Grand-Average ANOVA – Semantic Attraction Portion

Factor	df	F	p
Window	1	109.01	<.001**
Condition	2	5.882	0.004**
Window x Condition	2	6.069	<.001**

Table 1. Analysis of Variance Results for the Semantic Attraction portion of the Study.

Pair-Wise Comparisons Between Semantic Attraction Conditions

time window	comparison	F	p
280-550	control vs attraction	7.063	0.0118*
280-550	control vs no attraction	18.711	<0.001**
280-550	attraction vs no attraction	2.693	0.11
550-900	control vs attraction	7.215	0.011*
550-900	control vs no attraction	0.739	0.396
550-900	attraction vs no attraction	6.207	0.018*

Table 2. Pair-wise Comparisons between conditions in the semantic attraction portion of the design. Degrees of freedom = (1,39) for all comparisons. Results indicated a significant N400 effects in both experimental conditions, as well as significant P600 effect in the attraction condition.

Task	Mean	Standard Deviation	Skewness	Kurtosis
Keep-Track	.927 (.755)	.062 (.073)	0.28	2.37
Reading Span	.819 (.621)	.082 (.102)	-0.165	2.812
Spatial Span	.878 (.688)	.125 (.139)	0.915	3.706
Vocabulary	.889 (.596)	.153 (.141)	0.53	3.399
Author Questionnaire	.464 (.230)	.148 (.142)	0.616	4.275
Magazine Questionnaire	.609 (.370)	.113 (.125)	-0.04	2.445
Spatial 2-Back	.983 (.802)	.135 (.134)	0.366	1.987

Table 3. Summary statistics for the behavioral tasks. Values in parenthesis are the non-transformed (proportion correct) values for each task. Note that distributions for the author questionnaire and spatial 2-back tasks remained marginally kurtotic even after application of the arcsine transformation, suggesting the presence of floor (in the case of the author questionnaire) and ceiling (in the case of the spatial 2-back) effects.

	Vocabulary	Keep Track	Reading Span	Spatial Span	Spatial 2-Back
Vocabulary	1	0.28	-0.12	0.24	0.41
Keep Track		1	0.42	0.28	0.52
Reading Span			1	0.34	0.16
Spatial Span				1	0.14
Spatial 2-Back					1

Table 4. Correlation matrix for behavioral tasks. Author & Magazine Questionnaires are not included because data collection did not begin until the thirteenth subject.

Regression Analyses Relating N400 and P600 Effect Sizes

Predictor	Dependent Variable	b	t	p	R-squared
No Attraction N400 Effect	No Attraction P600 Effect	0.438	2.649	0.012*	0.18
Attraction N400 Effect	Attraction P600 Effect	0.441	2.387	0.023*	0.15
No Attraction N400 Effect	Attraction P600 Effect	0.142	0.753	0.457	0.02
Attraction N400 Effect	No Attraction P600 Effect	0.182	0.958	0.345	0.03

Table 5. Regression statistics describing the relationship between N400 and P600 effect sizes. Note that the relationships hold only within, but not between, conditions.

Regression Analyses Relating Behavioral Tasks and No Attraction Continuum Measures

Measure	b	T-value	p	R-squared
Keep-track	10.379	3.266	0.003**	0.227
Reading Span	2.419	0.674	0.505	0.014
Spatial Span	-3.985	-1.97	0.058	0.108
Vocabulary	-0.457	-0.182	0.857	0.001

Table 6. Results of simple regression analyses with N400-P600 continuum measures in the no attraction condition as the dependent variable. Results indicated that subjects scoring highly on the keep-track task tended to show more P600-like activity in the no attraction condition. Subjects scoring highly on the spatial span task, by contrast, showed more N400-like activity.

Grand Average ANOVA – Visual Wordform Portion – Early ERPs

Factor	df	F	p
ROI	1	9.126	0.0051
Window	1	72.594	<.001**
Condition	3	5.419	.0018**
ROI x Window	1	10.066	0.0034
ROI x Condition	3	2.987	.0351*
Window x Condition	3	24.93	<.001**
Window x Condition x ROI	3	2.876	.0403*

Table 7. Analysis of Variance results for Grand-Average ERPs from the visual wordform portion of the study.

