NSW Department of Education Pilot

A study investigating the effectiveness of Readable English for teaching reading and improving reading skills was conducted from March 2014 to July 2014. The study involved 60 participants from a public primary school in New South Wales (NSW) and was conducted under the approval of the NSW Department of Education and Communities. Participants had no prior exposure to Readable English, and written consent was given by the parents of participating students.

Participants

Participants included 60 students (30 females, 30 males) from three Year 2 classes with a mean age of 7.3 years (SD = 0.3). One class of 23 students was randomly selected to act as the control group. The other two classes consisting of 37 students made up the Readable English test group. As a part of the research project, students in the test group participated in two half-hour classes per week for twelve weeks (a total of twelve hours class time). Students in the control group participated in their regular reading classes while the Readable English classes were being taught.

Assessment

Students were pre- and post-tested before and after the program using a standardised reading assessment, the Neale Analysis of Reading Ability (Neale). The Neale involves students reading levelled passages aloud to an examiner and answering comprehension questions. Raw scores are converted to reading ages for three aspects of reading ability; accuracy, comprehension and rate. All participants read two additional passages from a standardised fluency test called the Gray Oral Reading Test (GORT). See Table 1 for an overview of the study design.

Table 1
Study design. For both the pre- and posttest, students in the control group read stimuli in Standard English text only. Students in the Readable English test group also read stimuli presented in Standard English for the pretest, but read stimuli in both Readable and Standard English text in the posttest.

Control group		Readable English test group	
Pretest	Posttest	Pretest	Posttest
Neale Test Form A	Neale Test Form B	Neale Test Form A	Neale Test Form B (presented in Readable English text)
GORT Form A, passages 2 and 4	GORT Form B, passages 2 and 4	GORT Form A, passages 2 and 4	GORT Form B, passages 2 and 4 (presented in Standard English text)

Results

Seven of the 60 participants were excluded from the analysis due to incomplete data (these participants had left the school or were absent from school during the posttesting). Reading ages for each participant were calculated for reading accuracy, reading comprehension and reading rate. Participants' raw scores from the pre- and posttests were converted to reading ages using the standardised conversion tables in the Neale for Form 1 and 2, respectively.

Independent sample t-tests were conducted to determine if there were any significant differences between the control group and the test group before the program began. There were no significant differences in reading ages between the two groups in accuracy reading age ($t(51) = -.996$, $p = .32$), comprehension reading age ($t(51) = -.737$, $p = .47$) or rate reading age ($t(51) = -.003$, $p = .99$).

A 2x2 mixed Analysis of Variance (ANOVA) was conducted for each aspect of reading (accuracy, comprehension and rate), with 'time' as the within subjects factor with two levels (pretest and posttest), and 'group' as the between subjects factor with two levels (test group and control group). The mean reading ages for each group in the pre- and posttests are presented in Table 2.

Table 2

Mean and standard error of reading ages for each aspect of reading (accuracy, comprehension and rate) in the pre- and posttests for both groups.

Aspect of reading	Pretest		Posttest	
	Readable English group	Control group	Readable English group	Control group
	M (SE)	M (SE)	M (SE)	M (SE)
Accuracy	7.27 (.25)	7.70 (.36)	8.17 (.30)	8.14 (.40)
Comprehension	7.38 (.30)	7.77 (.47)	8.20 (.33)	8.15 (.42)
Rate	8.80 (.34)	8.80 (.51)	8.52 (.29)	9.16 (.43)

