

1 Supplementary Materials

1.1 Group distribution

	Control (n = 7)	C1 (n = 4)	C2 (n = 3)	Experimental (n = 8)	E1 (n = 4)	E2 (n = 4)
No. of males:females	1:6	1:3	0:3	2:6	1:3	1:3
Age (years)	69.0 (4.0)	67.8 (3.7)	70.7 (3.8)	71.4 (5.3)	73.0 (5.2)	69.8 (4.8)
M-ACE	27.4 (1.7)	27.5 (1.7)	27.3 (1.7)	29.3 (0.7)	29.8 (0.4)	28.8 (0.4)
DASH	31.4 (4.4)	30.0 (3.7)	33.3 (4.5)	29.6 (5.0)	30.6 (3.9)	28.5 (5.7)

1.2 Interpreting effects in beta regression

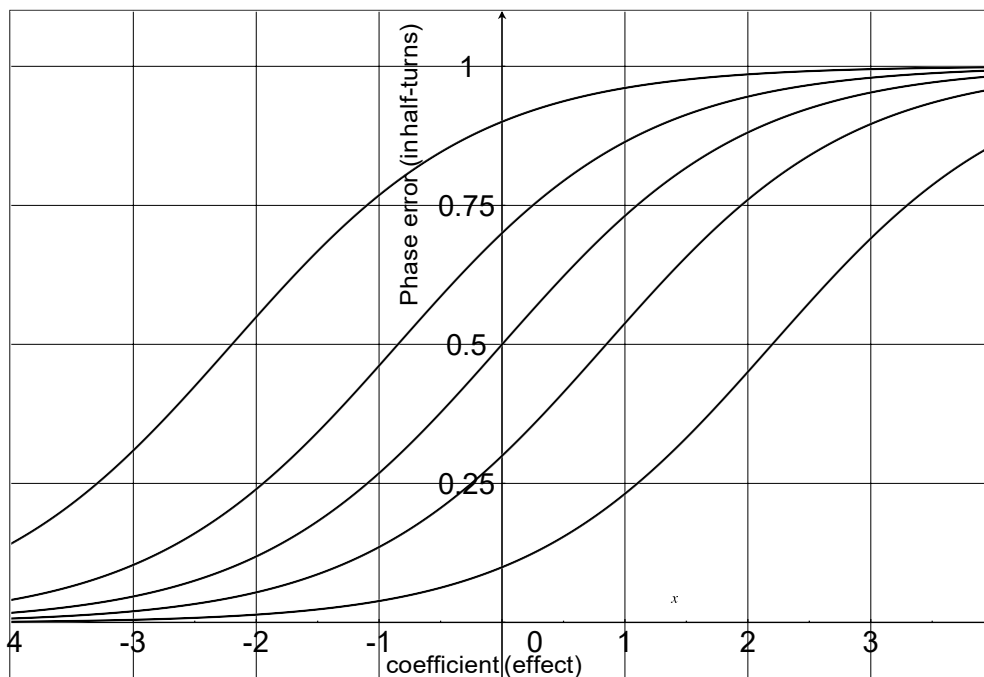


Figure 2. The vertical axis shows the phase error (expressed in half-turn units so it is in the unit interval) after a unit increase in a predictor whose coefficient (effect) is shown in the horizontal axis. The amount of change varies as a function of the coefficient and of the original phase error. The five lines, from bottom-to-top, have original phase errors of 0.1, 0.3, 0.5, 0.7, and 0.9, respectively. Note

that a coefficient of 0 means the predictor has no effect on the phase error; a coefficient larger than 0 increases phase error; a coefficient less than 0 decreases phase error.

1.3 Model priors

1.3.1 Linear models

	prior	class	coef
1	student_t(3,0,1)	b	
2		b	age
3		b	classC2
4		b	classE1
5		b	classE2
6		b	DASH
7		b	is_trained1
8		b is_trained1: classC2	
9		b is_trained1: classE1	
10		b is_trained1: classE2	
11		b	JTHFT_dom_pre
12		b	n_pretests1
13	student_t(3, 0, 10)	Intercept	
14	student_t(3, 0, 10)	sigma	

1.3.2 Beta models (for Polhemus)

	prior	class	coef
1	student_t(3,0,1)	b	
2		b	age
3		b	classC2
4		b	classE1
5		b	classE2
6		b	DASH
7		b	is_trained1
8		b is_trained1: classC2	
9		b is_trained1: classE1	
10		b is_trained1: classE2	
11		b	n_pretests1
12		b	Polhemus_del_pre
13	student_t(3, 0, 10)	Intercept	
14	gamma(0.01, 0.01)	phi	

1.4 Model summaries

1.4.1 JTHFT_dom model without class interaction

Family: gaussian

Links: mu = identity; sigma = identity

Formula: JTHFT_dom_post ~ JTHFT_dom_pre + n_pretests + is_trained + age + DASH

Data: fingers_tap_data (Number of observations: 21)

Samples: 4 chains, each with iter = 10000; warmup = 5000; thin = 1;

total post-warmup samples = 20000

Population-Level Effects:

