

Supplemental Material S4. Effect sizes for the trained language.

Study	PT	TX phase	Outcome measure	Effect size for trained language					
				TE		WLG-Related		WLG-Unrelated	
				Cohen's <i>d</i>	%MPC	Cohen's <i>d</i>	%MPC	Cohen's <i>d</i>	%MPC
Kohnert (2004)	DJ	1	Custom picture naming (N)	—	—	—	—	—	64.27
		2		—	—	—	—	—	66.67
Edmonds and Kiran (2006)	P1	1	Custom picture naming (N)	10.61	—	6.36	—	1.41 ^a	—
	P2	1		10.61	—	5.00	—	1.41 ^a	—
		2		14.14 ^a	—	0.71	—	0 ^a	—
	P3	1		9.90 ^a	—	1.41 ^a	—	0.71	—
Ansaldo et al. (2010)	EL	1	WAB – object naming (N)	—	—	—	—	—	73.91
Kiran and Roberts (2010)	P1	1	Custom picture naming (N)	8.49 ^a	—	5.00	—	0 ^a	—
	P2	1		13.44	—	4.71 ^a	—	0.94 ^a	—
		2		9.43 ^a	—	1.89 ^a	—	0.94 ^a	—
	P3	1		10.61	—	0	—	0.71	—
		2		5.66	—	0 ^a	—	2.12	—
	P4	1		7.64 ^a	—	1.41	—	1.70 ^a	—
		2		2.59	—	0.71	—	5.00	—
Croft et al. (2011) ^b	Saleha	1 (Sem)	Custom picture naming (N)	1.41 ^a	—	—	—	—	—
		1 (Pho)		11.31 ^a	—	—	—	—	—
		1 (Mixed)		—	—	—	—	0 ^a	—
		2 (Sem)		0.71	—	—	—	—	—
		2 (Pho)		1.41 ^a	—	—	—	—	—
		2 (Mixed)		—	—	—	—	-0.71	—
	Salma	1 (Sem)	Custom picture naming (N)	0.71	—	—	—	—	—
		1 (Pho)		6.36	—	—	—	—	—
		1 (Mixed)		—	—	—	—	-0.79 ^a	—
		2 (Sem)		-3.54	—	—	—	—	—
		2 (Pho)		-3.54	—	—	—	—	—
		2 (Mixed)		—	—	—	—	-6.37	—

	Tarik	1 (Sem)		19.09	—	—	—	—	—
		1 (Pho)		6.84	—	—	—	—	—
		1 (Mixed)	Custom picture naming (N)	—	—	—	—	3.54	—
		2 (Sem)		16.26	—	—	—	—	—
		2 (Pho)		14.85	—	—	—	—	—
		2 (Mixed)		—	—	—	—	2.12	—
	Azad	1 (Sem)	Custom picture naming (N)	2.12	—	—	—	—	—
		1 (Pho)		3.54	—	—	—	—	—
		1 (Mixed)		—	—	—	—	1.18	—
		2 (Sem)		1.06	—	—	—	—	—
		2 (Pho)		10.61	—	—	—	—	—
		2 (Mixed)		—	—	—	—	0.71	—
Kiran and Iakupova (2011)	P1	1	Custom picture naming (N)	7.07 ^a	—	7.78	—	0.71 ^a	—
Goral et al. (2012)	JM	1	OANB – object naming (N)	—	—	—	—	—	27.27
		1	OANB – action naming (V)	—	—	—	—	—	6.67
		2	OANB – object naming (N)	—	—	—	—	—	44.83
		2	OANB – action naming (V)	—	—	—	—	—	37.84
Miller Amberber (2012)	GP	1	BAT – naming (N)	—	—	—	—	—	88.89
Kiran et al. (2013)	BU07	1	Custom picture naming (N)	1.41 ^a	—	0.71	—	—	—
	UT19	1		3.54	—	0.94 ^a	—	0.94 ^a	—
	UT16	1		5.66 ^a	—	4.24 ^a	—	5.66 ^a	—
	UT18	1		10.61	—	0.71	—	1.41 ^a	—
	BU01	1		4.04 ^a	—	3.54	—	-0.82 ^a	—
	UT17	1		13.44	—	1.41 ^a	—	-2.12 ^a	—
	UT20	1		—	0	—	0	—	0
	UT21	1		0 ^a	—	-0.71 ^a	—	—	0
Knoph et al. (2017)	PN	1	BAT – naming (N)	—	—	—	—	—	50.00
	DT	1		—	—	—	—	—	0
	PT	1	VST – naming (V)	—	—	—	—	—	19.05

