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A 4-Year Efficacy Study (2017-2021)
Enrollment and Demographic Data Report for Years 1-3
August, 2020

Purpose: The purpose of this study is to investigate (1) the efficacy of the *Strategic and Interactive Writing Instruction* (*SIWI*) professional development (PD) program for improving the knowledge and instructional practices of teachers and (2) the writing and language outcomes for students in third through sixth grade who are deaf or hard of hearing (D/HH). The language experiences of children who are D/HH are extremely diverse and directly influence their writing. There is a need to identify effective programs for building teacher capacity to provide evidence-based literacy instruction that is tailored to the unique needs of students who are D/HH. This project seeks to fill this gap by evaluating the efficacy of the *SIWI* PD program for improving teacher knowledge and practices and subsequent writing and language outcomes for students who are D/HH.

Changes to Project: Due to the unexpected occurrence of the Covid-19 pandemic, this 4-year efficacy project will continue for 5 total years, ending in 2022. Enrollment and data collection are paused for the 2020-2021 school year and will resume for the 2021-2022 school year. This report provides summary demographic data for enrolled participants to date.

A total of 44 teachers participated during Years 1-3 of the project, representing 22 different schools in 13 various states. The programs are diverse by communication philosophy (bilingual, oral/aural, total communication) and educational setting (school for the deaf, self-contained class in public school, mainstream pull out).

Total enrollment of deaf and hard of hearing students in grades 3-6 during the first three years of the project is 384. The majority of student participants are part of a randomized controlled trial (RCT). Teachers and their students were randomly assigned to treatment or comparison groups. Another 86 students have teachers in their 2nd or 3rd year of the SIWI professional development program. See group enrollment in Table 1, gender in Table 2, race in Table 3, and grade in Table 4.

Table 1

Student Enrollment in Years 1-3, 2017-2020

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Treatment	168	43.8	43.8	43.8
	Comparison	130	33.9	33.9	77.6
	SIWI not in RCT	86	22.4	22.4	100.0
	Total	384	100.0	100.0	

Table 2

Gender of Students Enrolled in Years 1-3, 2017-2020

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Female	154	40.1	41.1	41.1
	Male	219	57.0	58.4	99.5
	Not Specified	2	.5	.5	100.0
	Total	375	97.7	100.0	
Missing	System	9	2.3		
Total		384	100.0		

Table 3

Races of Students Enrolled in Years 1-3, 2017-2020

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	White	155	40.4	41.3	41.3
	African American	94	24.5	25.1	66.4
	Latinx	73	19.0	19.5	85.9
	Asian Pacific Islander	20	5.2	5.3	91.2
	Native American	2	.5	.5	91.7
	Multiracial	20	5.2	5.3	97.1
	Other	11	2.9	2.9	100.0
	Total	375	97.7	100.0	
Missing	System	9	2.3		
Total		384	100.0		

Table 4

Grades of Students Enrolled in Years 1-3, 2017-2020

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	3.00	49	12.8	13.1	13.1
	4.00	99	25.8	26.4	39.5
	5.00	115	29.9	30.7	70.1
	6.00	112	29.2	29.9	100.0
	Total	375	97.7	100.0	
Missing	System	9	2.3		
Total		384	100.0		

Students' hearing levels vary from normal/slight to profound. The majority of students use hearing aids or cochlear implants, frequently to always. Hearing levels in dB are provided in Table 5. Hearing devices are reported in Table 6, with frequency of use in Table 7. Amplified hearing levels are provided in Table 8. Of the data received, the majority of students present with slight to moderate hearing levels once amplified.

Table 5

Hearing Levels of Students Enrolled in Years 1-3, 2017-2020

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Normal Limits (0-15dB)	2	.5	.6	.6
	Slight (16-25dB)	3	.8	.8	1.4
	Mild (26-40dB)	12	3.1	3.4	4.8
	Moderate (41-55dB)	37	9.6	10.5	15.3
	Moderately-Severe (56-70dB)	66	17.2	18.7	34.0
	Severe (71-90dB)	69	18.0	19.5	53.5
	Profound (91dB+)	164	42.7	46.5	100.0
	Total	353	91.9	100.0	
Missing	System	31	8.1		
Total		384	100.0		

Table 6

Hearing Devices of Students Enrolled in Years 1-3, 2017-2020

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	None	88	22.9	23.5	23.5
	Hearing Aid/s	150	39.1	40.1	63.6
	One Cochlear Implant	33	8.6	8.8	72.5
	One Cochlear Implant and One Hearing Aid	37	9.6	9.9	82.4
	Two Cochlear Implants	66	17.2	17.6	100.0
	Total	374	97.4	100.0	
Missing	System	10	2.6		
Total		384	100.0		

Table 7

Hearing Device Use of Students Enrolled in Years 1-3, 2017-2020

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Never	85	22.1	23.5	23.5
	Infrequent Use	26	6.8	7.2	30.7
	Some Use	34	8.9	9.4	40.1
	Frequent Use	53	13.8	14.6	54.7
	Always	164	42.7	45.3	100.0
	Total	362	94.3	100.0	
Missing	System	22	5.7		
Total		384	100.0		