	Estimate	Est.Error	l-95% CI	u-95% CI	Rhat	Bulk_ESS	Tail_ESS
Intercept	-0.06	0.23	-0.53	0.40	1.00	17600	13567
JTHFT_dom_pre	0.78	0.15	0.48	1.07	1.00	14053	13274
n_pretests1	0.44	0.34	-0.24	1.11	1.00	14209	12546
is_trained1	-0.13	0.34	-0.80	0.54	1.00	12800	13721
age	-0.07	0.16	-0.37	0.25	1.00	13289	11740
DASH	-0.15	0.16	-0.46	0.18	1.00	13045	12966

Family Specific Parameters:

	Estimate	Est.Error	l-95% CI	u-95% CI	Rhat	Bulk_ESS	Tail_ESS
sigma	0.63	0.13	0.44	0.93	1.00	11036	12743

	Estimate	Est.Error	Q2.5	Q97.5
R2	0.6836007	0.08003933	0.4752476	0.7797765

Hypothesis Estimate Est.Error CI.Lower CI.Upper Evid.Ratio Post.Prob

1 (is_trained1) < 0	-0.13	0.34	-0.68	0.43	1.86	0.65
2 (age) > 0	-0.07	0.16	-0.32	0.19	0.49	0.33
3 (DASH) < 0	-0.15	0.16	-0.40	0.12	4.71	0.82
4 (n_pretests1) > 0	0.44	0.34	-0.13	1.00	9.00	0.90

1.4.2 JTHFT_dom model with class interaction

Family: gaussian
 Links: mu = identity; sigma = identity
 Formula: JTHFT_dom_post ~ JTHFT_dom_pre + is_trained * class + age + DASH
 Data: fingers_tap_data (Number of observations: 21)
 Samples: 4 chains, each with iter = 10000; warmup = 5000; thin = 1;
 total post-warmup samples = 20000

Population-Level Effects:

	Estimate	Est.Error	l-95% CI	u-95% CI	Rhat	Bulk_ESS	Tail_ESS
Intercept	-0.11	0.32	-0.72	0.54	1.00	16358	15149
JTHFT_dom_pre	0.82	0.17	0.47	1.15	1.00	17713	12409
is_trained1	0.41	0.44	-0.47	1.28	1.00	13115	13081
classC2	0.14	0.40	-0.65	0.93	1.00	15565	13790
classE1	-0.38	0.86	-2.12	1.31	1.00	13748	10655
classE2	-0.15	0.84	-1.83	1.49	1.00	13209	11673
age	-0.05	0.17	-0.38	0.28	1.00	16425	13744
DASH	-0.15	0.17	-0.48	0.20	1.00	15772	13963
is_trained1:classC2	-0.29	0.56	-1.41	0.79	1.00	12833	13368
is_trained1:classE1	-0.36	0.86	-2.11	1.33	1.00	13828	10589
is_trained1:classE2	-0.14	0.85	-1.83	1.54	1.00	13069	11113

Family Specific Parameters:

	Estimate	Est.Error	l-95% CI	u-95% CI	Rhat	Bulk_ESS	Tail_ESS
sigma	0.65	0.14	0.44	1.00	1.00	9862	10207

	Estimate	Est.Error	Q2.5	Q97.5
R2	0.6876289	0.08194121	0.4777197	0.7909059

Hypothesis Tests for class b:

	Hypothesis	Estimate	Est.Error	CI.Lower	CI.Upper	Evid.Ratio	Post.Prob
1	(is_trained1) < 0	0.41	0.44	-0.32	1.13	0.20	0.17
2	(is_trained1+is_trained1:classC2) < 0	0.12	0.46	-0.63	0.86	0.64	0.39
3	(is_trained1+is_trained1:classE1) < 0	0.06	0.91	-1.42	1.52	0.90	0.47
4	(is_trained1+is_trained1:classE2) < 0	0.27	0.90	-1.20	1.73	0.59	0.37
5	(is_trained1:classC2) < 0	-0.29	0.56	-1.21	0.62	2.42	0.71

1.4.3 JTHFT_non_dom model without class interaction

Family: gaussian
 Links: mu = identity; sigma = identity
 Formula: JTHFT_non_dom_post ~ JTHFT_non_dom_pre + n_pretests + is_trained + age + DASH
 Data: fingers_tap_data (Number of observations: 21)
 Samples: 4 chains, each with iter = 10000; warmup = 5000; thin = 1;
 total post-warmup samples = 20000

Population-Level Effects:

	Estimate	Est.Error	l-95% CI	u-95% CI	Rhat	Bulk_ESS	Tail_ESS
Intercept	0.01	0.33	-0.64	0.67	1.00	20766	15374
JTHFT_non_dom_pre	0.38	0.24	-0.09	0.85	1.00	14589	14102
n_pretests1	0.51	0.47	-0.42	1.44	1.00	17911	14947
is_trained1	-0.25	0.48	-1.22	0.70	1.00	14364	14857
age	-0.31	0.21	-0.73	0.12	1.00	19584	13367
DASH	-0.04	0.24	-0.51	0.43	1.00	17464	14595

Family Specific Parameters:

	Estimate	Est.Error	l-95% CI	u-95% CI	Rhat	Bulk_ESS	Tail_ESS
sigma	0.90	0.18	0.63	1.33	1.00	15360	14027

	Estimate	Est.Error	Q2.5	Q97.5
R2	0.4311617	0.1124369	0.1699757	0.6011411

Hypothesis Tests for class b:

