is greater for students who had initially lower reading ages. Interestingly, the same feature is seen in this graph as was seen in figure 2.3 in our paper 2 on reading age changes in Year 4 children, i.e., the changes begin to decrease at higher initial ability, and even go negative at high initial scores.

This may be a manifestation of “regression to the mean”. This occurs where a single assessment (in this case, reading age) is a long way from the average value expected from the population, this can be a very high or very low value. These extreme values may be real, but there is also a chance that an extreme value represents a student not feeling well and underperforming in the case of a very low value, or happening to know all the answers by luck for a very high value. When the test is repeated, then the student is more likely to perform in line with their ability, moving their score nearer to the group average.



**Figure 5.4:** Variation of change in Standardised Average Score with ability. The orange line indicates a best-fit polynomial to the data.

**Conclusions:**

Move4words brings about large, statistically significant improvements in reading for all ability ranges. The effects are greater for below-average readers.