Accuracy. The main effect of time was significant, $F(1, 51) = 49.76$, $p < .001$, $\eta_p^2 = .49$, indicating that average reading ages for accuracy across both groups were significantly higher in the posttest than the pretest. The time by group interaction was also significant, $F(1, 51) = 5.59$, $p = .022$, $\eta_p^2 = .10$. This interaction is shown in Figure 1 and reflects that the average improvement in reading age in the Readable English group of 10.7 months ($M = .89$, $SE = .13$) was statistically significantly greater than in the control group where the average improvement in reading age was 5.3 months ($M = .44$, $SE = .10$). Note that means and standard errors are shown in years, and an improvement of 0.89 years is equal to 10.7 months.
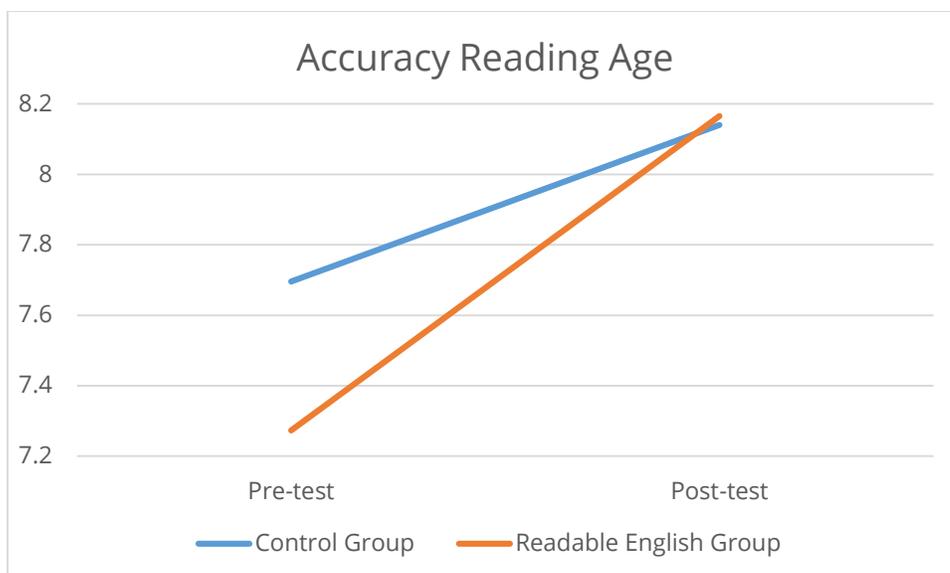
Accuracy Reading Age

Figure 1. Comparison of average accuracy reading age. The improvement of the Readable English test group from the pretest to the posttest was significantly more than the improvement of the control group.

Comprehension. The main effect of time was significant, $F(1, 51) = 38.48$, $p < .001$, $\eta_p^2 = .43$, indicating that average reading ages for comprehension across both groups were significantly higher in the posttest than the pretest. The time by group interaction was also significant, $F(1, 51) = 5.26$, $p = .026$ $\eta_p^2 = .09$. This interaction is shown in Figure 2 and reflects that the average improvement in reading age in the Readable English group of 9.8 months ($M = .81$, $SE = .12$) was statistically significantly greater than in the control group where the average improvement in reading age was 4.5 months ($M = .38$, $SE = .14$).