	Hypothesis	Estimate	Est.Error	CI.Lower	CI.Upper	Evid.Ratio	Post.Prob
1	(is_trained1) < 0	-0.25	0.48	-1.04	0.53	2.34	0.70
2	(age) > 0	-0.31	0.21	-0.65	0.05	0.08	0.07

3 (DASH) < 0 -0.04 0.24 -0.43 0.34 1.40 0.58
 4 (n_pretests1) > 0 0.51 0.47 -0.26 1.28 6.55 0.87

1.4.4 JTHFT_non_dom model with class interaction

Family: gaussian

Links: mu = identity; sigma = identity

Formula: JTHFT_non_dom_post ~ JTHFT_non_dom_pre + is_trained * class + age + DASH

Data: fingers_tap_data (Number of observations: 21)

Samples: 4 chains, each with iter = 10000; warmup = 5000; thin = 1;
 total post-warmup samples = 20000

Population-Level Effects:

	Estimate	Est.Error	l-95% CI	u-95% CI	Rhat	Bulk_ESS	Tail_ESS
Intercept	-0.03	0.41	-0.86	0.78	1.00	18738	14864
JTHFT_non_dom_pre	0.30	0.26	-0.22	0.83	1.00	15816	13866
is_trained1	-0.01	0.54	-1.07	1.08	1.00	13736	12764
classC2	0.22	0.51	-0.77	1.25	1.00	16121	13745
classE1	-0.15	0.89	-1.94	1.59	1.00	12415	10414
classE2	-0.15	0.86	-1.89	1.52	1.00	12659	10683
age	-0.32	0.23	-0.77	0.14	1.00	16256	13642
DASH	0.02	0.25	-0.48	0.51	1.00	15146	13806
is_trained1:classC2	0.45	0.68	-0.87	1.85	1.00	14195	13413
is_trained1:classE1	-0.16	0.88	-1.92	1.59	1.00	12221	10212
is_trained1:classE2	-0.15	0.86	-1.89	1.57	1.00	12420	11123

Family Specific Parameters:

	Estimate	Est.Error	l-95% CI	u-95% CI	Rhat	Bulk_ESS	Tail_ESS
sigma	0.93	0.20	0.64	1.40	1.00	11143	12043

	Estimate	Est.Error	Q2.5	Q97.5
R2	0.4758789	0.09977843	0.2459026	0.623936

Hypothesis Tests for class b:

Star	Hypothesis	Estimate	Est.Error	CI.Lower	CI.Upper	Evid.Ratio	Post.Prob
1	(is_trained1) < 0	-0.01	0.54	-0.88	0.88	1.02	0.51
2	(is_trained1+is_trained1:classC2) < 0	0.45	0.63	-0.58	1.47	0.30	0.23
3	(is_trained1+is_trained1:classE1) < 0	-0.16	0.97	-1.73	1.40	1.34	0.57
4	(is_trained1+is_trained1:classE2) < 0	-0.15	0.96	-1.70	1.42	1.33	0.57
5	(is_trained1:classC2) < 0	0.45	0.68	-0.63	1.59	0.33	0.25

1.4.5 TMTA model without class interaction

Family: gaussian

Links: mu = identity; sigma = identity

Formula: TMTA_post ~ TMTA_pre + n_pretests + is_trained + age + DASH

Data: fingers_tap_data (Number of observations: 21)

Samples: 4 chains, each with iter = 10000; warmup = 5000; thin = 1;
 total post-warmup samples = 20000

Population-Level Effects:

	Estimate	Est.Error	l-95% CI	u-95% CI	Rhat	Bulk_ESS	Tail_ESS
Intercept	0.18	0.33	-0.48	0.83	1.00	19466	14272
TMTA_pre	0.44	0.23	-0.01	0.89	1.00	16765	13192
n_pretests1	-0.04	0.47	-0.97	0.90	1.00	16356	13484
is_trained1	-0.30	0.45	-1.18	0.59	1.00	16362	13324
age	0.02	0.24	-0.46	0.49	1.00	14906	13085
DASH	0.24	0.24	-0.23	0.72	1.00	15226	13490

Family Specific Parameters:

	Estimate	Est.Error	l-95% CI	u-95% CI	Rhat	Bulk_ESS	Tail_ESS
sigma	0.97	0.19	0.68	1.42	1.00	12271	12483

	Estimate	Est.Error	Q2.5	Q97.5
R2	0.3801217	0.1117103	0.1345271	0.558303

	Hypothesis	Estimate	Est.Error	CI.Lower	CI.Upper	Evid.Ratio	Post.Prob
1	(is_trained1) < 0	-0.30	0.45	-1.02	0.44	3.03	0.75
2	(age) > 0	0.02	0.24	-0.38	0.40	1.16	0.54
3	(DASH) < 0	0.24	0.24	-0.15	0.63	0.17	0.15
4	(n_pretests1) > 0	-0.04	0.47	-0.81	0.74	0.88	0.47

1.4.6 TMTA model with class interaction

Family: gaussian
 Links: mu = identity; sigma = identity
 Formula: TMTA_post ~ TMTA_pre + is_trained * class + age + DASH
 Data: fingers_tap_data (Number of observations: 21)
 Samples: 4 chains, each with iter = 10000; warmup = 5000; thin = 1;
 total post-warmup samples = 20000

Population-Level Effects:

	Estimate	Est.Error	l-95% CI	u-95% CI	Rhat	Bulk_ESS	Tail_ESS
Intercept	-0.00	0.40	-0.80	0.81	1.00	15087	15356
TMTA_pre	0.50	0.24	0.02	0.95	1.00	15658	12700
is_trained1	0.21	0.56	-0.89	1.30	1.00	10911	12681
classC2	0.46	0.53	-0.60	1.51	1.00	12878	13834
classE1	-0.19	0.88	-1.97	1.55	1.00	14281	11679
classE2	-0.15	0.86	-1.90	1.54	1.00	13838	11377
age	0.02	0.24	-0.46	0.49	1.00	15779	13868
DASH	0.16	0.22	-0.28	0.61	1.00	15770	13812
is_trained1:classC2	-1.21	0.80	-2.81	0.29	1.00	9798	12089
is_trained1:classE1	-0.20	0.88	-1.98	1.50	1.00	14464	12126
is_trained1:classE2	-0.16	0.86	-1.92	1.53	1.00	14158	11543

Family Specific Parameters:

	Estimate	Est.Error	l-95% CI	u-95% CI	Rhat	Bulk_ESS	Tail_ESS
sigma	0.90	0.20	0.60	1.37	1.00	9775	10726

	Estimate	Est.Error	Q2.5	Q97.5
R2	0.4788965	0.1077302	0.2351561	0.6461209

Hypothesis Tests for class b:

	Hypothesis	Estimate	Est.Error	CI.Lower	CI.Upper	Evid.Ratio	Post.Prob
1	(is_trained1) < 0	0.21	0.56	-0.71	1.12	0.53	0.35
2	(is_trained1+is_trained1:classC2) < 0	-1.00	0.64	-2.04	0.06	16.15	0.94
3	(is_trained1+is_trained1:classE1) < 0	0.02	0.96	-1.55	1.55	0.96	0.49
4	(is_trained1+is_trained1:classE2) < 0	0.06	0.95	-1.49	1.60	0.90	0.47
5	(is_trained1:classC2) < 0	-1.21	0.80	-2.54	0.06	15.91	0.94

1.4.7 TMTB model without class interaction

Family: gaussian
 Links: mu = identity; sigma = identity
 Formula: TMTB_post ~ TMTB_pre + n_pretests + is_trained + age + DASH
 Data: fingers_tap_data (Number of observations: 19)
 Samples: 4 chains, each with iter = 10000; warmup = 5000; thin = 1;
 total post-warmup samples = 20000

Population-Level Effects:

	Estimate	Est.Error	l-95% CI	u-95% CI	Rhat	Bulk_ESS	Tail_ESS
Intercept	-0.33	0.37	-1.07	0.41	1.00	16560	13523
TMTB_pre	0.42	0.24	-0.05	0.89	1.00	15543	12732
n_pretests1	-0.07	0.50	-1.05	0.94	1.00	16009	13465
is_trained1	0.48	0.48	-0.49	1.42	1.00	14780	12296
age	0.07	0.24	-0.41	0.55	1.00	13929	12831
DASH	0.37	0.25	-0.13	0.86	1.00	14011	12553

Family Specific Parameters:

	Estimate	Est.Error	l-95% CI	u-95% CI	Rhat	Bulk_ESS	Tail_ESS
sigma	1.00	0.21	0.68	1.51	1.00	10487	12588

	Estimate	Est.Error	Q2.5	Q97.5
R2	0.375349	0.1147521	0.1262941	0.5594042

Hypothesis Tests for class b:

	Hypothesis	Estimate	Est.Error	CI.Lower	CI.Upper	Evid.Ratio	Post.Prob
1	(is_trained1) < 0	0.48	0.48	-0.31	1.26	0.17	0.15
2	(age) > 0	0.07	0.24	-0.33	0.46	1.62	0.62
3	(DASH) < 0	0.37	0.25	-0.03	0.77	0.07	0.06
4	(n_pretests1) > 0	-0.07	0.50	-0.89	0.77	0.79	0.44

1.4.8 TMTB model with class interaction

Family: gaussian
 Links: mu = identity; sigma = identity
 Formula: TMTB_post ~ TMTB_pre + is_trained * class + age + DASH
 Data: fingers_tap_data (Number of observations: 19)
 Samples: 4 chains, each with iter = 10000; warmup = 5000; thin = 1;
 total post-warmup samples = 20000

Population-Level Effects:

	Estimate	Est.Error	l-95% CI	u-95% CI	Rhat	Bulk_ESS	Tail_ESS
Intercept	-0.37	0.46	-1.29	0.55	1.00	18370	14807
TMTB_pre	0.42	0.26	-0.10	0.92	1.00	18503	13295
is_trained1	0.33	0.60	-0.82	1.55	1.00	16110	14301
classC2	0.07	0.58	-1.11	1.22	1.00	17408	14319
classE1	0.10	0.88	-1.67	1.86	1.00	15146	11840
classE2	0.15	0.88	-1.59	1.98	1.00	16090	11936
age	0.06	0.26	-0.46	0.59	1.00	15858	13163
DASH	0.39	0.28	-0.16	0.94	1.00	16984	14336
is_trained1:classC2	0.12	0.76	-1.39	1.65	1.00	17021	14351
is_trained1:classE1	0.07	0.88	-1.67	1.88	1.00	15479	11740
is_trained1:classE2	0.15	0.89	-1.61	1.93	1.00	15883	12126

