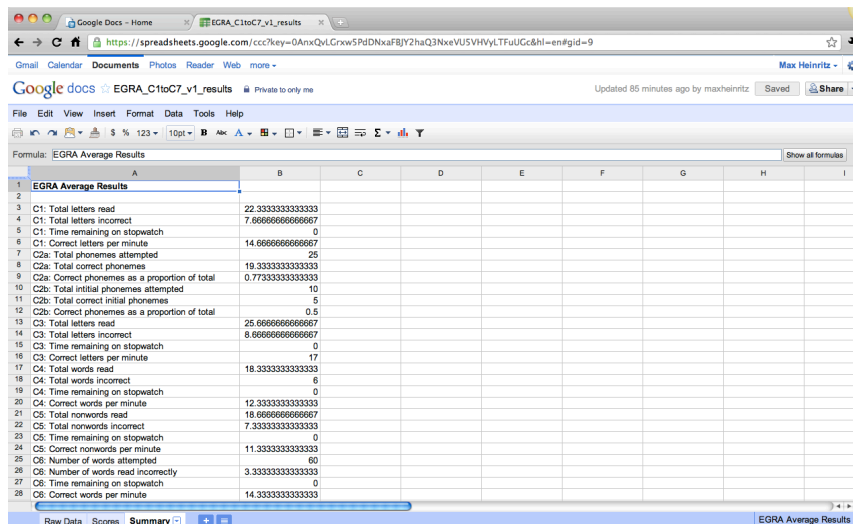


ICT4EGRA: A Technology System for Early Grade Reading Assessment Data Collection

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The screenshot shows a Google Docs spreadsheet titled "EGRA Average Results". The spreadsheet contains a table with 28 rows of data. The first row is the title "EGRA Average Results". The subsequent rows list various reading assessment metrics and their corresponding average scores. The scores are mostly 0.5, 1, 1.33, 1.66, 2, 3, 4, 5, 6, 7, 8, 10, 11, 12, 14, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000.

	A	B	C	D	E	F	G	H	I
1	EGRA Average Results								
2									
3	C1: Total letters read	22.3333333333333							
4	C1: Total letters incorrect	7.6666666666667							
5	C1: Time remaining on stopwatch	0							
6	C1: Correct letters per minute	14.6666666666667							
7	C2a: Total phonemes attempted	25							
8	C2a: Total correct phonemes	19.3333333333333							
9	C2a: Correct phonemes as a proportion of total	0.773333333333333							
10	C2b: Total initial phonemes attempted	10							
11	C2b: Total correct initial phonemes	5							
12	C2b: Correct phonemes as a proportion of total	0.5							
13	C3: Total letters read	25.6666666666667							
14	C3: Total letters incorrect	8.6666666666667							
15	C3: Time remaining on stopwatch	0							
16	C3: Correct letters per minute	17							
17	C4: Total words read	18.3333333333333							
18	C4: Total words incorrect	6							
19	C4: Time remaining on stopwatch	0							
20	C4: Correct words per minute	12.3333333333333							
21	C5: Total nonwords read	18.6666666666667							
22	C5: Total nonwords incorrect	7.33333333333333							
23	C5: Time remaining on stopwatch	0							
24	C5: Correct nonwords per minute	11.3333333333333							
25	C6: Number of words attempted	60							
26	C6: Number of words read incorrectly	3.33333333333333							
27	C6: Time remaining on stopwatch	0							
28	C6: Correct words per minute	14.3333333333333							



ODK Collect > Component 6: Passage Readin...

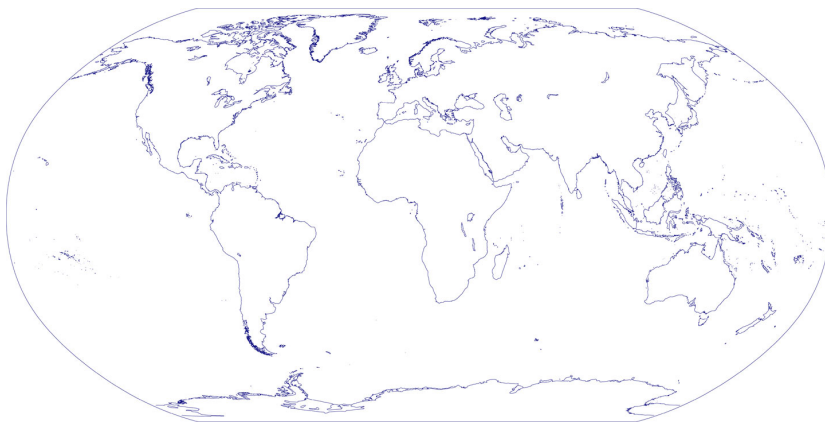
Mark correctly pronounced words in the passage.

Remember the number of the last word the child was reading when 60 seconds are up.

- ☒ 01: My
- ☒ 02: name
- ☒ 03: is
- ☒ 04: Pat.
- ☐ 05: I
- ☒ 06: live
- ☐ 07: on

Motivation

- Universal education MDG
- Rapid adoption of ICT
- Poor monitoring & evaluation of ICT4E
- Lessons from ICT4D



Early Grade Reading Assessment

- 2006 pilot by USAID & RTI International
- Deployed in 41 countries
- Test format
 - One-on-one assessment
 - Teams of evaluators
 - 20 minutes per student
 - Eight components
 - Results recorded on paper
 - Digitized later



Sample Assessment Design: Letter Name Knowledge

Show the child the sheet of letters in the student stimuli booklet. Say:

Here is a page full of letters of the alphabet. Please tell me the NAMES of as many letters as you can-- not the SOUNDS of the letters, but the names.