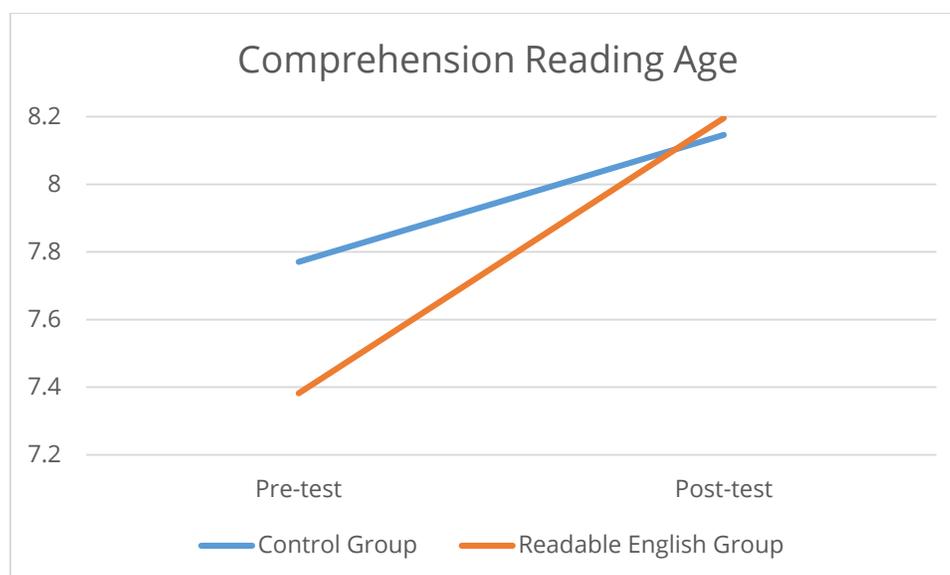## Comprehension Reading Age

Figure 2. Comparison of average accuracy reading age. The improvement of the Readable English test group from the pretest to the posttest was significantly more than the improvement of the control group.

Rate. The main effect of time was not significant, $F(1, 51) = .05$, $p = .82$, $\eta_p^2 = .001$, suggesting no change in reading age for rate across both groups from the pretest to the posttest. Contrary to predictions, the time by group interaction was also not significant, ($F(1, 51) = 3.07$, $p = .086$, $\eta_p^2 = .06$). It was hypothesised that there would be a decrease in reading rate in the Readable English group, as students would be spending more time sounding out words with the Readable English markings. There was in fact an average decrease in reading rate in the Readable English test group of 3.3 months, but this was not statistically significantly different from the average increase of 4.3 months in the control group.

Standard English. The additional GORT passages students read in both the pre- and posttests were scored according to reading accuracy and speed. The number of errors made and the time taken to read the passage were recorded. Raw data were converted into an *error rate* (a measure simply indicating the number of errors made, out of the total number of words in the passage) and an *accuracy reading rate* (a measure of reading fluency that takes into account both speed and accuracy) which indicated the number of words read correctly per minute. One participant was excluded from the Standard English data analysis due to incomplete data (the data file containing the recording of the assessment was corrupted).

Independent sample t-tests were conducted on the GORT pretest reading rates to determine if there were any differences between the control group and the test group before the program began. There were no significant differences between the groups in neither error rate ($t(50) = -.36$, $p = .78$) nor accuracy reading rate ($t(50) = 0.28$, $p = .72$).

The mean error rate and reading accuracy rate for each group in the pre- and posttests are presented in Table 3. A 2x2 mixed ANOVA was conducted for each measure of reading ability (error rate and reading accuracy rate) to determine if there were any differences in improvement between the control group and the Readable English test group. The within subjects factor was 'time' with two levels; pre- and posttest, and the between subjects factor was 'group' with two levels; test group and control group.

Table 3
Mean and standard error for error rate and reading accuracy rate (number of words read correctly per minute) in the pre- and posttests for both groups.

Reading measure	Pretest		Posttest	
	Readable English group	Control group	Readable English group	Control group
	M (SE)	*M (SE)*	*M (SE)*	*M (SE)*
Error rate	.079 (.01)	.073 (.02)	.043 (.01)	.047 (.01)
Accuracy reading rate	76.99 (7.51)	81.78 (11.62)	101.63 (7.70)	92.66 (10.40)

For the accuracy reading rate measure, the main effect of time was significant, $F(1, 50) = 46.8$, $p < .001$, $\eta_p^2 = .48$, indicating that more words were read correctly per minute across both groups in the pretest than the posttest. The time by group interaction was also significant, $F(1, 51) = 7.02$, $p = .011$, $\eta_p^2 = .12$. This interaction is shown in Figure 3 and indicates that the average improvement in reading accuracy rate in the Readable English test group of 24.6 words per minute ($M = 24.64$, $SE = 2.95$) was significantly greater than in the control group where the average improvement was 10.9 words per minute ($M = 10.88$, $SE = 4.58$).