Family Specific Parameters:

	Estimate	Est.Error	l-95% CI	u-95% CI	Rhat	Bulk_ESS	Tail_ESS
sigma	1.08	0.25	0.72	1.68	1.00	10735	11193

	Estimate	Est.Error	Q2.5	Q97.5
R2	0.4020413	0.1007473	0.1837086	0.5647358

Hypothesis Tests for class b:

	Hypothesis	Estimate	Est.Error	CI.Lower	CI.Upper	Evid.Ratio	Post.Prob
1	(is_trained1) < 0	0.33	0.60	-0.62	1.33	0.40	0.28
2	(is_trained1+is_trained1:classC2) < 0	0.45	0.77	-0.81	1.71	0.37	0.27
3	(is_trained1+is_trained1:classE1) < 0	0.41	0.99	-1.18	2.03	0.50	0.33
4	(is_trained1+is_trained1:classE2) < 0	0.48	0.98	-1.10	2.08	0.42	0.30
5	(is_trained1:classC2) < 0	0.12	0.76	-1.10	1.37	0.78	0.44

1.4.9 TMT_delta model without class interaction

Family: gaussian
 Links: mu = identity; sigma = identity
 Formula: TMT_delta_post ~ TMT_delta_pre + n_pretests + is_trained + age + DASH
 Data: fingers_tap_data (Number of observations: 19)
 Samples: 4 chains, each with iter = 10000; warmup = 5000; thin = 1;
 total post-warmup samples = 20000

Population-Level Effects:

	Estimate	Est.Error	l-95% CI	u-95% CI	Rhat	Bulk_ESS	Tail_ESS
Intercept	-0.35	0.38	-1.09	0.41	1.00	17732	12765
TMT_delta_pre	0.33	0.26	-0.19	0.83	1.00	15967	12529
n_pretests1	-0.15	0.51	-1.17	0.86	1.00	17224	14476
is_trained1	0.51	0.49	-0.48	1.47	1.00	15773	13247
age	0.09	0.25	-0.41	0.59	1.00	13930	12400
DASH	0.33	0.26	-0.18	0.83	1.00	14987	13025

Family Specific Parameters:

	Estimate	Est.Error	l-95% CI	u-95% CI	Rhat	Bulk_ESS	Tail_ESS
sigma	1.03	0.22	0.71	1.56	1.00	10855	12431

	Estimate	Est.Error	Q2.5	Q97.5
R2	0.3263214	0.1108469	0.09961406	0.5172946

Hypothesis Tests for class b:

	Hypothesis	Estimate	Est.Error	CI.Lower	CI.Upper	Evid.Ratio	Post.Prob
1	(is_trained1) < 0	0.51	0.49	-0.30	1.32	0.17	0.15
2	(age) > 0	0.09	0.25	-0.32	0.50	1.74	0.63
3	(DASH) < 0	0.33	0.26	-0.10	0.75	0.11	0.10
4	(n_pretests1) > 0	-0.15	0.51	-0.99	0.69	0.63	0.39

1.4.10

TMT_delta model with class interaction

Family: gaussian

Links: mu = identity; sigma = identity

Formula: TMT_delta_post ~ TMT_delta_pre + is_trained * class + age + DASH

Data: fingers_tap_data (Number of observations: 19)

Samples: 4 chains, each with iter = 10000; warmup = 5000; thin = 1;
total post-warmup samples = 20000

Population-Level Effects:

	Estimate	Est.Error	l-95% CI	u-95% CI	Rhat	Bulk_ESS	Tail_ESS
Intercept	-0.37	0.47	-1.29	0.55	1.00	18933	15082
TMT_delta_pre	0.32	0.28	-0.24	0.86	1.00	17299	13014
is_trained1	0.22	0.60	-0.93	1.44	1.00	15628	13764
classC2	-0.01	0.60	-1.19	1.17	1.00	18168	13223
classE1	0.13	0.88	-1.62	1.95	1.00	15496	12270
classE2	0.22	0.89	-1.55	1.99	1.00	15125	12221
age	0.09	0.28	-0.47	0.65	1.00	15454	12338
DASH	0.36	0.28	-0.19	0.91	1.00	16362	14086
is_trained1:classC2	0.31	0.78	-1.21	1.90	1.00	15742	13735
is_trained1:classE1	0.13	0.88	-1.62	1.90	1.00	15766	12929
is_trained1:classE2	0.23	0.88	-1.50	2.04	1.00	15335	12444

Family Specific Parameters:

	Estimate	Est.Error	l-95% CI	u-95% CI	Rhat	Bulk_ESS	Tail_ESS
sigma	1.10	0.25	0.73	1.68	1.00	10994	12401

	Estimate	Est.Error	Q2.5	Q97.5
R2	0.3689947	0.09858325	0.1586638	0.5329625

Hypothesis Tests for class b:

	Hypothesis	Estimate	Est.Error	CI.Lower	CI.Upper	Evid.Ratio	Post.Prob
1	(is_trained1) < 0	0.22	0.60	-0.73	1.21	0.55	0.35
2	(is_trained1+is_trained1:classC2) < 0	0.53	0.78	-0.76	1.81	0.32	0.24
3	(is_trained1+is_trained1:classE1) < 0	0.35	1.00	-1.25	2.00	0.55	0.35
4	(is_trained1+is_trained1:classE2) < 0	0.45	0.98	-1.12	2.02	0.45	0.31
5	(is_trained1:classC2) < 0	0.31	0.78	-0.94	1.61	0.52	0.34

