

SUMMARY

Development of grade-appropriate reading skills is adversely affected by errors in the decoding of short vowels. Common Core State Standards require short / long vowel acquisition in reading and spelling monosyllabic words by 2nd grade. Using a criterion-referenced test protocol, P-O-S-E_©: Phonological-Orthographic Substitution Evaluation (www.P-O-S-E.net), the Mineola, N.Y. Union Free School District has successfully integrated the SLP into early grade literacy intervention based on the phonological implications of short vowel proficiency in reading and spelling. Team responsibility for multidisciplinary, evidence-based intervention was led by the SLP. Twenty percent of the Mineola UFSD student population was categorized as Latino or Hispanic, 12% Asian, etc. and 3% Black or African-American.

Short vowel and silent /e/ rule (long vowel) deficiencies were systematically identified using Baseline P-O-S-E_© outcomes. Data-driven multidisciplinary vowel training intervention protocols were instituted incorporating SLP, ESL, Reading, Special Ed. and Gen. Ed. Personnel. Response to intervention (RTI) retesting was performed at end of the academic year.

Consistent with evidence-based practice, matched pair Baseline-RTI P-O-S-E_© data were obtained on all grade 3 classes for two academic years, 2012-13 and 2013-14. As an additional external validation, data were collected for the Fountas and Pinnell Benchmark Assessment System (F&P BAS) and the Northwest Evaluation Association Measures of Academic Progress-Reading (NWEA MAP-R) and the New York State English Language Arts Examination (NYS ELA).

P-O-S-E_© Phonological-Orthographic Substitution Evaluation

The Phonological / Orthographic Substitution Evaluation (P-O-S-E_©) is a criterion-referenced assessment instrument, designed to probe for substitution errors in a child's phonological (spoken) and orthographic (written, scored as equivalent phonology) representations of target short vowels presented in monosyllabic non-word and real word spelling and reading tasks. I.e., an incorrect phoneme is substituted for the target phoneme. Silent /e/ rule test items are incorporated as a cross-check and validation of the depth of short vowel proficiency. P-O-S-E_© outcomes provide prescriptive interventional direction when indicated.

