Version of Record at: https://doi.org/10.1080/17549507.2024.2445155

Table S1. Logistic mixed effects model for change in participants' pre- and post-test scores for science, grammar, and vocabulary assessments with science + vocabulary as the reference.

Science Assessment Scores				
Random effects	**s^2**	***SD***		
Participant (Intercept)	.14	.38		
Item (Intercept)	1.91	1.38		
Fixed effect	***b***	***SE***	***z***	***p***
(Intercept)				
Ref = Science+Vocabulary + Pretest	-.33	.32	-1.04	.29
Posttest	.73	.20	3.56	<.0001***
Science-only	-.07	.25	-.30	.76
Grammar	-.25	.26	-.96	.34
Posttest:Science	-.33	.26	-1.24	.21
Posttest:Grammar	-.11	.28	-.42	.68
Grammar (Complement Clause) Assessment Scores				
Random effects	**s^2**	***SD***		
Participant (Intercept)	2.47	1.57		
Item (Intercept)	.02	.16		
Fixed effect	***b***	***SE***	***z***	***p***
(Intercept)				
Ref = Science+Vocabulary + Pretest	-3.25	.64	-5.08	<.0001***
Posttest	1.73	.36	4.8	<.0001***
Science-only	-0.12	.84	-.15	.88
Grammar	-.80	.93	-.86	.39
Posttest:Science	-.96	.48	-2.10	.04*
Posttest:Grammar	-.15	.60	-.25	.80
Vocabulary (Taught Only) Assessment Scores				
Random effects	**s^2**	***SD***		
Participant (Intercept)	.36	.61		
Item (Intercept)	.45	.67		
Fixed effect	***b***	***SE***	***z***	***p***
(Intercept)				
Ref = Science+Vocabulary + Pretest	-.10	.35	-.29	.77
Posttest	.84	.31	2.72	.007**
Science-only	.15	.38	.40	.69
Grammar	-.12	.40	-.32	.75
Posttest:Science	-.84	.40	-2.11	.03*
Posttest:Grammar	-.84	.41	-2.02	.04*

Note. s^2 = Variance; *SD* = Standard Deviation; b = Estimate; *SE* = Standard Error; *z* = z value; *p* = significance. *p<.05. **p < .01. ***p < .001.

Version of Record at: https://doi.org/10.1080/17549507.2024.2445155

Table S2. Logistic mixed effects model for change in participants' pre- and post-test scores for science, grammar, and vocabulary assessments with science + grammar as the reference.

Science Assessment Scores				
Random effects	**s^2**	***SD***		
Participant (Intercept)	.14	.38		
Item (Intercept)	1.91	1.38		
Fixed effect	***b***	***SE***	***z***	***p***
(Intercept)				
Ref = Science+Grammar + Pretest	-.58	.32	-1.88	.06.
Posttest	.61	.19	3.18	.001*
Vocabulary	.25	.26	.96	.34
Science-only	.18	.24	.73	.46
Posttest:Vocabulary	.12	.28	.42	.68
Posttest:Science	-.21	.26	-.83	.40
Grammar (Complement Clause) Assessment Scores				
Random effects	**s^2**	***SD***		
Participant (Intercept)	2.47	1.57		
Item (Intercept)	.02	.16		
Fixed effect	***b***	***SE***	***z***	***p***
(Intercept)				
Ref = Science+Grammar + Pretest	-4.06	.70	-5.79	<.0001***
Posttest	1.57	.48	3.28	.001**
Vocabulary	.80	.93	.86	.39
Science-only	.68	.87	.78	.43
Posttest:Vocabulary	.15	.60	.25	.79
Posttest:Science	-.81	.57	-1.41	.16
Vocabulary (Taught Only) Assessment Scores				
Random effects	**s^2**	***SD***		
Participant (Intercept)	.36	.60		
Item (Intercept)	.45	.67		
Fixed effect	***b***	***SE***	***z***	***p***
(Intercept)				
Ref = Science+Grammar + Pretest	-.23	.33	-.69	.49
Posttest	.00005	.28	.000	1.00
Vocabulary	.13	.40	.32	.75
Science-only	.27	.36	.76	.45
Posttest:Vocabulary	.84	.42	2.02	.04*
Posttest:Science	.00009	.38	.000	1.00

Note. s^2 = Variance; *SD* = Standard Deviation; b = Estimate; *SE* = Standard Error; *z* = z value; *p* = significance. *p<.05 **p < .01. ***p < .001.

