

Progress Monitoring in Reading

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Alternate Forms

- Progress monitoring requires alternate forms to allow meaningful interpretation of student data across time. Without such cross-form equivalence, changes in scores from one testing session to the next are difficult to attribute to changes in student skill or knowledge.
- As student reading skills progresses through the different skill areas in the broad construct of reading, it is necessary to use different reading measures to be able to continue to track the progress students are making as developing readers

Technical Reports

- Alonzo, J. & Tindal, G. (2007). *The Development of Early Literacy Measures for use in a Progress Monitoring Assessment System: Letter Names, Letter Sounds, and Phoneme Segmenting*. Technical Report # 39. University of Oregon, Eugene: Behavioral Research and Teaching.
- Alonzo, J. & Tindal, G. (2007). *The Development of Word and Passage Reading Fluency Measures for use in a Progress Monitoring Assessment System*. (Technical Report # 40). University of Oregon, Eugene: Behavioral Research and Teaching.
- Alonzo, J., Liu, K., & Tindal, G. (2007). *Examining the Technical Adequacy of Reading Comprehension Measures in a Progress Monitoring Assessment System*. (Technical Report #41). University of Oregon, Eugene: Behavioral Research and Teaching.

Design of Alternate Measures

- Defined universe of items in a pilot
- Used common items and nonequivalent groups design
- Scored tests at the item level
- Reassembled items for equivalent forms

Distribution of the Measures Across the Grades

Grade	Ltr Names	Ltr Sounds	Phon. Seg	Word Fluency	Passage Fluency	MC Comp
K	X	X	X	X		
1	X	X	X	X	X	
2					X	
3					X	X
4					X	X

Data Analyses

- One-parameter Rasch model
- Estimates the difficulty of individual test items and the ability level of each individual test taker
- Standard error of measure
- Mean square outfit to evaluate goodness of fit (values in the range of 0.50 to 1.50)

Letter Names, Sounds, Segmenting

- 16 letter names exceeded mean sq outfit of 1.5 but were included given low SEM-3 letters found to not fit (g, H, and Y)
- 16 letter sounds exceeded mean sq outfit of 1.5 but were included given low SEM-6 letter sounds found to not fit (B, C, d, j, p, and Qu)
- A total of 181 words used in segmenting remained in the item bank

Letter Names

- Between 297 - 1036 students were tested
- Item level data collected on first 2 lines (20 letters)
- Random selection of lower and upper case
- No exact letters were repeated in top 2 rows
- 5 letters served as anchors and appeared consistently in the same locations on all forms
- Roughly 20% of the items overlapped from one form to another

Letter Sounds

- Between 554 and 1801 students were tested
- Item-level data on only the first two lines (20 items)
- Randomly seeded all letters in their capital and lower case formats
- No exact letters were repeated in top 2 rows
- 5 letters served as anchor items, common across all forms of the test and in the same location
- 20% of the items overlapped from one form to another

Phoneme Segmenting

- Between 110 and 2067 students were tested
- Five anchor item words appeared consistently in the same locations on all forms
- Roughly 20% of the items overlapped from one form to another

Alternate Forms

- We clustered all Letter Names that were able to be estimated into three categories: easy, moderate, and difficult
- We used this information to draw items in creating 20 alternate forms
- We drew from the easy items for the first two rows of items, the moderate items for the two middle rows, and the difficult items for the final two rows of items

Letter Names

Easy	Moderate	Difficult
o	R	v
X	N	z
A	p	W
s	C	U
O	m	h
B	D	Q
E	P	u
a	n	w
T	F	y
x	f	l
e	I	V
r	K	d
Z	k	J
S	M	b
L	i	j
t	c	q

Letter Sounds

Easy Items	Moderate Items	Difficult Items
D	f	w
m	I	v
th	M	Th
Sh	H	ch
b	x	V
o	z	a
k	O	E
Ph	sh	g
c	wh	F
h	J	ph
e	t	s
Z	G	i
Ch	N	X
U	l	R
qu	A	Y
n	r	K
S	L	u
T	y	P