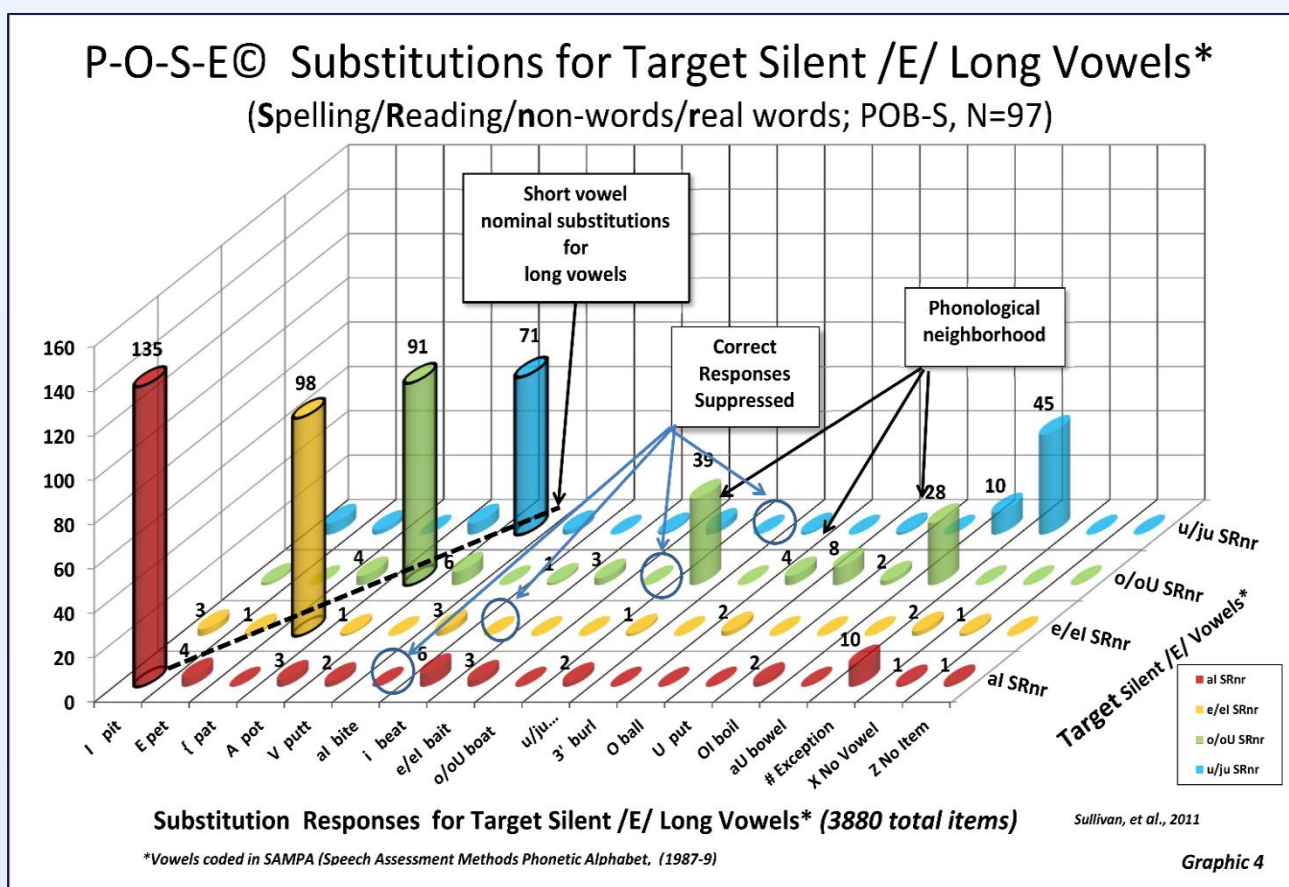
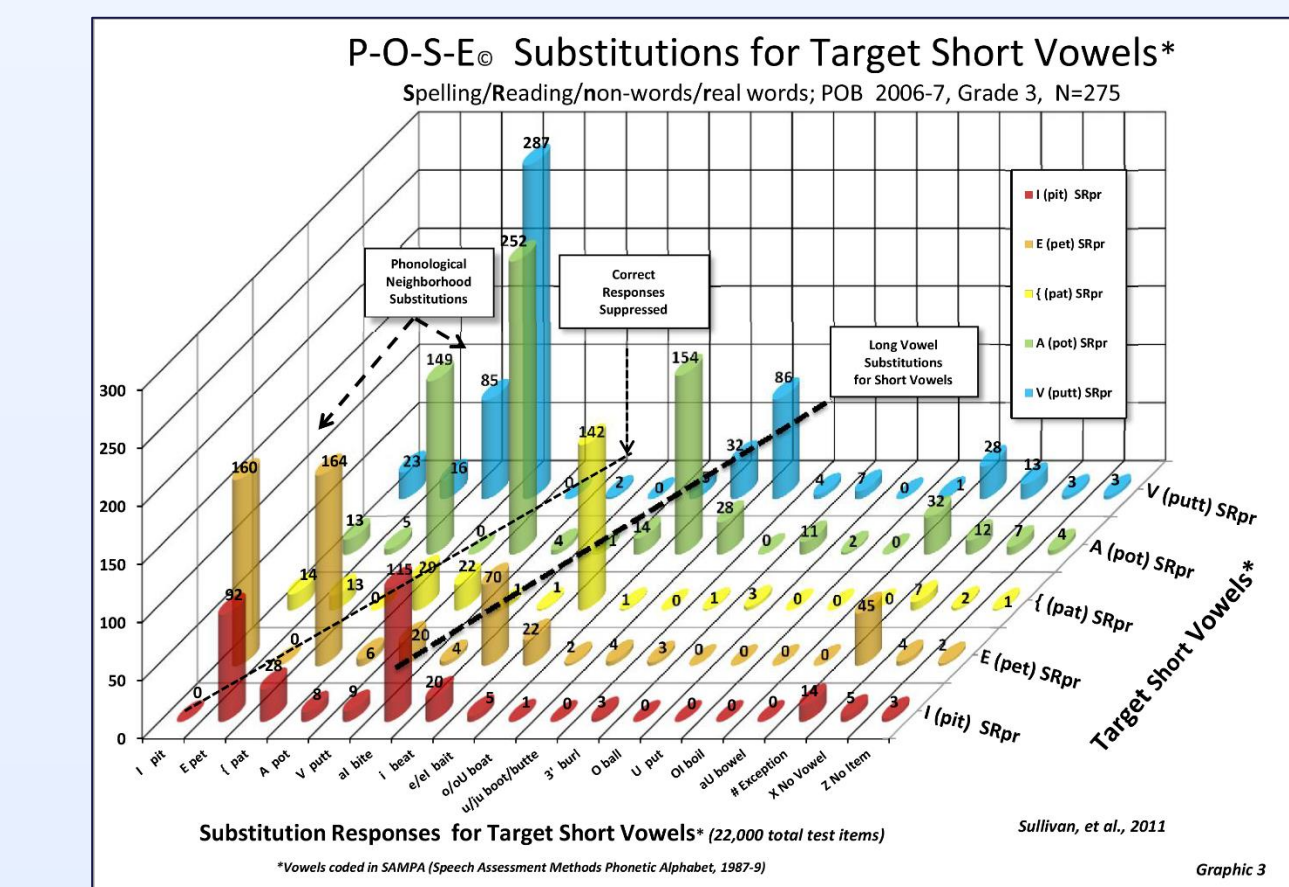
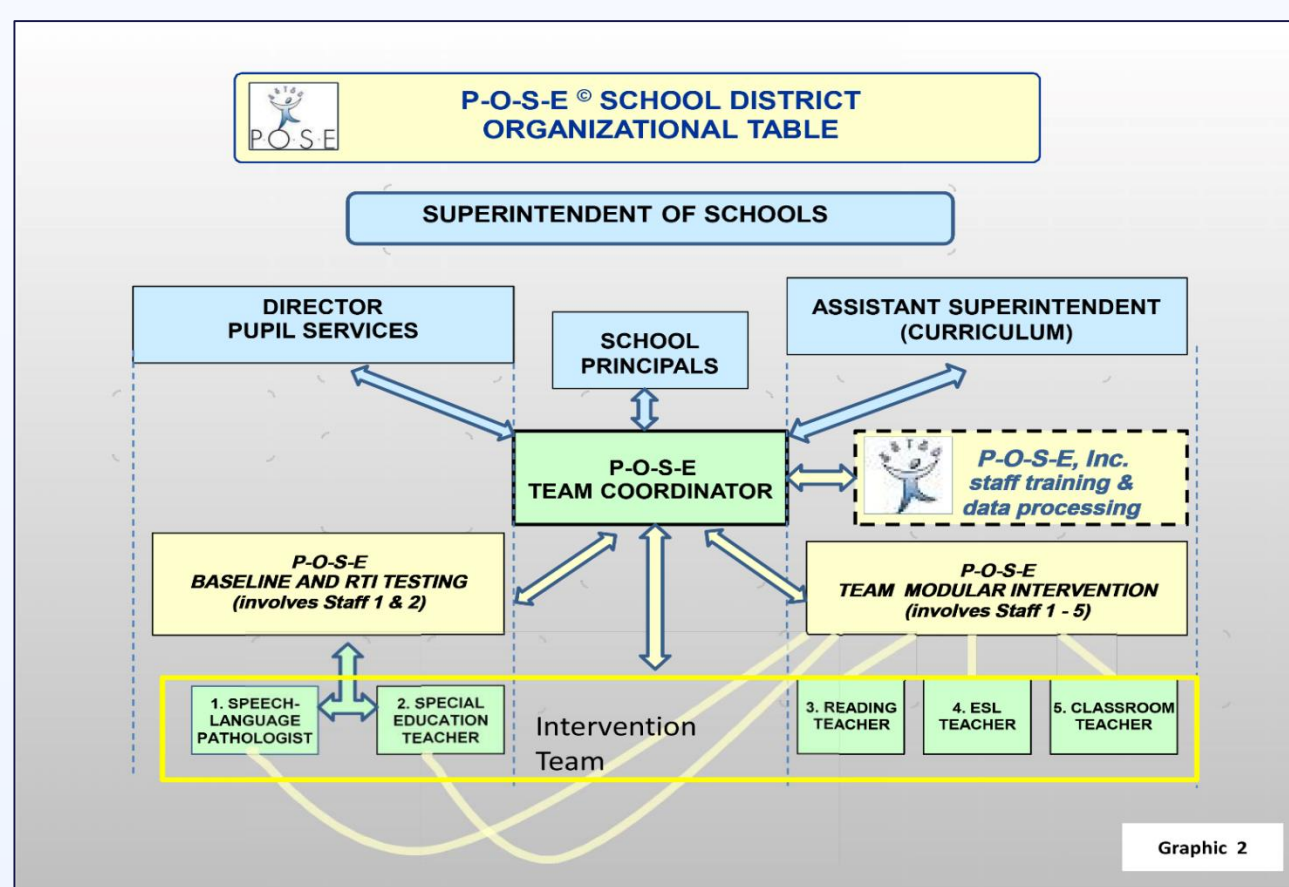
