Redmond Sentence Recall

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PURPOSE: The Redmond Sentence Recall (RSR) measures a child's ability to repeat sentences that contain regular past tense forms and past participle forms (e.g., "He kicked" vs. "He was kicked"). Each child will repeat each of the 16 sentences after s/he hears the sentence on the headphones.

MATERIALS:

       MP3 Player
       Score sheet
       Headphone
       Headphone splitter

AGES: 5-9

TIME TO ADMINISTER: Approximately 7-10 minutes

SAMPLE ITEMS:

Say, **"You are going to listen to some sentences on the headphones. I want you to listen to the directions and then she will say some sentences. Repeat exactly what she says."**
- For the practice sentence, provide children with feedback and encouragement.
- The practice sentence may be re-administered if children perform in a way that suggests they do not understand the task or if during the protocol it seems they need to be re-directed to providing imitative responses.

TEST ITEMS:

- Administer the remaining sentences using the Power Point presentation that contains the auditory stimuli. In order to hear the audio the Power Point must be in presentation mode.
- During this task children will listen to all of the sentences. After each sentence they will repeat the sentence. You will then record the child's response.
- Press the space bar to go to forward through the next items in the task.
- One repetition of each sentence is allowed if children request it or if the examiner considers it appropriate (e.g., a school announcement interrupts the item).
- For no responses or "I don't remember", prompt with "Just tell me what you can remember" and then if they still don't respond or remember record as >4 errors.
- All items on the RSR are administered regardless of response accuracy.
- Accept the child's final answer as their response. This includes revisions of answers that are correct that are changed to incorrect, or a response that is incorrect and then becomes corret.

Editing Symbols:

Use the following symbols to indicate the differences between the student's responses and the printed items in the Record Form. You will add the symbols to the sentence on the scoresheet.

Omission
Mark a line through each word or part of a word that is omitted: ——

Target:	The big football player washed the car with the hose.
Child's response:	The football player wash the car with the hose.
What you record:	The ~~big~~ football player wash~~ed~~ the car with the hose.

Repetition
Underline each word the student repeats with a wavy line: ⌃⌃⌃

Target:	All of the pictures were colored by his little sister.
Child's response:	All of all of the pictures were colored colored by his little sister.
What you record:	All of the pictures were colored by his little sister.

Addition
Use a caret to indicate the addition of a word or words: ^. Write the added words(s) above or below the caret.

Target:	The lion's teeth were cleaned with a giant toothbrush.
Child's response:	The lion's teeth were cleaned with a great big giant toothbrush.
What you record:	great big
	The lion's teeth were cleaned with a ^ giant toothbrush.

Transposition
Use an S curve to indicate transposed words: ∿

Target:	The little white mouse was caught by our neighbor's cat.
Child's response:	The white little mouse was caught by our neighbor's cat.
What you record:	The little white mouse was caught by our neighbor's cat.

Substitution
To indicate a substitution, mark a line through each word that is omitted and write the substituted word above or below it.

Target:	My little sister's dog caught the ball on the first bounce.
Child's response:	My little ~~brother's~~ dog caught the ball on the first bounce.
What you record:	My little sister's dog caught the ball on the first bounce. brother's

Scoring the RSR:

After the assessment, carefully consider the following scoring procedures in order to classify the student's response (e.g., 2 points, 1 point, or 0 points):

- Look at the whole sentence. Count any word that is changed, added, substituted, or omitted as one error.
- Count each transposition that **changes the meaning** of the sentence as two errors.
- Count each transposition that **does not change** the meaning of the sentence as one error.
- Using an appropriate contracted form (or non-contracted form) is acceptable and should not be counted as an error (*was not* or *wasn't* are both acceptable).
- Responses that contain regional and cultural patterns or variations that reflect dialectal differences from Mainstream American English are acceptable if they are part of the student's language system.
- Do **not** count repetitions of words (as in dysfluency or stuttering) as errors.
- Count the number of errors in the response and classify it according to the following:

Correct (0 Errors)	Sentence is repeated without errors. Write 2 in the "0 Errors" column
≤ 3 Errors	Write **1** in the "≤ 3 Errors" column
> 4 Errors	Any response with four or more words changed, added, substituted, omitted, or reversed; omission or re-sequencing of phrases containing four or more words, with a **0** in the "> 4 Errors" column

- Add up the totals for each column.
- Add up the total number of points earned and write that number over the printed 32 at the bottom of the score form.