Phoneme Segmenting – 14 Categories

Cat. 1	-1.74	paid	tap	pack
		cup	mom	male
		hid	nurse	mine
		shed	fit	

Cat. 9	0.70	spouse	word	regrow
		drip	tint	repeal
		trait	remote	slowly
		jump	crowd	black
		yam	roman	street

Word Reading Fluency

- Tests students' ability to read both sight-words and words following regular patterns of letter/sound correspondence in the English language
- Students are shown a series of words organized in a chart on one side of a single sheet of paper and given a set amount of time (30-60 seconds)
- The words we used during the pilot study came from a variety of sources: Dolch word lists, online grade-level word lists, and a list of 'the first 1000 words' found in Frye's Book of lists (1998).

Word List Design

- Between 144 and 2654 students provided pilot test data on each word
- We kept each of the pilot forms short (68 words in Kindergarten, 80 in grades 1-3)
- We administered 5 different forms of the Word Reading Fluency test to students in Kindergarten, 4 forms to students in first grade, and 3 forms to students in third and fourth grade.
- Each form contained 5 words that served as anchor items, common across all 15 forms of the test (and appearing in the same location)

Passage Reading Fluency

- Tests students' ability to read connected narrative text accurately. In this individually-administered measure, students are shown a short narrative passage (approximately 250 words)
- Omissions, hesitations, and misidentifications were counted as errors

Passage Fluency Design

- Measures were all written specifically for use in this progress monitoring assessment system.
- All 80 passages were written by graduate students enrolled in College of Education courses in the winter of 2006
- Passage writers followed written test specifications and were systematically reviewed by Lead Coordinator and then teachers in field
- Each passage was divided into three paragraphs of approximately even length and checked the readability of each paragraph using the Flesch-Kinkaid readability index (1.5, 2.5, 3.5, 4.5)

Analysis

- On word list, we used Rasch analysis to scale words on difficulty and ability
- For passages, we analyzed correlations and mean differences between the different forms of the measures using a repeated measures analysis
- Variations in passage outcomes were reduced by rewriting passages

Results of Word List

- Initial analyses revealed 283 words outside the acceptable Mean Square Outfit range of 0.50 – 1.50. These items were dropped from the item bank, resulting in 465 remaining words
- List created with the easiest words appearing first in the list and subsequent words increasing in difficulty

Word List – Easiest 10

Word	Count	Measure	Mean Square Outfit
I	238	-7.33	1.36
is	195	-6.31	1.29
the	1960	-6.21	1.10
it	195	-6.01	1.21
ten	243	-5.65	1.00
top	195	-5.37	0.93
and	2654	-5.20	1.15
an	195	-4.90	0.95
sun	195	-4.84	0.71
man	245	-4.32	1.37

Word List – Most Difficult 10

Word	Count	Measure	Mean Square Outfit
produce	208	4.09	1.11
cultivate	243	4.11	1.30
period	193	4.24	0.69
irrigate	243	4.41	1.00
divided	254	4.65	0.66
deception	210	4.70	1.14
thousands	254	4.76	0.76
commercial	243	4.78	1.31
though	254	5.33	1.37
compromise	210	5.36	1.19

Grade 4 Passages

Passage	Title	<i>n</i>	<i>M</i>	<i>SD</i>
Gr4PR_1_C	Birthday Surprise	207	134.82	35.00
Gr4PR_2_C	Amusement Park	208	139.96	37.74
Gr4PR_3_C	Farm Dog Goes to Town	208	135.29	36.77
Gr4PR_4_C	A Day of Celebration	208	137.56	38.45
Gr4PR_5_C	Billy's Garden with Grandpa	204	143.63	38.65
Gr4PR_6_C	Maria's Secret Friend	204	130.35	34.83
Gr4PR_7_C	Lisa Gets to Drive	204	139.11	42.22
Gr4PR_8_C	Toni the Shark	203	132.88	39.62
Gr4PR_9_C	Marta's New Sweater	203	139.84	41.27
Gr4PR_10_C	Back to School	203	132.83	38.68
Gr4PR_11_C	The Perfect Present	200	131.39	36.65
Gr4PR_12_C	The Perfect Assignment	200	136.51	40.32
Gr4PR_13_C	President David	198	141.40	38.44
Gr4PR_14_C	Above the Clouds	199	138.70	37.68
Gr4PR_15_C	Super Powers	198	131.42	38.79
Gr4PR_16_C	A Friend for Jared	199	131.19	42.27
Gr4PR_17_C	Fieldtrip to the Zoo	196	139.05	42.69
Gr4PR_18_C	Hurt Feelings	195	136.56	39.41
Gr4PR_19_C	Billy and Spike	195	135.96	44.92
Gr4PR_20_C	The Rainy Day Jar	195	136.76	43.55