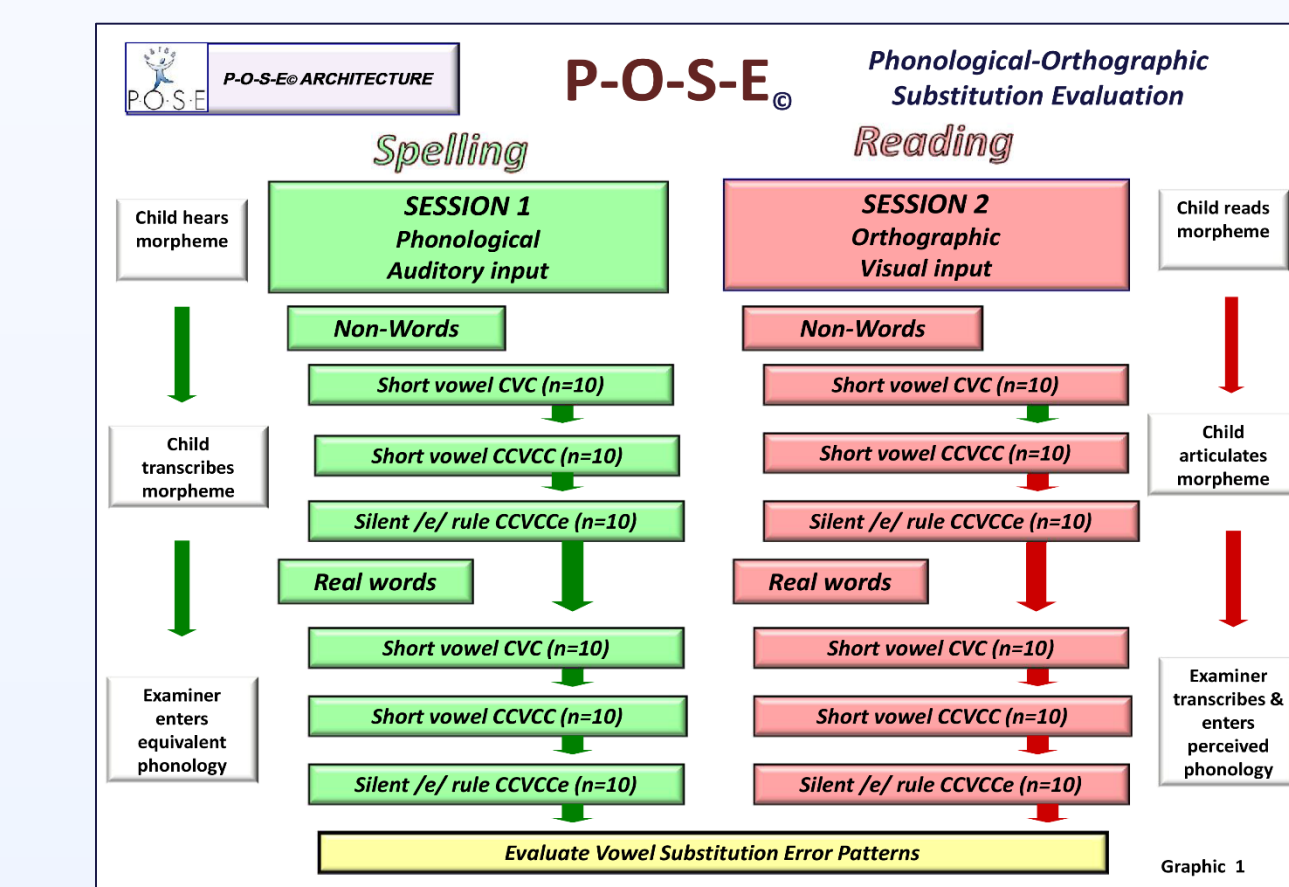
Data are presented below in graphic and image formats:

Graphic 1: Basic architecture of the Phonological / Orthographic Substitution Evaluation (P-O-S-E_©)

Graphic 2: Flow chart depicting integration of the P-O-S-E_© program within a school district.

Graphic 3: Distribution of short vowel substitution errors in the 2006-7 P-O-S-E_© validation study

Graphic 4: Distribution of silent /e/ rule (long vowel) substitution errors in the 2006-7 validation study



SLP Early Grade Literacy Intervention Based on Short Vowel Proficiency Assessment (P-O-S-E_©)

Carol A. Sullivan, M.S., CCC-SLP and Roy F. Sullivan, Ph.D., CCC-A

P-O-S-E_© Inc., Garden City, NY (www.P-O-S-E.net)

P-O-S-E_© Group Data

Data are presented below in graphic / tabular format:

Graphic 5: P-O-S-E_© Baseline and RTI paired findings for 191 Mineola UFSD grade 3 students in 2012-13.

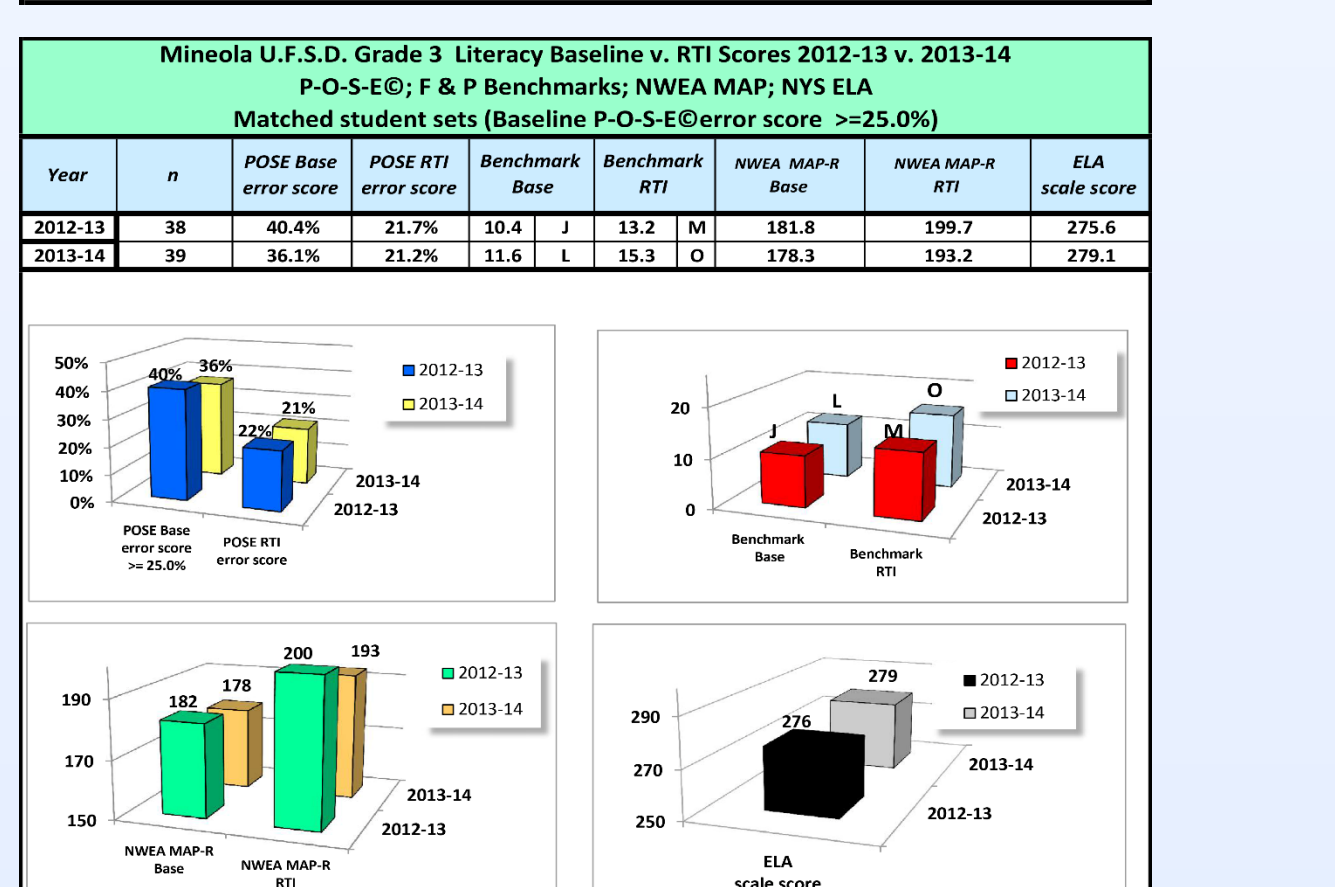
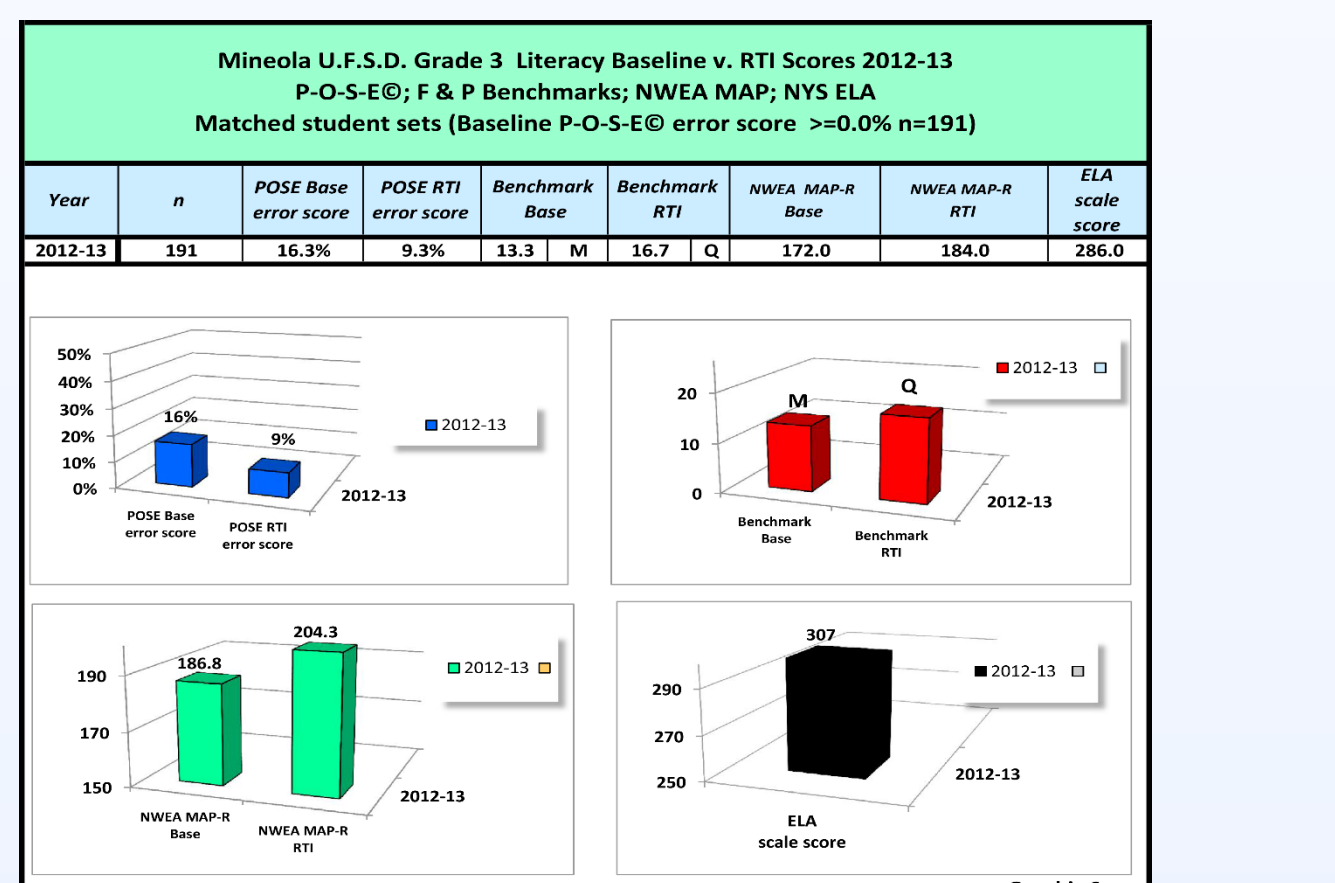
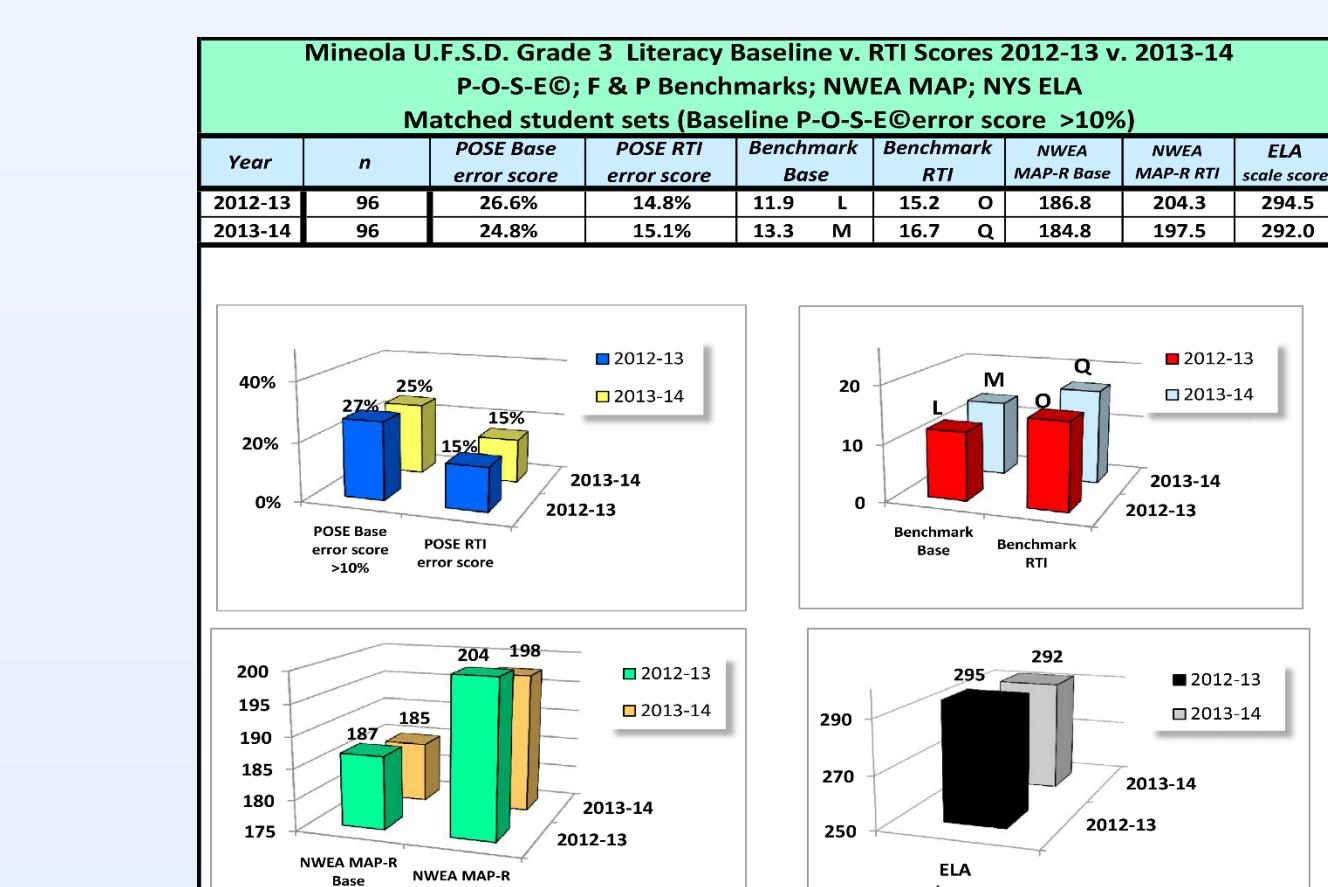
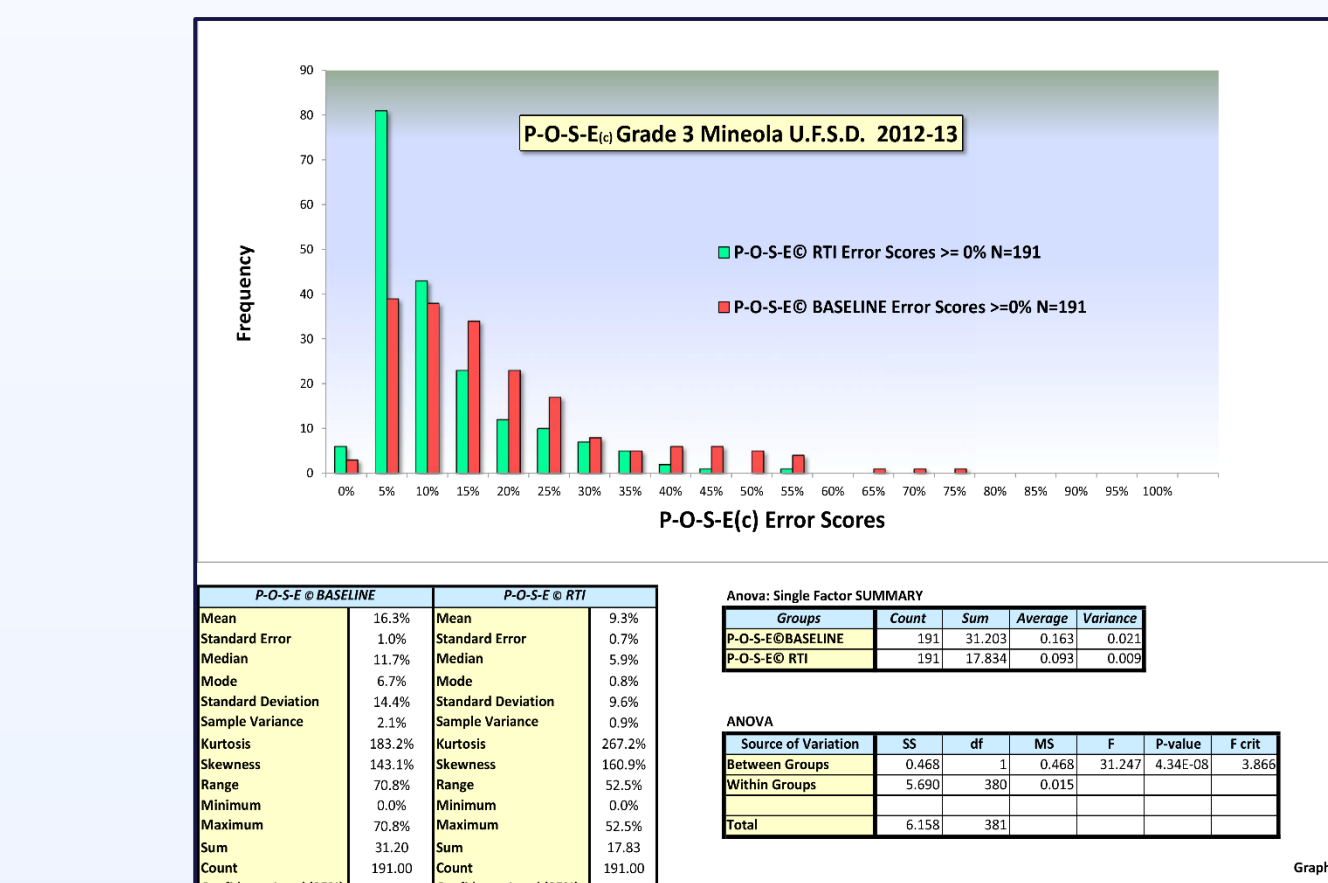
Graphic 6: Baseline and RTI paired findings for grade 3 students who took all seven examinations (Baseline and RTI P-O-S-E_©, F&P BAS, NWEA MAP-R and year-end NYS ELA) in 2012-13 (n=191).