Version of Record at: https://doi.org/10.1080/17549507.2024.2445155

Table S3. Comparison of change on Taught (n=12) and untaught (n=8) words over time.

Random effects	**s^2**	***SD***		
Participant (Intercept)	.32	.56		
Item (Intercept)	.65	.81		
Fixed effect	***b***	***SE***	***z***	***p***
(Intercept)				
Ref = Untaught + Pretest	-.09	.29	-.30	.76
Posttest	.32	.19	1.65	.09.
Taught	-.01	.33	-.04	.97
Posttest:Taught	-.08	.25	-.36	.72

Note. s^2 = Variance; *SD* = Standard Deviation; b = Estimate; *SE* = Standard Error; *z* = z value; *p* = significance.

Version of Record at: https://doi.org/10.1080/17549507.2024.2445155

Table S4. Linear mixed effects models for change in science retells from pre- to post-test for target/taught content.

Rubric for Science Themes					
Random effects	**s^2**	***SD***			
Participant (Intercept)	.43	.65			
Subtest (Intercept)	.06	.25			
Residual	.64	.80			
Fixed effects	**b**	***SE***	***df***	***t-value***	***p***
(Intercept)					
Ref = Science-Only+Pretest	1.59	.27	34.49	5.99	<.001***
Posttest	.38	.27	14.60	1.40	.18
Grammar	.18	.34	51.21	.53	.60
Vocabulary	.45	.35	51.21	1.29	.20
Target (Taught)	-.26	.27	14.60	-.94	.36
Posttest:Grammar	-.25	.28	335.0	-.91	.36
Posttest:Vocabulary	.10	.28	335.0	.34	.73
Posttest:Target	-.03	.39	14.60	-.07	.95
Grammar+Target	-.08	.28	335.0	-.28	.78
Vocabulary+Target	.56	.28	335.0	-1.97	.05
Posttest:Grammar+Target	.36	.39	335.0	.92	.36
Posttest:Vocabulary+Target	.14	.40	335.0	.34	.73
Science-related Content Words					
Random effects	**s^2**	***SD***			
Participant (Intercept)	1.16	1.08			
Subtest (Intercept)	.43	.66			
Residual	1.81	1.34			
Fixed effects	**b**	***SE***	***df***	***t-value***	***p***
(Intercept)					
Ref = Science-Only+Pretest	2.64	.53	21.27	4.10	<.001***
Posttest	.13	.62	10.90	.21	.84
Grammar	.20	.56	52.37	.35	.73
Vocabulary	.40	.58	51.65	.69	.49
Target (Taught)	-.42	.62	11.06	-.67	.51
Posttest:Grammar	.20	.46	329.04	.43	.67
Posttest:Vocabulary	.09	.48	328.95	.20	.84
Posttest:Target	.60	.87	11.01	.69	.51
Grammar+Target	.50	.47	329.21	1.06	.29
Vocabulary+Target	-.26	.48	329.12	-.54	.59
Posttest:Grammar+Target	-1.12	.66	329.07	-1.69	.09
Posttest:Vocabulary+Target	-.33	.68	329.02	-.49	.62

Version of Record at: https://doi.org/10.1080/17549507.2024.2445155

Note. s^2 = Variance; *SD* = Standard Deviation; b = Estimate; *SE* = Standard Error; *df* = degrees of freedom; *p* = significance. ***p < .001