MC Reading Comprehension

- We developed the MC Comprehension Tests in a two-step process.
 - First, we wrote the stories that were used as the basis for each test
 - Then, we wrote the test items associated with each story
 - We embedded quality control and content review processes in both these steps throughout instrument development
- Stories were narrative fiction of approximately 1500 words with three types of items written from them: literal, inferential, and evaluative
- 20 items per story were developed with 6-7 items of each type noted above; 3-options were provided

Authors of MC Test

- The lead author, who oversaw the creation and revision of the stories and test items earned her Bachelor of Arts degree in Literature from Carleton College in 1990, worked for twelve years as an English teacher in California public schools, was awarded National Board for Professional Teaching Standards certification in Adolescent and Young Adulthood English Language Arts in 2002, and was a Ph.D. candidate in the area of Learning Assessments / System Performance at the University of Oregon at the time the measures were created.
- The item writer earned his Ph.D. in education psychology, measurement and methodology from the University of Arizona. He has worked in education at the elementary and middle school levels, as well as in higher education and at the state level. He held a position as associate professor in the distance learning program for Northern Arizona University and served as director of assessment for a large metropolitan school district in Phoenix, Arizona. In addition, he served as state Director of Assessment and Deputy Associate Superintendent for Standards and Assessment at the Arizona Department of Education. He was a test development manager for Harcourt Assessment and has broad experience in assessment and test development

Design of MC Test

- We used a common-person / common item piloting design
- The 20 different forms of each grade level measure were clustered into 5 groups, with 5 forms in each group
- Each test grouping contained two overlapping forms, enabling concurrent analysis of all measures across the different student samples

Sample Analysis

Item Number	Raw Score	Count	Measure	Standard Error	Outfit Mean Squares
1	88	95	-1.78	0.42	.37
2	86	95	-1.47	0.37	.50
3	90	95	-2.18	0.48	.41
4	62	95	0.52	0.24	1.12
5	71	95	-0.05	0.26	1.03
6	25	95	2.53	0.25	2.32
7	72	95	-0.13	0.27	.97
8	75	95	-0.35	0.28	.94
9	74	95	-0.27	0.28	.61
10	48	95	1.29	0.23	1.20
11	64	95	0.4	0.25	1.06
12	58	95	0.75	0.24	1.04
13	74	95	-0.27	0.28	.84
14	77	95	-0.51	0.29	.80
15	66	95	0.28	0.25	.92
16	42	95	1.6	0.23	1.19
17	80	95	-0.78	0.31	.75
18	67	95	0.21	0.25	.91
19	76	95	-0.43	0.28	.99
20	60	95	0.64	0.24	.99

Distractor Analysis

Entry #	Data Code	Score Value	Count	%	Average Measure	S.E. Mean
1	A	0	2	2	-0.77	.27
	C	0	5	5	-0.37	.26
	B	1	88	93	1.50	.13
	Missing	**				
2	C	0	4	4	-0.39	.32
	B	0	4	4	-0.27	.51
	A	1	86	91	1.53	.13
	Missing	**	1	1	0.24	

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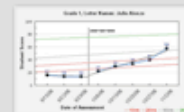
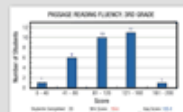
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Student Name: _____ Form ID: 123

Word	Fluency	Accuracy	Comprehension
the	10	100%	100%
and	10	100%	100%
at	10	100%	100%
the	10	100%	100%
the	10	100%	100%
the	10	100%	100%
the	10	100%	100%
the	10	100%	100%
the	10	100%	100%
the	10	100%	100%