1.4.11

Polhemus model without class interaction

Family: beta

Links: mu = logit; phi = identity

Formula: Polhemus_post ~ Polhemus_pre + n_pretests + is_trained + age + DASH

Data: fingers_tap_data (Number of observations: 20)

Samples: 4 chains, each with iter = 10000; warmup = 5000; thin = 1;
total post-warmup samples = 20000

Population-Level Effects:

	Estimate	Est.Error	l-95% CI	u-95% CI	Rhat	Bulk_ESS	Tail_ESS
Intercept	-3.52	0.57	-4.60	-2.40	1.00	5674	9947
Polhemus_pre	6.20	3.48	-0.24	11.79	1.00	5746	15528
n_pretests1	0.49	0.47	-0.47	1.40	1.00	10178	11595
is_trained1	-0.15	0.44	-1.02	0.69	1.00	11124	11080
age	0.02	0.25	-0.49	0.50	1.00	12052	12455
DASH	0.07	0.21	-0.38	0.45	1.00	11176	11324

Family Specific Parameters:

	Estimate	Est.Error	l-95% CI	u-95% CI	Rhat	Bulk_ESS	Tail_ESS
phi	22.23	10.84	6.71	47.62	1.00	5451	9418

	Estimate	Est.Error	Q2.5	Q97.5
R2	0.4761384	0.2795128	0.02983493	0.830898

Hypothesis Tests for class b:

	Hypothesis	Estimate	Est.Error	CI.Lower	CI.Upper	Evid.Ratio	Post.Prob
1	(is_trained1) < 0	-0.15	0.44	-0.88	0.56	1.77	0.64
2	(age) > 0	0.02	0.25	-0.40	0.42	1.15	0.53
3	(DASH) < 0	0.07	0.21	-0.30	0.39	0.53	0.35
4	(n_pretests1) > 0	0.49	0.47	-0.30	1.25	6.11	0.86

1.4.12

Polhemus model with class interaction

Family: beta
 Links: mu = logit; phi = identity
 Formula: Polhemus_post ~ Polhemus_pre + is_trained * class + age + DASH
 Data: fingers_tap_data (Number of observations: 20)
 Samples: 4 chains, each with iter = 10000; warmup = 5000; thin = 1;
 total post-warmup samples = 20000

Population-Level Effects:

	Estimate	Est.Error	l-95% CI	u-95% CI	Rhat	Bulk_ESS	Tail_ESS
Intercept	-3.42	0.77	-4.91	-2.02	1.00	6911	12748
Polhemus_pre	6.08	3.82	-0.38	12.80	1.00	6585	13750
is_trained1	0.11	0.57	-1.07	1.22	1.00	11176	12252
classC2	-0.25	0.58	-1.41	0.88	1.00	11136	12564
classE1	-0.54	0.95	-2.55	1.26	1.00	15009	10692
classE2	-0.06	0.86	-1.76	1.67	1.00	14734	10818
age	0.02	0.24	-0.45	0.50	1.00	15604	12378
DASH	0.11	0.22	-0.34	0.52	1.00	13529	12234
is_trained1:classC2	0.32	0.68	-1.01	1.69	1.00	14482	13684
is_trained1:classE1	-0.54	0.95	-2.56	1.25	1.00	14887	10961
is_trained1:classE2	-0.07	0.85	-1.78	1.57	1.00	14226	10731

Family Specific Parameters:

	Estimate	Est.Error	l-95% CI	u-95% CI	Rhat	Bulk_ESS	Tail_ESS
phi	24.99	12.68	7.61	55.19	1.00	7353	11700

	Estimate	Est.Error	Q2.5	Q97.5
R2	0.5096121	0.264892	0.06602196	0.8568316

Hypothesis Tests for class b:

	Hypothesis	Estimate	Est.Error	CI.Lower	CI.Upper	Evid.Ratio	Post.Prob
1	(is_trained1) < 0	0.11	0.57	-0.84	1.04	0.71	0.42
2	(is_trained1+is_trained1:classC2) < 0	0.43	0.61	-0.62	1.38	0.30	0.23
3	(is_trained1+is_trained1:classE1) < 0	-0.43	1.04	-2.18	1.20	1.95	0.66
4	(is_trained1+is_trained1:classE2) < 0	0.05	0.97	-1.54	1.61	0.90	0.47
5	(is_trained1:classC2) < 0	0.32	0.68	-0.77	1.45	0.46	0.32

1.4.13

Polhemus_del model without class interaction

Family: beta
 Links: mu = logit; phi = identity
 Formula: Polhemus_del_post ~ Polhemus_del_pre + n_pretests + is_trained + age + DASH + (1 | participant)
 Data: fingers_tap_data (Number of observations: 20)
 Samples: 4 chains, each with iter = 10000; warmup = 5000; thin = 1;
 total post-warmup samples = 20000

Group-Level Effects:

~participant (Number of levels: 14)

	Estimate	Est.Error	l-95% CI	u-95% CI	Rhat	Bulk_ESS	Tail_ESS
sd(Intercept)	0.87	0.37	0.13	1.66	1.00	2620	3268