Lerman et al. (2019)		1	MNT – naming (N)	—	—	—	—	—	28.57
Li et al. (2020)	P1	1	BNT (N)	—	—	—	—	—	0
	P2	1		—	—	—	—	—	11.11
Lerman (2022) ^c	EH05	1	REHAB – object naming (N)	—	—	—	—	2.12	—
		1	REHAB – action naming (V)	—	—	—	—	0 ^a	—
Lerman et al. (2022)	EH03	1	REHAB – action naming (V)	—	—	—	—	0 ^a	—
		1	REHAB – object naming (N)	—	—	—	—	-0.71	—
		2	REHAB – action naming (V)	—	—	—	—	0.71	—
		2	REHAB – object naming (N)	—	—	—	—	-2.12	—
	EH04	1	REHAB – action naming (V)	—	—	—	—	3.54	—
		1	REHAB – object naming (N)	—	—	—	—	-0.71	—
		2	REHAB – action naming (V)	—	—	—	—	0	—
		2	REHAB – object naming (N)	—	—	—	—	0.24	—
Lopez et al. (2022)	P1	1	Custom picture naming set 1 (N)	8.23 ^a	—	0.71	—	0.71	—
		1	Custom picture naming set 2 (N)	5.14 ^a	—	2.12	—	0 ^a	—
		1 & 2 ^d	OANB – object naming (N)	—	—	—	—	—	18.18
		1 & 2 ^d	BNT (N)	—	—	—	—	—	11.77
		1 & 2 ^d	OANB – action naming (V)	—	—	—	—	—	7.90
		1 & 2 ^d	NAVS – action naming (V)	—	—	—	—	—	27.27
	P2	1	Custom picture naming set 1 (N)	2.28 ^a	—	1.41	—	0 ^a	—
		1	Custom picture naming set 2 (N)	10.61	—	1.41	—	0.71	—
		1 & 2 ^d	OANB – object naming (N)	—	—	—	—	—	11.11
		1 & 2 ^d	BNT (N)	—	—	—	—	—	16.67
		1 & 2 ^d	OANB – action naming (V)	—	—	—	—	—	34.29
		1 & 2 ^d	NAVS – action naming (V)	—	—	—	—	—	-16.67
Masson- Trottier et al. (2022)	BA1	1	Custom picture naming (N)	12.73	—	—	—	4.95	—
		1	TDQ60 – object naming (N)	—	—	—	—	—	45.83
		1	DVL38 – action naming (V)	—	—	—	—	—	36.84
	BA2	1	Custom picture naming (N)	13.44	—	—	—	3.89	—
		1	TDQ60 – object naming (N)	—	—	—	—	—	100.00
		1	DVL38 – action naming (V)	—	—	—	—	—	0
	BA3	1	Custom picture naming (N)	7.07	—	—	—	20.51	—

		1	TDQ60 – object naming (N)	—	—	—	—	—	33.33
		1	DVL38 – action naming (V)	—	—	—	—	—	65.22
	BA4	1	Custom picture naming (N)	19.09	—	—	—	5.89	—
		1	TDQ60 – object naming (N)	—	—	—	—	—	35.29
		1	DVL38 – action naming (V)	—	—	—	—	—	14.29
Lerman et al. (2023)	EH02	1	REHAB – object naming (N)	—	—	—	—	0.71	—
		1	REHAB – action naming (V)	—	—	—	—	1.21 ^a	—
		2	REHAB – object naming (N)	—	—	—	—	-2.12	—
		2	REHAB – action naming (V)	—	—	—	—	0.71	—

Note. BAT = Bilingual Aphasia Test (Paradis & Libben, 2014). BNT = Boston Naming Test (Kaplan et al., 2001). DVL38 = Test de demonination de verbes lexicaux en images-38 (Hammelrath, 2005). Mixed = Mixed treatment. MNT = Multilingual Naming Test (Gollan et al., 2012). N = Noun. NAVS = Northwestern Assessment of Verbs and Sentences (Thompson, 2012). OANB = Object and Action Naming Battery (Druks & Masterson, 2000). Pho = Phonological treatment. PT = Participant. REHAB = Revised English-Hebrew Aphasia Battery (Lerman & Goral, n.d.). Sem = Semantic treatment. TDQ60 = Test de denomination de Quebec-60 (Macoir et al., 2018). TE = Treatment effect. TX = Treatment. V = Verb. VST = Verb and Sentence Test (Bastiaanse et al., 2002). WAB = Western Aphasia Battery - Revised (Kertesz, 2006). WLG-Related = Within-language generalization of untrained related words. WLG-Unrelated = Within-language generalization of untrained unrelated words. %MPC = Percent of maximum possible change.

^a There was no variance in pre-treatment naming scores. Therefore, a mean of non-zero variances of naming scores in the other pre-treatment phases for the same individual was used in calculation of effect sizes. ^b Each treatment phase in Croft et al. (2011) was divided into two sections. For each section, either semantic or phonological anomia therapy was provided. Different lists of words were trained in semantic and phonological treatment. Therefore, effects of the two types of treatment were measured separately for the trained words. On the other hand, one list of untrained words was used to measure treatment effect of untrained words for each treatment phase combining semantic and phonological therapies. ^c Treatment effect sizes of three participants (EH02, EH03, and EH04) in Lerman (2022) are reported under Lerman et al. (2022) and Lerman et al. (2023) due to overlap in participants. ^d Standardized tests were administered before and after two consecutive treatment phases. Thus, these outcome measures reflect treatment effects from the two phases combined.