Demographics for screenings

Norms for the RSR were created from participants who were attending regular education only. Children were excluded from the standardization sample if they were receiving any special education services (e.g., resource, reading, speech-language services), receiving English as a second language services, or were participating in an extended learning program.

Ethnic Category	Females	Males	Total
Hispanic	23 (6.1%)	24 (5.9%)	47 (6%)
Not Hispanic	351 (93.6%)	380 (93.4%)	731 (93.5%)
Unknown	1 (.3%)	3 (.7%)	4 (.5%)
ETHNIC TOTAL	**375**	**407**	**782**
Racial Categories			
American Indian	3 (.8%)	6 (1.5%)	9 (1.2%)
Asian	14 (3.7%)	14 (3.4%)	28 (3.6%)
Pacific Islander	3 (.8%)	8 (2.0%)	11 (1.4%)
Black	13 (3.5%)	5 (1.2%)	18 (2.3%)
White	341(90.9%)	371 (91.2%)	712 (91%)
More than one race	--	--	--
Unknown	1 (.3%)	3 (.7%)	4 (.5%)
RACIAL TOTAL	**375**	**407**	**782**

Consistency, Reliability, Stability

Inter-Rater Consistency:

Inter-rater consistency was performed by randomly selecting 50 screening participants and re-listening and re-scoring the audio recording of the RSR administration. Analyzed using Pearson's r.

n = 50

	#agreements /(#agreements + #disagreements) *100	r
Redmond Sentence Recall	98.8%	.990***

$*\ p < .05$, $**\ p <.01$, $***\ p <.001$ (two tailed)

Test-Retest Reliability: 4 weeks or less:

Test-Retest reliability was performed by administering the RSR during each of the confirmatory testing sessions. Analyzed using Pearson's r.

N = 37, (M = 1.03 weeks, SD = 1.0, range = 1-4 weeks)

	r
Redmond Sentence Recall	0.946**

* p < .05, ** p <.01, *** p <.001 (two tailed)

Screening Testing-to-Confirmatory Testing Stability: 20 weeks or less:

Screening testing-to-confirmatory testing stability was performed by comparing the RSR performed at the screening in the school and the RSR performed at the time of confirmatory testing. Analyzed using Pearson's r.

N = 96 (M = 14.72 weeks, SD = 4.31, range = 1-20 weeks)

	r
Redmond Sentence Recall	.906**

* p < .05, ** p <.01, *** p <.001 (two tailed)

Pearson's r among Redmond Sentence Recall and the CELF-4, TEGI

N = 254

	RSR	TEGI Past Tense Probe	CELF-4	TEGI
RSR	--	.604***	.804***	.695***
TEGI Past Tense Probe		--	.614***	.905***
CELF-4			--	.694***
TEGI				--
***p*< .05, ***p*< .01, ****p*<.001				

RSR scores by age (N = 782)

AGE	N	RANGE	MEAN	SD	15TH %ILE	10TH %ILE	5TH%ILE
5;0 – 5;5	65	0-29	16.06	7.16	8.90	5.00	1.30
5;6 - 5;11	92	0-29	16.71	6.70	9.00	8.00	3.95
6;0 - 6;5	106	1-32	19.47	7.11	10.05	9.70	6.00
6;6 – 6;11	141	0-32	21.65	5.58	16.00	14.00	12.00
7;0 - 7;5	114	1-32	21.91	7.15	13.25	11.50	5.25
7;6 – 7;11	81	7-31	23.65	5.19	19.00	16.00	14.10
8;0 – 8; 5	84	8-32	25.62	4.78	21.75	18.50	15.25
8;6 – 8;11	73	10-32	25.70	4.76	20.10	18.40	15.70
9;0 – 9;5	26	22-31	26.96	2.54	23.05	23.00	22.35

