



CAN TECHNOLOGY NARROW THE EARLY CHILDHOOD STIMULATION GAP IN RURAL GUATEMALA?

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THE STUDY

- Rural Guatemala, mostly indigenous population, low schooling
- Study randomly assigned families with children (6-33 months of age) to treatment (n=699) and control (n=701) groups.
- Mothers in the treatment group received 20 tailored 2-minutes voice messages on stimulating children over 2 months based on the child's age and mother's tongue, while mothers in the control group did not receive any intervention.
- Voice messages were created using selected activities from the Reach-Up curriculum that were adapted to be easily communicated by phone.
- We found significant and sizeable effects for a 2-months intervention (mother-child interaction): 0.10 standard deviations; vocabulary: 0.21 standard deviations.
- Cost-effective intervention, easy to scale-up



HOW TO ENSURE HIGH RESPONSE IN REMOTE ASSESSMENT?



INTERVENTION

- Choose a firm with experience in delivering phone messages of behavioral social programs if possible
- Assure that firm has technology in place to show in real-time response rates by message
- Act immediately if response rates seem low – we talked to survey firm and required at least three calls if people did not pick up the phone → increased compliance by 20 percentage points
- Coordinate closely with the firm and provide expertise as needed
- Get support from the program for uptake of messages

HOW TO ENSURE HIGH RESPONSE IN REMOTE ASSESSMENT?



IMPACT EVALUATION DATA COLLECTION

- Train firm on data collection of a parenting intervention (standardized testing).
- Have close contact with local partners who can help in different ways (i.e. assure recipients that we are legit, find out best times to call, find out if phone numbers change, obtain new phone numbers).
- The terms of reference for the data collection firm should include a “refresh phone numbers” - this will allow to update phone numbers if needed AND/OR increase the number of calls.

HOW TO ADDRESS THREATS TO VALIDITY?



- Pilot survey modality of the instruments (phone survey)
- Pilot instruments with people with similar linguistic and cultural characteristics
- Feedback from focus groups with parent educators, and local NGO's that work on the topic
- Having not only linguistic, but also cultural adaptation of the instruments
- Pilot adapted instruments again as needed to ensure participants understand items
- Have at least at two-weeks training with enumerators – our Program Coordinator, (PhD in Developmental Psychology) trained enumerators using zoom. She also reviewed calls (survey firm recorded all calls) to determine if enumerators were following standardized procedures
- Enumerators completed knowledge and inter-rater tests and mock interviews with Program Coordinator before starting data collection
- We measured internal consistency of our instruments (Cronbach's Alpha) and the strength and direction of the association that exists between each question and the overall score of the measure (point-biserial correlation)

COMPARISONS WITH IN-PERSON MEASUREMENT

- Our adapted instruments (phone survey) are comparable to the in-person ones
 - The in-person measures are validated instruments, with Cronbach's Alpha above 0.70 and significant point-biserial correlations
 - If we find similar psychometric characteristics in our phone-adapted measures, that means that our instruments are also valid



Cronbach's Alpha for Vocabulary and CREDI Instruments

Instrument	Overall		Spanish		Kiche		Mam	
	# obs	Alpha	# obs	Alpha	# obs	Alpha	# obs	Alpha
Vocabulary instrument								
Under 18 months of age	434	0.961	147	0.960	212	0.962	67	0.960
Over 18 months of age	872	0.965	292	0.963	480	0.966	99	0.968
CREDI								
6-11 months	152	0.864	61	0.839	72	0.868	19	0.922
12-17 months	266	0.785	86	0.732	133	0.819	47	0.787
18-23 months	250	0.823	84	0.773	141	0.835	25	0.859
24-29 months	270	0.798	98	0.747	141	0.823	33	0.830
30+ months	345	0.769	110	0.724	195	0.773	41	0.841

Note: The vocabulary 50-words instruments were adapted from Mac-Arthur Bates short-version in Spanish that consists of 100 questions.

Point Biserial Correlation for Vocabulary

Questions	Less than 18 months n = 426	18 months or more n = 871
1	0.1215	0.1930
2	0.2010	0.3092
3	0.2697	0.3559
4	0.2404	0.1668
5	0.2208	0.4209
6	0.2277	0.3837
16	0.2502	0.3391
17	0.2921	0.3311
18	0.1804	0.3292
19	0.3038	0.3348
20	0.2192	0.3094
21	0.2556	0.3678
22	0.2064	0.2339
23	0.2044	0.3081
24	0.1697	0.3512
25	0.1035	0.3743
26	0.1845	0.2259
36	0.2022	0.2665
37	0.1880	0.3435
38	0.1419	0.2190
39	0.2230	0.2638
40	0.1306	0.3725
41	0.0974	0.2861
42	0.1251	0.4040
43	0.1524	0.3191
44	0.1958	0.3308
45	0.1076	0.2474

Note: Shaded red indicates that a correlation is not significant.