Table 8

Amplified Hearing Levels of Students Enrolled in Years 1-3, 2017-2020

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Normal Limits (0-15dB)	11	2.9	3.1	3.1
	Slight (16 - 25dB)	49	12.8	13.9	17.0
	Mild (26 - 40dB)	57	14.8	16.1	33.1
	Moderate (41 - 55dB)	25	6.5	7.1	40.2
	Moderately-Severe(56 - 70dB)	18	4.7	5.1	45.3
	Severe (71 - 90dB)	3	.8	.8	46.2
	Profound (91dB+)	8	2.1	2.3	48.4
	No Amplification	46	12.0	13.0	61.5
	Information Unavailable	136	35.4	38.5	100.0
	Total	353	91.9	100.0	
Missing	System	31	8.1		
Total		384	100.0		

The numbers of deaf and hard of hearing students with disabilities or diagnoses are presented in Table 9. The most common include ADHD (N=19), Cerebral Palsy (N=5), Cognitive Impairment (N=10), and Visual Impairment (N=9), Autism Spectrum (N=3), and Physical Disability (N=7). Other less common disabilities or diagnoses include: 11q21 genetic deletion,

CHARGE, cytomegalovirus, epilepsy, Hurler's syndrome, Pierre Robin Syndrome, Spina Bifida, Treacher Collins Syndrome, Zellwegers Syndrome, Waardenburg Syndrome, and Seizures.

Table 9

Students with Disabilities Enrolled in Years 1-3, 2017-2020

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No Disability/Diagnosis	295	76.8	78.9	78.9
	Identified Disability	79	20.6	21.1	100.0
	Total	374	97.4	100.0	
Missing	System	10	2.6		
Total		384	100.0		

Almost a third of students have at least one deaf family member in the household such as a parent or sibling. See Table 10.

Table 10

Students with Deaf Family Members in the Household

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	106	27.6	30.8	30.8
	No	238	62.0	69.2	100.0
	Total	344	89.6	100.0	
Missing	System	40	10.4		
Total		384	100.0		

Teachers rated their students' ASL and Spoken English proficiencies on a 5-point scale from "Does not use" to "Can express most anything". These data are presented in Tables 11-12.

Table 11

ASL Proficiencies of Students Enrolled in Years 1-3, 2017-2020

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Can express most anything	102	26.6	27.3	27.3
	Can express many things	97	25.3	25.9	53.2
	Difficulty expressing many things	73	19.0	19.5	72.7
	Difficulty expressing most things	28	7.3	7.5	80.2
	Does not use ASL	74	19.3	19.8	100.0
	Total	374	97.4	100.0	
Missing	System	10	2.6		
Total		384	100.0		

Table 12

Spoken English Proficiencies of Students Enrolled in Years 1-3, 2017-2020

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Can express most anything	78	20.3	20.9	20.9
	Can express many things	90	23.4	24.1	44.9
	Difficulty expressing many things	65	16.9	17.4	62.3
	Difficulty expressing most things	30	7.8	8.0	70.3
	Does not use spoken English	111	28.9	29.7	100.0
	Total	374	97.4	100.0	
Missing	System	10	2.6		
Total		384	100.0		

Note: This table presents students' proficiencies with spoken English only, and does not represent English competence nor English reading/writing levels.

The following data are specific to students with 1 or 2 cochlear implants (N=136). Teachers rated their students' ASL and Spoken English proficiencies on a 5-point scale from "Does not use" to "Can express most anything". These data are presented in Tables 13-14.

Table 13

ASL Proficiencies of Students with Cochlear Implants in Years 1-3, 2017-2020

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Can express most anything	30	22.1	22.1	22.1
	Can express many things	32	23.5	23.5	45.6
	Difficulty expressing many things	31	22.8	22.8	68.4
	Difficulty expressing most things	11	8.1	8.1	76.5
	Does not use ASL	32	23.5	23.5	100.0
	Total	136	100.0	100.0	

Table 14

Spoken English Proficiencies of Students with Cochlear Implants in Years 1-3, 2017-2020

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Can express most anything	29	21.3	21.3	21.3
	Can express many things	39	28.7	28.7	50.0
	Difficulty expressing many things	33	24.3	24.3	74.3
	Difficulty expressing most things	18	13.2	13.2	87.5
	Does not use spoken English	17	12.5	12.5	100.0
	Total	136	100.0	100.0	

Spearman's rank-order correlation coefficient was used to determine the relationship between ASL proficiency and Spoken Language proficiency among deaf and hard of hearing children with cochlear implants who use both ASL and Spoken English (N=88). There was a significant (small to moderate) positive correlation between the two, r_s=.28, p=.009**.

Table 15

Spearman Rank-Order Correlation of ASL and Spoken English Proficiencies Among Implanted Children

			ASL Proficiency	Spoken English Proficiency
Spearman's rho	ASL Proficiency	Correlation Coefficient	1.000	.277**
		Sig. (2-tailed)	.	.009
		N	88	88
	Spoken English Proficiency	Correlation Coefficient	.277**	1.000
		Sig. (2-tailed)	.009	.
		N	88	88

**. Correlation is significant at the 0.01 level (2-tailed).