Student: _____

Student	Score	Date
J. John Adams	100	10/10/10
	100	10/10/10
	100	10/10/10
	100	10/10/10
	100	10/10/10
	100	10/10/10
	100	10/10/10
	100	10/10/10
	100	10/10/10
	100	10/10/10



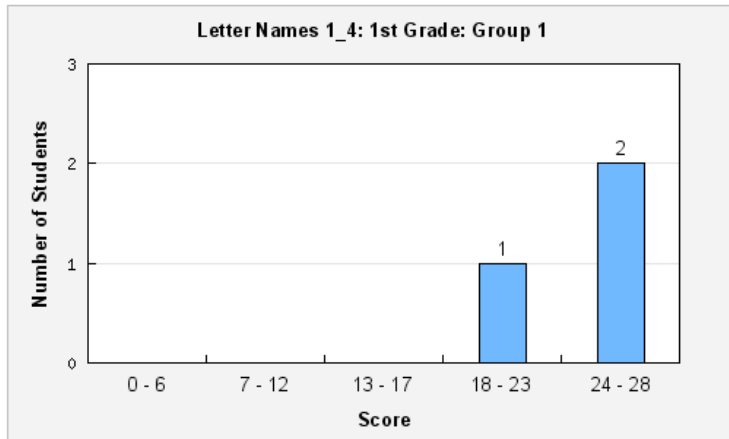
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Diagnostic Views



Students Completed: 3 Min Score: 22.0 Avg Score: 25.3
Students in Group: 3 Max Score: 28.0 Std Deviation: 2.5

Item Analysis

Top Easiest		
Item	Students Correct	Percentage
E	3 of 3	100%
O	3 of 3	100%
T	3 of 3	100%
t	3 of 3	100%
o	3 of 3	100%
r	3 of 3	100%
s	3 of 3	100%

Top Hardest		
Item	Students Correct	Percentage
X	2 of 3	67%
a	2 of 3	67%
x	2 of 3	67%
Z	2 of 3	67%

Monitoring Instruction and Progress

Groups Individuals **Interventions**

Educational Program Log

Student	Label	Date	Description
Julie Alonzo	one-on-one	10/2/06	Paired each student with an adult mentor; 30 min/day
Julie Alonzo	Read Great	12/18/06	30 min/day on com

Students

Student Name	View Test	Score																		
<p>Grade 1, Letter Names: Julie Alonzo</p> <table border="1"> <caption>Student Score Data</caption> <thead> <tr> <th>Date of Assessment</th> <th>Student Score</th> </tr> </thead> <tbody> <tr><td>9/15/06</td><td>16</td></tr> <tr><td>9/22/06</td><td>14</td></tr> <tr><td>9/29/06</td><td>14</td></tr> <tr><td>10/6/06</td><td>22</td></tr> <tr><td>10/13/06</td><td>30</td></tr> <tr><td>10/20/06</td><td>34</td></tr> <tr><td>10/27/06</td><td>46</td></tr> <tr><td>11/2/06</td><td>58</td></tr> </tbody> </table>			Date of Assessment	Student Score	9/15/06	16	9/22/06	14	9/29/06	14	10/6/06	22	10/13/06	30	10/20/06	34	10/27/06	46	11/2/06	58
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10/20/06	34																			
10/27/06	46																			
11/2/06	58																			
1 Julie Alonzo	Hide Graph	View 22 LNPM																		
2 Leanne Bettesworth	Show Graph	View 28 LNPM																		
3 Luke Duesbery	Show Graph	View 26 LNPM																		
Show All Graphs																				

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- Improve basic skills assessments so that all students can read, write, and compute.
- Enhance learning of middle and secondary content subject matter so that all students have the opportunity to develop a broad knowledge base.
- Provide accessibility to large-scale testing so that all students can demonstrate their proficiencies on state and local achievement standards.

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Accommodation Station Updated

The public version of our testing accommodations decision making tool has received several new features, including the ability to load a customized database.