Graphic 7: Baseline and RTI paired findings for two separate class cohorts of grade 3 students who took all seven examinations (Baseline and RTI P-O-S-E_©, F&P BAS, NWEA MAP-R and year-end NYS ELA) in 2012-13 (n=96) and 2013-14 (n=96) – limiting analysis to students with baseline P-O-S-E_© error scores greater than 10%.

Graphic 8: Baseline and RTI findings for two groups of grade 3 students who took all seven examinations (Baseline and RTI P-O-S-E_©, F&P BAS, NWEA MAP-R and year-end NYS ELA) in 2012-13 (n=38) and 2013-14 (n=39) – limiting analysis to students with baseline P-O-S-E_© error scores greater than 25%.

Graphic 9-13: Multiple correlation matrices were calculated for all the certified paired Baseline and RTI scores.

While correlation does not define causality, the Mineola UFSD grade 3 professional staff consensus is supportive of the implication that gains in short vowel proficiency functionally translate to gains on grade-appropriate standardized metrics of literacy. The commonality of phonology to both reading and spelling defines a unique interventional opportunity for the SLP.



P-O-S-E_© Correlations with Alternative Measure of Literacy

Internally consistent, the P-O-S-E_© presents Cronbach alphas of 0.96 overall, 0.93 for Spelling and 0.92 for Reading (n=275). Graphics 9-13 display correlation matrices among Baseline and RTI for P-O-S-E_© error scores, Fountas and Pinnell Benchmark Assessment (F&P BAS), Northwest Educational Association Measures of Academic Progress-Reading (NWEA MAP-R) and the year-end New York State English Language Arts Examination (NYS ELA.) Matrices are categorized as: all 2012-13 Mineola UFSD grade 3 students with paired data, n=191 (Graphic 5); grade 3 students with P-O-S-E_© substitution error scores > 10% for 2012-13, n=96 (Graphic 10) and for 2013-14, n=96 (Graphic 11); grade 3 students with P-O-S-E_© substitution error scores > 25% for 2012-13, n=38 (Graphic 12) and for 2013-14, n=39 (Graphic 13). P-O-S-E_© error score correlations are negative in sign relative to the scores correct for other instruments. All correlations are statistically significant, p < .0001.