Population-Level Effects:

	Estimate	Est.Error	l-95% CI	u-95% CI	Rhat	Bulk_ESS	Tail_ESS
Intercept	-3.35	0.49	-4.34	-2.43	1.00	7087	10827
Polhemus_del_pre	2.36	2.21	-0.82	7.50	1.00	9716	10054
n_pretests1	0.45	0.52	-0.54	1.50	1.00	7590	10905
is_trained1	0.28	0.51	-0.70	1.30	1.00	9187	12478
age	-0.17	0.34	-0.86	0.48	1.00	7983	9735
DASH	-0.08	0.21	-0.51	0.34	1.00	8462	11891

Family Specific Parameters:

	Estimate	Est.Error	l-95% CI	u-95% CI	Rhat	Bulk_ESS	Tail_ESS
phi	63.14	39.84	12.97	161.50	1.00	2837	6229

	Estimate	Est.Error	Q2.5	Q97.5
R2	0.6933929	0.2433799	0.09076583	0.9447643

Hypothesis Tests for class b:

	Hypothesis	Estimate	Est.Error	CI.Lower	CI.Upper	Evid.Ratio	Post.Prob
1	(is_trained1) < 0	0.28	0.51	-0.53	1.12	0.41	0.29


```

2      (age) > 0      -0.17      0.34      -0.74      0.37      0.43      0.30
3      (DASH) < 0     -0.08      0.21      -0.43      0.27      1.89      0.65
4 (n_pretests1) > 0  0.45      0.52      -0.38      1.31      4.41      0.82

```

1.4.14 Polhemus_del model without class interaction

Family: beta

Links: mu = logit; phi = identity

Formula: Polhemus_del_post ~ Polhemus_del_pre + is_trained * class + age + DASH

Data: fingers_tap_data (Number of observations: 20)

Samples: 4 chains, each with iter = 10000; warmup = 5000; thin = 1;
total post-warmup samples = 20000

Population-Level Effects:

	Estimate	Est.Error	l-95% CI	u-95% CI	Rhat	Bulk_ESS	Tail_ESS
Intercept	-3.53	0.72	-5.04	-2.30	1.00	6508	10376
Polhemus_del_pre	4.57	3.37	-0.55	11.03	1.00	6844	10947
is_trained1	0.14	0.55	-0.94	1.25	1.00	9960	11862
classC2	0.41	0.59	-0.72	1.61	1.00	8292	10883
classE1	0.09	0.88	-1.65	1.85	1.00	13388	11457
classE2	0.24	0.87	-1.46	2.00	1.00	13110	10970
age	-0.19	0.24	-0.65	0.28	1.00	11807	12860
DASH	0.13	0.20	-0.29	0.49	1.00	13000	11613
is_trained1: classC2	0.58	0.66	-0.68	1.91	1.00	11853	12556
is_trained1: classE1	0.09	0.88	-1.65	1.84	1.00	14078	11213
is_trained1: classE2	0.24	0.86	-1.46	2.00	1.00	13447	11022

Family Specific Parameters:

	Estimate	Est.Error	l-95% CI	u-95% CI	Rhat	Bulk_ESS	Tail_ESS
phi	26.31	13.79	8.62	60.82	1.00	7322	13050

	Estimate	Est.Error	Q2.5	Q97.5
R2	0.3599727	0.2293004	0.0527204	0.8123338

Hypothesis Tests for class b:

	Hypothesis	Estimate	Est.Error	CI.Lower	CI.Upper	Evid.Ratio	Post.Prob
1	(is_trained1) < 0	0.14	0.55	-0.77	1.06	0.64	0.39
2	(is_trained1+is_trained1: classC2) < 0	0.72	0.57	-0.24	1.61	0.11	0.10
3	(is_trained1+is_trained1: classE1) < 0	0.24	0.99	-1.36	1.84	0.66	0.40
4	(is_trained1+is_trained1: classE2) < 0	0.39	0.97	-1.19	1.98	0.51	0.34
5	(is_trained1: classC2) < 0	0.58	0.66	-0.48	1.69	0.23	0.19

1.5 Model predictions for class x training interactions

The model's predictions for the training by class interaction are illustrated in Figures 3–5.