For the error rate measure, the main effect of time was significant, $F(1, 50) = 27.84$, $p < .001$ $\eta_p^2 = .36$, error rates were higher across both groups in the pretest than the posttest. However there was no significant time by group interaction for error rate ($F(1, 50) = .72$, $p = .40$, $\eta_p^2 = .01$). The average error rates in the pre- and posttest are shown in Figure 9 and reflect that the data are in the correct direction, even though the interaction was not statistically significant. This may be due to the overall low error rate in both the pre- and posttests. As can be seen in Table 3 above and Figure 4 below, the mean proportion of errors ranged from only .043 to .079.
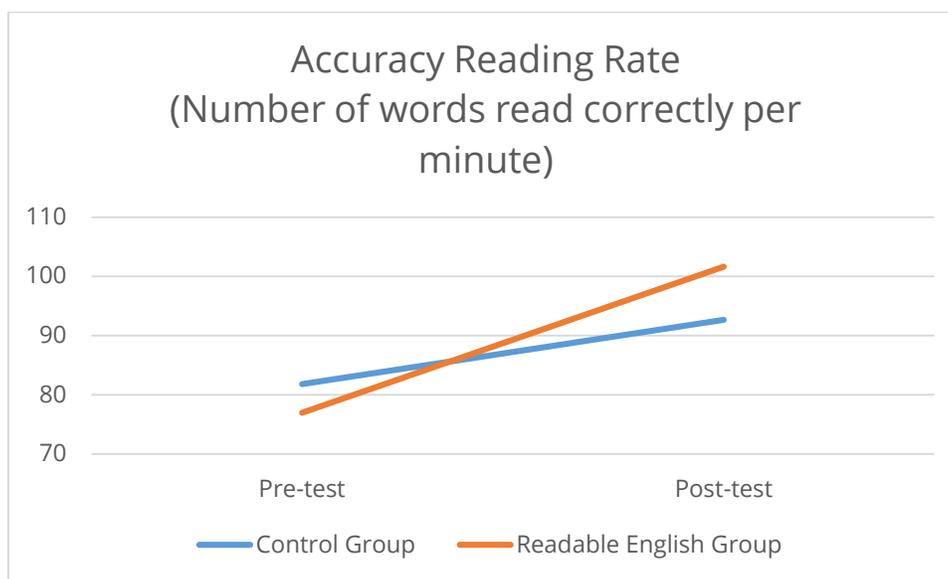

Figure 3. Comparison of average accuracy reading rates. The improvement of the Readable English test group from the pretest to the posttest was significantly more than the improvement of the control group.
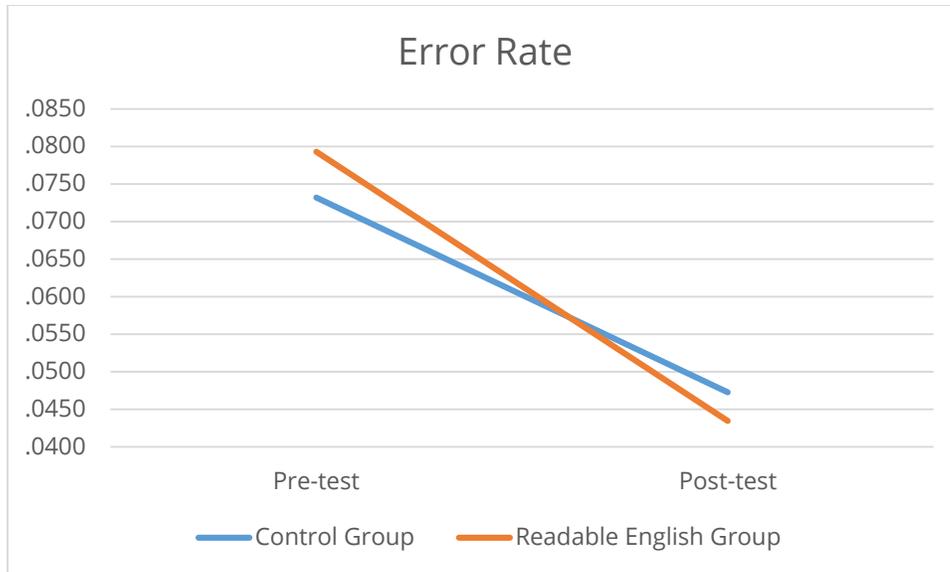
Figure 4. Comparison of average error rates from the pretest to the posttest. There was no significant difference between the groups in the decrease in error rate.