Multiple Correlations Grade 3 Mineola U.F.S.D. 2012-13 (P-O-S-E_© Base > 10% n=96)

	P-O-S-E _© error Base	P-O-S-E _© error RTI	Benchmark Base	Benchmark RTI	NWEA MAP-R Base	NWEA MAP-R RTI	ELA score Base	ELA score RTI
P-O-S-E _© error Base	1.00							
P-O-S-E _© error RTI	0.66	1.00						
Benchmark Base	-0.59	-0.49	1.00					
Benchmark RTI	-0.40	-0.53	0.93	1.00				
NWEA MAP-R Base	-0.47	-0.34	0.61	0.61	1.00			
NWEA MAP-R RTI	-0.36	-0.36	0.61	0.61	0.79	1.00		
ELA	-0.59	-0.50	0.66	0.65	0.65	0.67	1.00	

Multiple Correlations Grade 3 Mineola U.F.S.D. 2013-14 (P-O-S-E_© Base > 10% n=96)

	P-O-S-E _© error Base	P-O-S-E _© error RTI	Benchmark Base	Benchmark RTI	NWEA MAP-R Base	NWEA MAP-R RTI	ELA score Base	ELA score RTI
P-O-S-E _© error Base	1.00							
P-O-S-E _© error RTI	0.62	1.00						
Benchmark Base	-0.62	-0.38	1.00					
Benchmark RTI	-0.53	-0.37	0.88	1.00				
NWEA MAP-R Base	-0.44	-0.28	0.68	0.53	1.00			
NWEA MAP-R RTI	-0.44	-0.29	0.66	0.60	0.67	1.00		
ELA	-0.43	-0.29	0.65	0.62	0.64	0.67	1.00	

Multiple Correlations Grade 3 Mineola U.F.S.D. 2012-13 (P-O-S-E_© Base > 25% n=38)

	P-O-S-E _© error Base	P-O-S-E _© error RTI	Benchmark Base	Benchmark RTI	NWEA MAP-R Base	NWEA MAP-R RTI	ELA score Base	ELA score RTI
P-O-S-E _© error Base	1.00							
P-O-S-E _© error RTI	0.54	1.00						
Benchmark Base	-0.62	-0.47	1.00					
Benchmark RTI	-0.57	-0.56	0.95	1.00				
NWEA MAP-R Base	-0.35	-0.26	0.56	0.52	1.00			
NWEA MAP-R RTI	-0.34	-0.38	0.50	0.56	0.61	1.00		
ELA	-0.52	-0.50	0.76	0.66	0.62	0.63	1.00	

Multiple Correlations Grade 3 Mineola U.F.S.D. 2012-13 (P-O-S-E_© Base > 25% n=38)

	P-O-S-E _© error Base	P-O-S-E _© error RTI	Benchmark Base	Benchmark RTI	NWEA MAP-R Base	NWEA MAP-R RTI	ELA score Base	ELA score RTI
P-O-S-E _© error Base	1.00							
P-O-S-E _© error RTI	0.38	1.00						
Benchmark Base	-0.53	-0.16	1.00					
Benchmark RTI	-0.34	-0.19	0.80	1.00				
NWEA MAP-R Base	-0.37	-0.05	0.75	0.55	1.00			
NWEA MAP-R RTI	-0.42	-0.26	0.66	0.62	0.51	1.00		
ELA	-0.33	-0.16	0.50	0.40	0.44	0.52	1.00	

Multiple Correlations Grade 3 Mineola U.F.S.D. 2013-14 (P-O-S-E_© Base > 25% n=39)

	P-O-S-E _© error Base	P-O-S-E _© error RTI	Benchmark Base	Benchmark RTI	NWEA MAP-R Base	NWEA MAP-R RTI	ELA score Base	ELA score RTI
P-O-S-E _© error Base	1.00							
P-O-S-E _© error RTI	0.38	1.00						
Benchmark Base	-0.53	-0.16	1.00					
Benchmark RTI	-0.34	-0.19	0.80	1.00				
NWEA MAP-R Base	-0.37	-0.05	0.75	0.55	1.00			
NWEA MAP-R RTI	-0.42	-0.26	0.66	0.62	0.51	1.00		
ELA	-0.33	-0.16	0.50	0.40	0.44	0.52	1.00	

Case study: Falana A. (pseudonym)

This third grade student is the only child of Portuguese immigrants. Early in the child's life, her mother suffered a left hemisphere TBI, rendering her unable to communicate in other than her native language. The father is bilingual with Portuguese as the dominant language spoken at home. Falana was evaluated on the P-O-S-E_© in the Fall of 2011 with a 54% Baseline error score, distributed evenly between short vowels and silent /e/ rule long vowels. She received intervention which included SLP individual P-O-S-E_© vowel training, group ESL P-O-S-E_© vowel training and Gen Ed vowel training support for the balance of the academic year.

Case study: Data

Graphic 14: Chart summarizes P-O-S-E_© baseline test results categorized by Reading/Spelling; non-words and real words, short vowels and silent /e/ rule long vowel outcomes. The P-O-S-E_© Baseline total error score is 54%.

Graphic 15: Bar chart summarizes P-O-S-E_© substitution error outcomes in Spelling and Reading by target short vowel and silent /e/ rule.

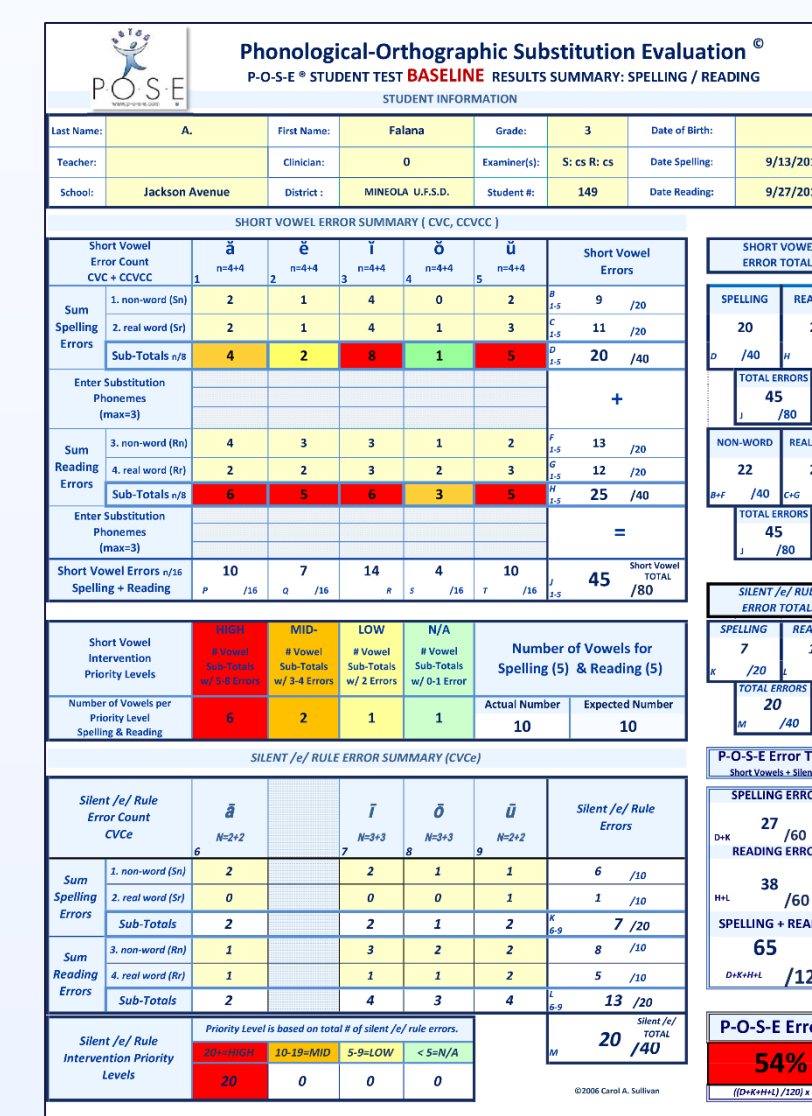
Graphic 16: Transcript of all Baseline P-O-S-E_© test items including pre-vowel and post-vowel responses. Note the extensive b/d confusion.