For example, the name of this letter [point to A] is "A"

Let's practise: tell me the name of this letter [point to V]:

If the child responds correctly say: Good, the name of this letter is "VEE."

If the child does not respond correctly, say: The name of this letter is "VEE."

Now try another one: tell me the name of this letter [point to I]:

If the child responds correctly say: Good, the name of this letter is "ELL."

If the child does not respond correctly, say: The name of this letter is "ELL."

Do you understand what you are to do?

When I say "Begin," please name the letters as quickly and carefully as you can. Start here and continue this way. [Point to the first letter on the row after the example and draw your finger across the first line]. If you come to a letter you do not know, I will tell it to you. Otherwise I will keep quiet & listen to you. Ready? Begin.



Start the timer when the child reads the first letter. Follow along with your pencil and clearly mark any incorrect letters with a slash (/). Count self-corrections as correct. If you've already marked the self-corrected letter as incorrect, circle the letter and go on. **Stay quiet**, except when providing answers as follows: if the child hesitates for 3 seconds, provide the name of the letter, point to the next letter and say "Please go on." Mark the letter you provide to the child as incorrect. If the student gives you the letter sound, rather than the name, provide the letter name and say: ["Please tell me the NAME of the letter"]. This prompt may be given only once during the exercise.

AFTER 60 SECONDS SAY, "stop." Mark the final letter read with a bracket (/).

Early stop rule: If the child does not give a single correct response on the first line, say "Thank you!", discontinue this exercise, check the box at the bottom, and go on to the next exercise.

Example : A v L

1	2	3	4	5	6	7	8	9	10	
L	i	h	R	S	y	E	O	n	T	(10)
i	e	T	D	A	t	a	d	e	w	(20)
h	O	e	m	U	r	L	G	R	u	(30)
g	R	B	E	i	f	m	t	s	r	(40)
S	T	C	N	p	A	F	c	a	E	(50)
y	s	Q	A	M	C	O	t	n	P	(60)
e	A	e	s	O	F	h	u	A	t	(70)
R	q	H	b	S	i	g	m	i	L	(80)
L	i	N	O	e	o	E	r	p	X	(90)
N	A	c	D	d	I	O	j	e	n	(100)

Time remaining on stopwatch at completion (number of SECONDS) :

Check this box if the exercise was discontinued because the child had no correct answers in the first line. ☐

Idea: replace the evaluator sheets with a mobile phone!

ODK Collect > EGRA C1 to C7

Component 1: Letter Name Knowledge

Select all correctly pronounced letters.

Remember the number of the last character read.

☒ 01: L

☒ 02: i

☐ 03: h

☒ 04: R

☒ 05: S

☒ 06: y

☒ 07: E

Technology

- Open Data Kit
- JavaRosa
- Google Android
- Google App Engine
- Google Docs



Demonstration

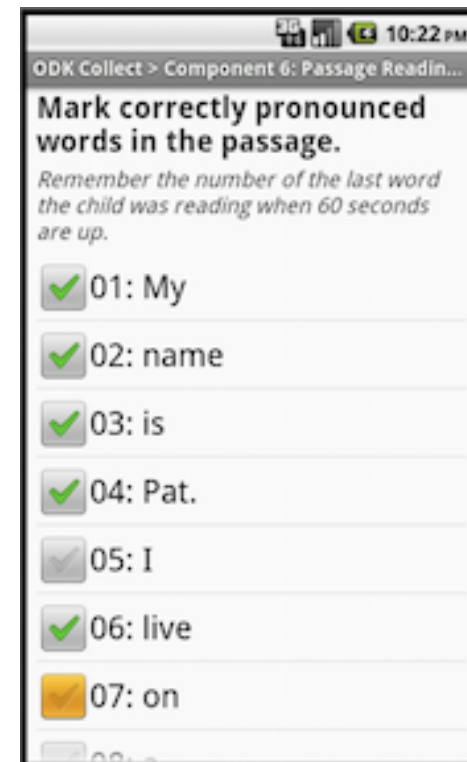
<http://www.seas.upenn.edu/~heinritz/ict4egra/>

Discussion

Benefits	Challenges
<ul style="list-style-type: none">• Save paper costs• Reduce administrative overhead• Smaller timeline for assessment to results	<ul style="list-style-type: none">• Expensive equipment• Some technical skills required• Interface may be confusing to new users

Future

- Hopefully will be piloted
- New features
 - Replace the timer
 - Multiple languages
 - Offline data analysis
- Long-term potential
 - New testing formats
 - More than just EGRA



ODK Collect > Component 6: Passage Readin...

Mark correctly pronounced words in the passage.

Remember the number of the last word the child was reading when 60 seconds are up.

<input checked="" type="checkbox"/>	01: My
<input checked="" type="checkbox"/>	02: name
<input checked="" type="checkbox"/>	03: is
<input checked="" type="checkbox"/>	04: Pat.
<input type="checkbox"/>	05: I
<input checked="" type="checkbox"/>	06: live
<input checked="" type="checkbox"/>	07: on
<input type="checkbox"/>	08: ...