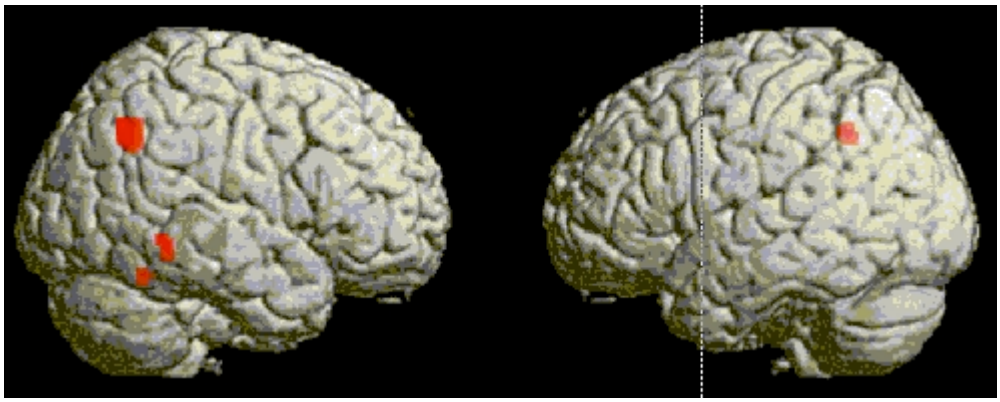
Supplemental Material Table 1. Stimuli for in-scanner task.

Block	Rhyme Task Stimuli	
Practice 1	price	miss
Practice 2	bait	gate
1	case	pass
1	deep	help
1	light	bite
1	late	cart
1	hair	share
2	blue	chew
2	bread	red
2	game	camp
2	race	care
2	please	freeze
3	tall	lost
3	key	tree
3	sand	pond
3	bus	rub
3	store	floor
4	rule	school
4	roof	soft
4	shoe	true
4	nose	blows
4	clap	pail

Supplemental Material Figure 1. Effect of group on brain activation. A one-way analysis of variance (ANOVA) was performed to investigate the main effect of group (Age-Matched vs. Reading-Matched vs. Dyslexic Groups) ($p = .001$ uncorrected, extent threshold = 10). The results were similar to the analyses performed in the main text comparing Age-Matched and Dyslexic Groups. There were significant effects of group in the left inferior parietal lobule (corresponding to L Par-Temp 2), right inferior parietal lobule (corresponding to R Par-Temp), right middle temporal gyrus (corresponding to R Occ-Temp) and right fusiform gyrus (not found in previous analyses). No frontal activation was found.



Supplemental Material Table 2. Results comparing all three groups using ANOVA for the rhyme vs. rest contrasts corresponding to Supplementary Material Figure 1 (p = .001 uncorrected, extent threshold = 10).

Region		Brodmann Area	Talairach Coordinates			F	p	Volume (ml)
			x	y	z			
a. Age-Matched > Dyslexic								
Parietal Lobe								
	L Inferior Parietal Lobule	40	-36	-51	36	13.27	<.001	.15
	R Inferior Parietal Lobule	39	42	-56	36	16.55	<.001	.85
Temporal Lobe								
	R Fusiform Gyrus	37	46	-53	14	12.68	<.001	.09
	R Middle Temporal Gyrus	21	59	-45	-3	11.95	<.001	.22
b. Dyslexic > Age-Matched								
n/a	n/a							

Supplemental Analyses

To further confirm that the brain activation differences observed here were not due to differences in task performance, we performed the following analyses:

1. Correlation between task performance and brain activation in the six regions of interest (ROIs) in normal controls (age-matched and reading-matched subjects, N = 20; note that we did not include the dyslexic group to study the effect of task performance without the confound of impaired reading ability). If activation in these regions is simply a function of task performance, we may expect to see correlations between task performance and brain activation in these subjects. The left parito-temporal region (Lt Par-Temp 2) showed r = .42, p = .07, a trend for significance, but the five other regions showed no significant correlation between brain activation and task performance (r = .008 ~ .23, p = .59 ~ .98).

2. Analyses of covariance (ANCOVA) was performed in the three groups regressing out task performance for each of the six ROIs, and these analyses showed similar levels of significance (F = 3.0 ~ 9.6, p = .02 ~ .002) to the ANOVA results (Table 4).