Images 6 and 7 represent the individual SLP vowel training and the ESL group vowel training interventional contexts.

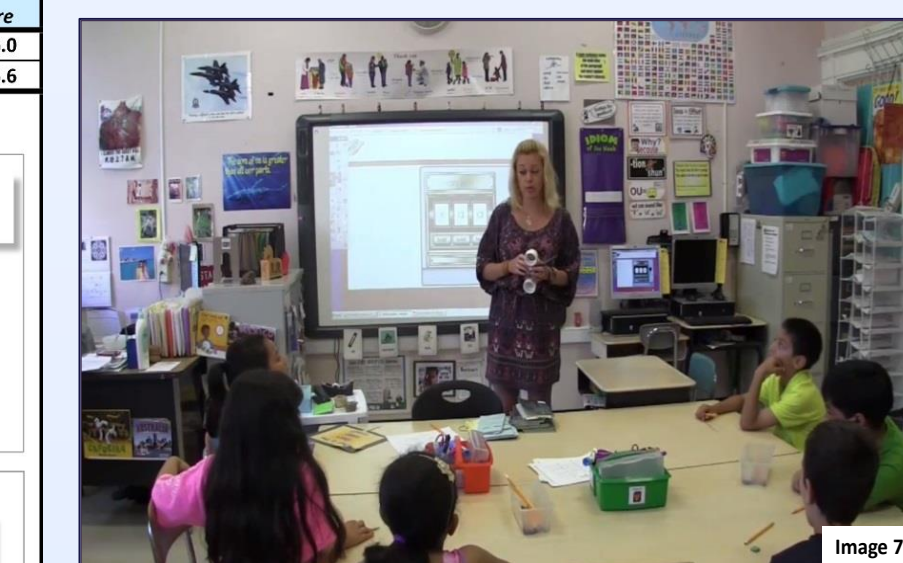
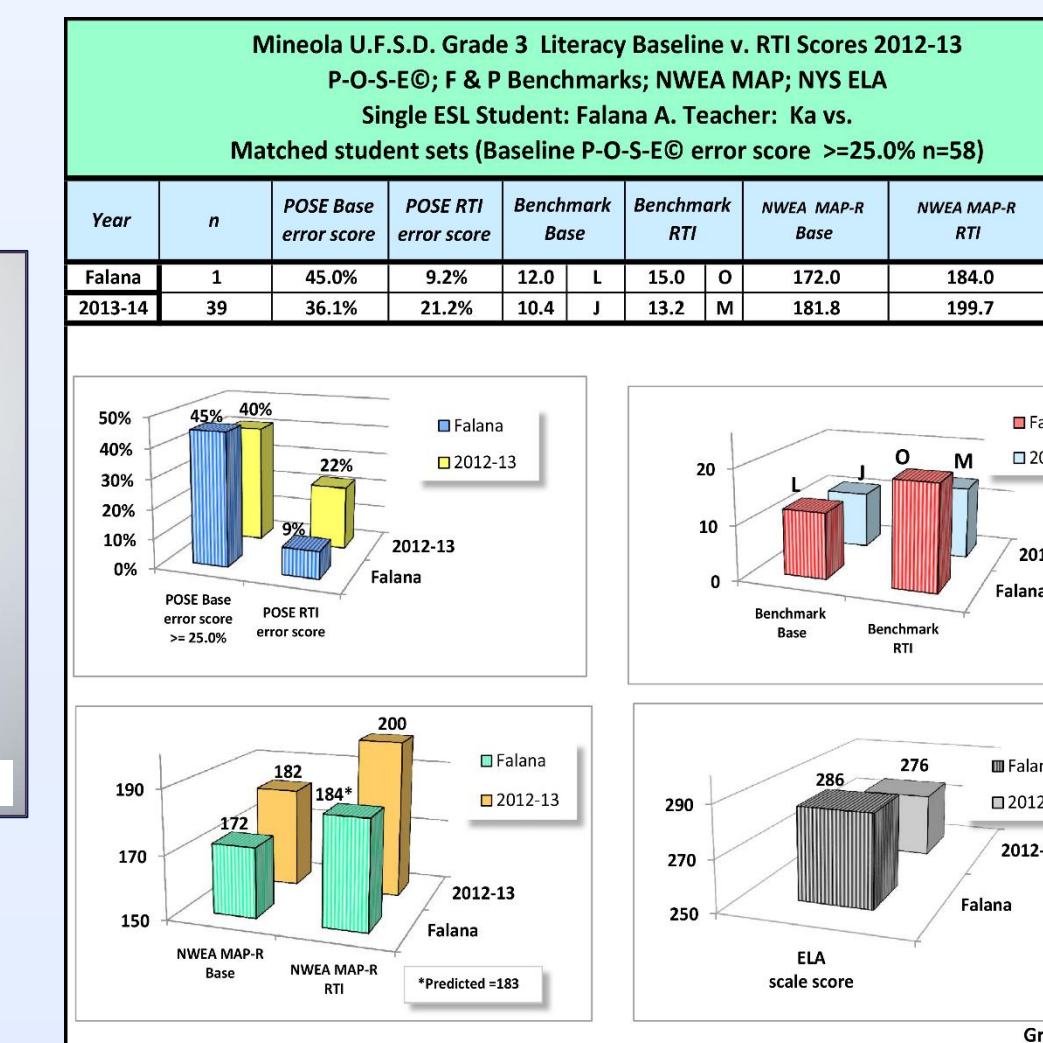
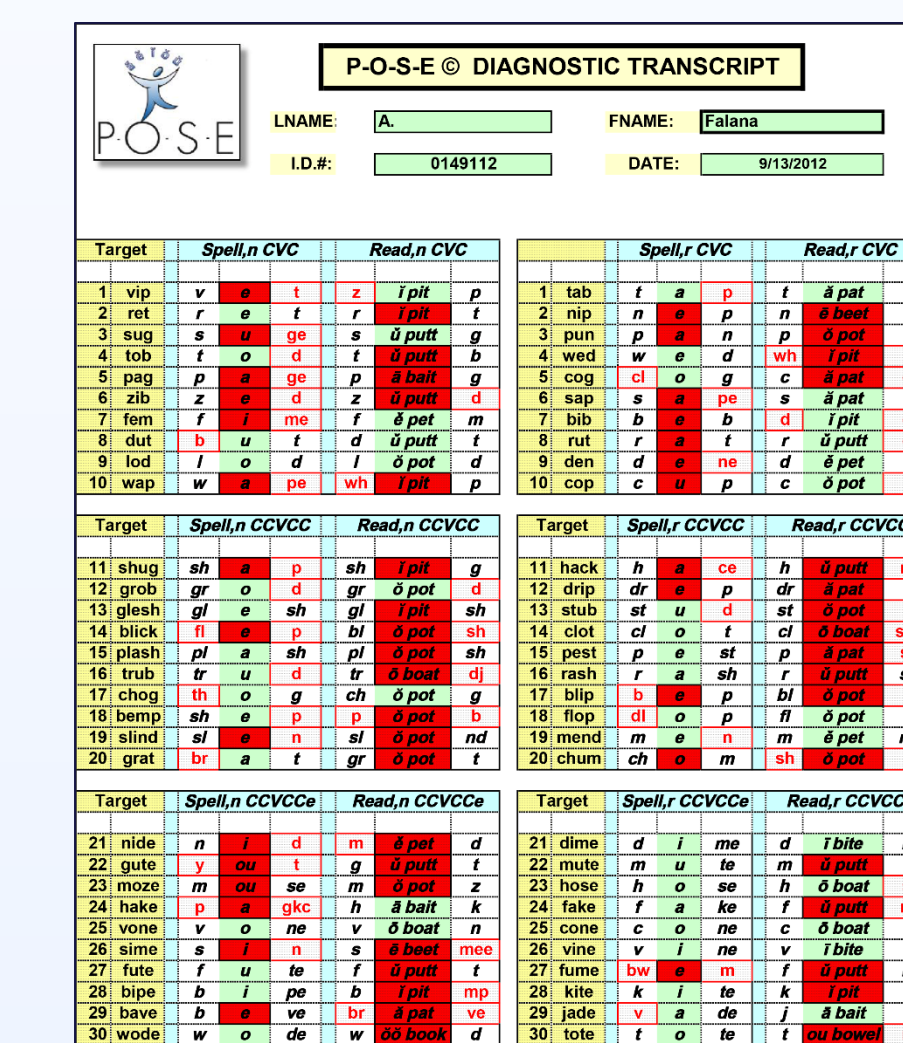
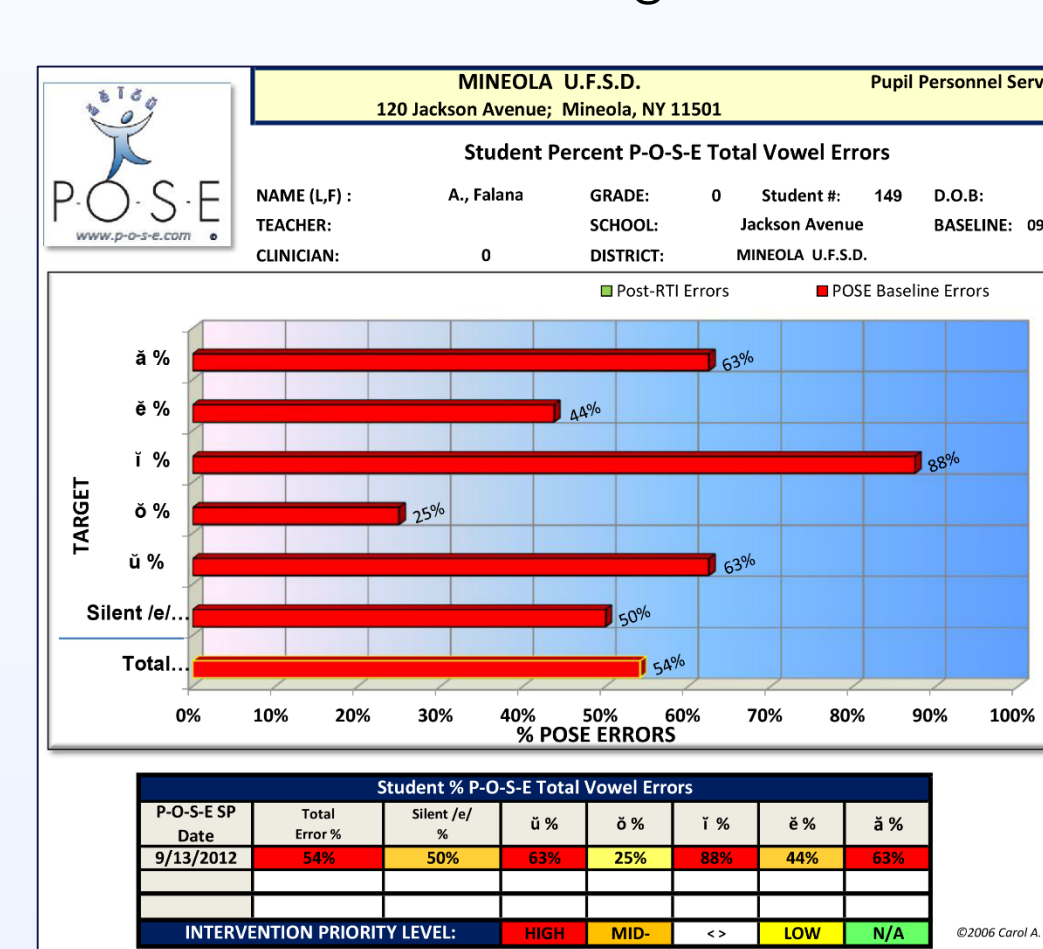
Graphic 17: Presents Falana's Baseline and RTI performance on the P-O-S-E_©, F&P BAS, NWEA MAP-R and NYS ELA compared with like scores for the grade 3 2012-13 cohort =>25% P-O-S-E_©. Grade level RTI performance was realized on all paired measures of literacy.

Graphics 18-20: Present P-O-S-E_© RTI data in the same formats as displayed for Baseline findings in Graphics 14-16.

Now in middle school, the student continues to function at grade level.



Falana P-O-S-E_© Baseline



P-O-S-E_© Spelling and Reading Tests

The P-O-S-E_© Spelling test of 60 non-words and 60 real words may be administered individually (image 1), per class (image 2) or with groups of up to four classes with a maximum of 80 grade 3 students (image 3), typically using the school cafeteria off hours with amplification and supportive personnel. Administration time ranges from 12 minutes for single student testing to 30 minutes for grouped classes. Scoring is done off-line by school staff or by using P-O-S-E_© forms-with-processing service.

The P-O-S-E_© Reading test, using the Spelling test word set, is administered individually in office (image 4) or immediately outside the classroom (image 5) at least one week after the Spelling test. Each Reading test takes approximately 4-5 minutes including concurrent phonological transcription. The Reading/Spelling data are subsequently processed and analyzed by staff or by using P-O-S-E_© forms-with-processing service.



Falana P-O-S-E_© RTI