Diagnostic accuracy associated with sentence recall screening standard score as a function of different reference standards for language disorder status

REFERENCE STANDARD	Area under curve	Optimal cutoff [a]	Sensitivity	Specificity	Positive Likelihood Ratio [b]	Negative Likelihood Ratio [c]
I. *Receiving SLP Services*	.722	91.50	.667	.733	2.50	.454
II. *Parental Ratings*						
CCC-2 $\leq$ 85	.773	94.50	.792	.643	2.21	.323
CCC-2 $\leq$ 80	.761	93.00	.800	.641	2.22	.312
III. *Standardized Tests and Measures*						
CELF-4 $\leq$ 85	.952	85.50	.891	.846	5.78	.129
TEGI $\leq$ 85	.851	93.00	.766	.785	3.56	.298
NWR $\leq$ 85	.872	94.50	.826	.769	3.57	.226
CELF-4 $\leq$ 80	.950	78.50	.878	.887	7.77	.138
TEGI $\leq$ 80	.865	93.00	.795	.780	3.61	.263
NWR $\leq$ 80	.870	93.00	.849	.754	3.45	.200
IV. *At least two of the following:*						
Receiving SLP Services; CCC-2 $\leq$ 85; CELF $\leq$ 85; TEGI $\leq$ 85; NWR $\leq$ 85	.905	94.50	.857	.812	4.55	.176
V. *All of the following:*						
Receiving SLP Services; CCC-2 $\leq$ 80; CELF $\leq$ 80; TEGI $\leq$ 80; NWR $\leq$ 80	.898	85.50	1.0	.700	3.33	0

[a] Determined using Youden index (J) where J = maximum {Sensitivity + Specificity -1}
[b] Positive Likelihood Ratio = Sensitivity/(1-Specificity): values of 1 = "Neutral"; 3 = "Moderately Positive"; $\geq$10 = "Very Positive"
[c] Negative Likelihood Ratio = (1-Sensitivity)/Specificity: values of 1 = "Neutral"; $\leq$ 0.30 = "Moderately Negative"; $\leq$ 0.10 = Extremely Negative"

Redmond Sentence Recall Standard Score Conversion Tables: 5;0-5;11

Ages 5;0-5;5 (N = 65; boys = 33, girls = 32) Confidence Intervals: 68% ±1.86 90% ±3.06 95% ±3.65			Ages 5;6-5;11 (N = 92; boys = 47, girls = 45) Confidence Intervals: 68% ±1.63 90% ±2.68 95% ±3.19		
RSR Raw Score	**Standard Score**	**Percentile**	**RSR Raw Score**	**Standard Score**	**Percentile**
0	66	1	0	62	1
1	68	2	1	64	1
2	70	2	2	67	1
3	72	3	3	69	2
4	74	4	4	71	3
5	76	5	5	73	4
6	78	7	6	76	5
7	81	10	7	78	7
8	83	13	8	80	9
9	85	16	9	82	12
10	87	19	10	84	14
11	89	23	11	87	19
12	91	27	12	89	23
13	93	32	13	91	27
14	95	37	14	93	32
15	97	42	15	96	39
16	99	47	16	98	45
17	101	53	17	100	50
18	104	61	18	102	55
19	106	66	19	105	63
20	108	70	20	107	68
21	110	75	21	109	73
22	112	79	22	111	77
23	114	82	23	114	82
24	116	86	24	116	86
25	118	88	25	118	88
26	120	91	26	120	91
27	122	93	27	123	94
28	125	95	28	125	95
29	127	96	29	127	96
30	129	97	30	129	97
31	131	98	31	131	98
32	133	99	32	134	99