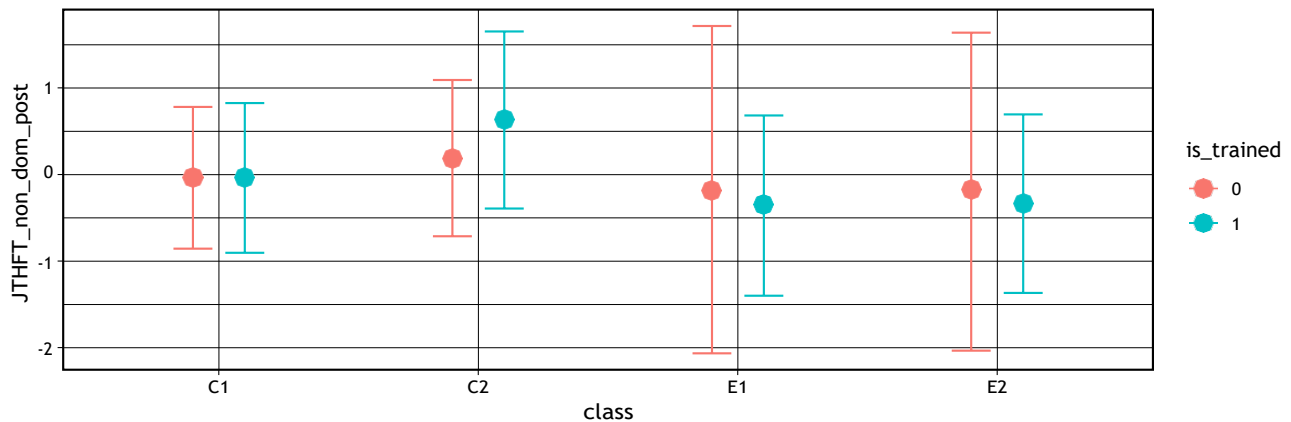


Figure 3. Fitted results (standardized) for JTHFT (non-dominant hand) post-test, grouped by class and training. A lower score is better. Due to the experimental design, there were no post-tests for

untrained participants in classes E1 and E2 – their fits shown in this figure are the model’s best estimates given the remaining data.

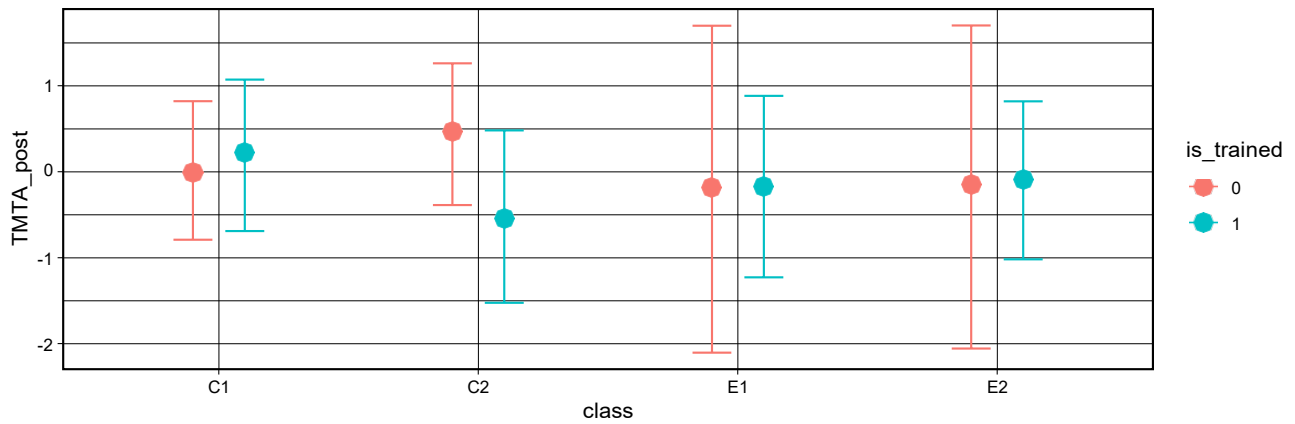


Figure 4. Fitted results (standardized) for the TMTA post-test, grouped by class and training. A lower score is better. Due to the experimental design, there were no post-tests for untrained participants in classes E1 and E2 – their fits shown in this figure are the model’s best estimates given the remaining data..

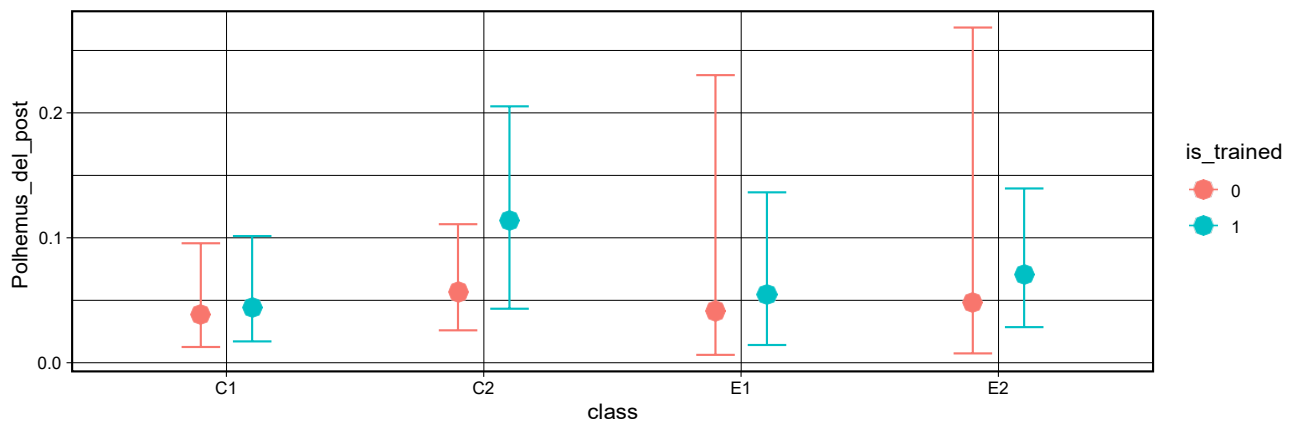


Figure 5. Fitted results (standardized) for the delayed Polhemus post-test, grouped by class and training. A lower score is better. Due to the experimental design, there were no post-tests for untrained participants in classes E1 and E2 – their fits shown in this figure are the model’s best estimates given the remaining data.