Redmond Sentence Recall Standard Score Conversion Tables: 6;0-6;11

Ages 6;0-6;5
(N = 106; boys = 46, girls = 60)
Confidence Intervals:
68% ±1.46
90% ±2.40
95% ±2.86

Ages 6;6-6;11
(N = 141; boys = 80, girls = 61)
Confidence Intervals:
68% ±1.26
90% ±2.07
95% ±2.47

RSR Raw Score	Standard Score	Percentile	RSR Raw Score	Standard Score	Percentile
0	58	.3	0	41	<0.1
1	61	.5	1	44	<0.1
2	63	1	2	47	<0.1
3	65	1	3	49	<0.1
4	67	1	4	52	0.1
5	69	2	5	55	0.1
6	71	3	6	57	0.2
7	73	4	7	60	0.4
8	75	5	8	63	1
9	77	6	9	65	1
10	80	9	10	68	2
11	82	12	11	71	3
12	84	14	12	74	4
13	86	18	13	76	5
14	88	21	14	79	8
15	90	25	15	82	12
16	92	30	16	84	14
17	94	34	17	87	19
18	96	39	18	90	25
19	99	47	19	92	30
20	101	53	20	95	37
21	103	58	21	98	45
22	105	63	22	100	50
23	107	68	23	103	58
24	109	73	24	106	66
25	111	77	25	109	73
26	113	81	26	111	77
27	115	84	27	114	82
28	118	88	28	117	87
29	120	91	29	119	90
30	122	93	30	122	93
31	124	95	31	125	95
32	126	96	32	127	96

Redmond Sentence Recall Standard Score Conversion Tables: 7;0-7;11

Ages 7;0-7;5
(N = 114; boys = 55, girls = 59)
Confidence Intervals:
68% ±1.40
90% ±2.30
95% ±2.74

RSR Raw Score	Standard Score	Percentile
0	54	0.1
1	56	0.2
2	58	0.3
3	60	0.4
4	62	1
5	64	1
6	66	1
7	68	2
8	70	2
9	72	3
10	75	5
11	77	6
12	79	8
13	81	10
14	83	13
15	85	16
16	87	19
17	89	23
18	91	27
19	93	32
20	95	37
21	98	45
22	100	50
23	102	55
24	104	61
25	106	66
26	108	70
27	110	75
28	112	79
29	114	82
30	116	86
31	119	90
32	121	92

Ages 7;6-7;11
(N = 81; boys = 46, girls = 35)
Confidence Intervals:
68% ±1.67
90% ±2.75
95% ±3.27

RSR Raw Score	Standard Score	Percentile
0	40	<0.1
1	40	<0.1
2	40	<0.1
3	40	<0.1
4	43	<0.1
5	46	<0.1
6	48	<0.1
7	51	0.1
8	54	0.1
9	57	0.2
10	60	0.4
11	63	1
12	66	1
13	69	2
14	72	3
15	75	5
16	77	6
17	80	9
18	83	13
19	86	18
20	89	23
21	92	30
22	95	37
23	98	45
24	101	53
25	103	58
26	106	66
27	109	73
28	112	79
29	115	84
30	118	88
31	121	92
32	124	95

Redmond Sentence Recall Standard Score Conversion Tables: 8;0-8;11

<table>
<tr><td colspan="3">Ages 8;0-8;5
(N = 84; boys = 40, girls = 44)
Confidence Intervals:
68% ±1.63
90% ±2.68
95% ±3.19</td><td colspan="3">Ages 8;6-8;11
(N = 73; boys = 45, girls = 28)
Confidence Intervals:
68% ±1.76
90% ±2.89
95% ±3.45</td></tr>
<tr><th>RSR Raw Score</th><th>Standard Score</th><th>Percentile</th><th>RSR Raw Score</th><th>Standard Score</th><th>Percentile</th></tr>
<tr><td>0</td><td>40</td><td><0.1</td><td>0</td><td>40</td><td><0.1</td></tr>
<tr><td>1</td><td>40</td><td><0.1</td><td>1</td><td>40</td><td><0.1</td></tr>
<tr><td>2</td><td>40</td><td><0.1</td><td>2</td><td>40</td><td><0.1</td></tr>
<tr><td>3</td><td>40</td><td><0.1</td><td>3</td><td>40</td><td><0.1</td></tr>
<tr><td>4</td><td>40</td><td><0.1</td><td>4</td><td>40</td><td><0.1</td></tr>
<tr><td>5</td><td>40</td><td><0.1</td><td>5</td><td>40</td><td><0.1</td></tr>
<tr><td>6</td><td>40</td><td><0.1</td><td>6</td><td>40</td><td><0.1</td></tr>
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<tr><td>8</td><td>44</td><td><0.1</td><td>8</td><td>44</td><td><0.1</td></tr>
<tr><td>9</td><td>47</td><td><0.1</td><td>9</td><td>47</td><td><0.1</td></tr>
<tr><td>10</td><td>50</td><td><0.1</td><td>10</td><td>50</td><td><0.1</td></tr>
<tr><td>11</td><td>54</td><td>0.1</td><td>11</td><td>53</td><td>0.1</td></tr>
<tr><td>12</td><td>57</td><td>0.2</td><td>12</td><td>56</td><td>0.2</td></tr>
<tr><td>13</td><td>60</td><td>0.4</td><td>13</td><td>59</td><td>0.3</td></tr>
<tr><td>14</td><td>63</td><td>1</td><td>14</td><td>63</td><td>1</td></tr>
<tr><td>15</td><td>66</td><td>1</td><td>15</td><td>66</td><td>1</td></tr>
<tr><td>16</td><td>69</td><td>2</td><td>16</td><td>69</td><td>2</td></tr>
<tr><td>17</td><td>72</td><td>3</td><td>17</td><td>72</td><td>3</td></tr>
<tr><td>18</td><td>76</td><td>5</td><td>18</td><td>75</td><td>5</td></tr>
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<tr><td>21</td><td>85</td><td>16</td><td>21</td><td>85</td><td>16</td></tr>
<tr><td>22</td><td>88</td><td>21</td><td>22</td><td>88</td><td>21</td></tr>
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<tr><td>28</td><td>107</td><td>68</td><td>28</td><td>107</td><td>68</td></tr>
<tr><td>29</td><td>110</td><td>75</td><td>29</td><td>110</td><td>75</td></tr>
<tr><td>30</td><td>113</td><td>81</td><td>30</td><td>113</td><td>81</td></tr>
<tr><td>31</td><td>116</td><td>86</td><td>31</td><td>116</td><td>86</td></tr>
<tr><td>32</td><td>119</td><td>90</td><td>32</td><td>119</td><td>90</td></tr>
</table>

Redmond Sentence Recall Standard Score Conversion Tables: 9;0-9;5

Ages 9;0-9;5
(N = 26; boys = 15, girls = 11)
Confidence Intervals:
68% ±2.94
90% ±4.84
95% ±5.76

RSR Raw Score	Standard Score	Percentile
0	40	<0.1
1	40	<0.1
2	40	<0.1
3	40	<0.1
4	40	<0.1
5	40	<0.1
6	40	<0.1
7	40	<0.1
8	40	<0.1
9	40	<0.1
10	40	<0.1
11	40	<0.1
12	40	<0.1
13	40	<0.1
14	40	<0.1
15	40	<0.1
16	40	<0.1
17	41	<0.1
18	47	<0.1
19	52	0.1
20	58	0.3
21	64	1
22	70	2
23	76	5
24	82	12
25	88	21
26	94	34
27	100	50
28	106	66
29	112	79
30	117	87
31	123	94
32	129	97