Pair-Wise Comparisons Between Conditions Within Visual Word-Form Portion

ROI	time window	comparison	F	p
Left Posterior	80-200	control vs support	0.47	0.5
Left Posterior	80-200	control vs unsupport	1.29	0.26
Left Posterior	80-200	control vs mid	0.01	0.91
Left Posterior	80-200	support vs unsupport	0.22	0.64
Left Posterior	80-200	support vs mid	0.76	0.39
Left Posterior	80-200	unsuppport vs mid	1.61	0.21
Left Posterior	200-340	control vs support	27.91	<.001**
Left Posterior	200-340	control vs unsupport	5.69	0.023*
Left Posterior	200-340	control vs mid	15.83	<.001**
Left Posterior	200-340	support vs unsupport	7.17	.012*
Left Posterior	200-340	support vs mid	3.36	0.076
Left Posterior	200-340	unsuppport vs mid	0.39	0.54
Right Posterior	80-200	control vs support	0.57	0.46
Right Posterior	80-200	control vs unsupport	0.12	0.73
Right Posterior	80-200	control vs mid	0.35	0.56
Right Posterior	80-200	support vs unsupport	0.19	0.67
Right Posterior	80-200	support vs mid	1.4	0.25
Right Posterior	80-200	unsuppport vs mid	0.62	0.44
Right Posterior	200-340	control vs support	25.98	<.001**
Right Posterior	200-340	control vs unsupport	19.4	<.001**
Right Posterior	200-340	control vs mid	36.4	<.001**
Right Posterior	200-340	support vs unsupport	0.13	0.73
Right Posterior	200-340	support vs mid	0.073	0.79
Right Posterior	200-340	unsuppport vs mid	0.001	0.976

Table 8. Pair-wise comparisons between conditions in the visual word-form portion of the experiment. Degrees of freedom = (1,39) for all comparisons. Results showed no differences between conditions in the P100 time window. Experimental conditions deviated from control in the N170 window, but not from eachother.

Grand-Average ANOVA – VWF Portion – Late ERPs

Factor	df	F	p
Window	1	20.52	<.001**
Condition	3	17.61	<.001**
Window x Condition	3	27.93	<.001**

Pair-wise Comparisons Between Conditions – VWF Portion – Late ERPs

time window	comparison	F	p
280-550	control vs support	11.1	.002*
280-550	control vs unsupport	0.007	0.936
280-550	control vs mid	0.25	0.623
280-550	support vs unsupport	41.5	<.001**
280-550	support vs mid	43.92	<.001**
280-550	unsuppport vs mid	1.49	0.23
550-900	control vs support	80.07	<.001**
550-900	control vs unsupport	14.96	<.001**
550-900	control vs mid	34.72	<.001**
550-900	support vs unsupport	28.19	<.001**
550-900	support vs mid	20.07	<.001**
550-900	unsuppport vs mid	5.68	.023*

Table 9. Above: Analysis of Variance results for Grand-average ERPs in the visual wordform portion, N400 and P600 time-windows. Below: Pair-wise comparisons between conditions in the visual word-form portion of the experiment for late ERPs. Degrees of freedom = (1,39) for all pair-wise comparisons. Results indicated that all experimental conditions differed from one another in the P600 time-window, creating a "stair-step" effect (see figure 18).

Results of Linear Regression Analyses Relating Early ERPs and Behavioral Tasks

Dependent Variable	Predictor	b	t	p	R-squared
Average P1 Amplitude	Vocab	4.484	2.27	.034*	0.15
Average P1 Amplitude	Keep-Track	4.58	1.22	0.23	0.05
Average P1 Amplitude	Reading Span	2.74	0.98	0.34	0.03
Average P1 Amplitude	Spatial Span	1.14	0.62	0.54	0.013
Average P1 Amplitude	Spatial 2-Back	2.1	1.25	0.22	0.05
N170 Effect Size	Vocab	0.004	0.002	0.998	0
N170 Effect Size	Keep-Track	-0.6	-0.31	0.76	0
N170 Effect Size	Reading Span	5.13	1.97	0.058	0.11
N170 Effect Size	Spatial Span	-0.49	-0.27	0.79	0
N170 Effect Size	Spatial 2-Back	-2.18	-1.33	0.19	0.023

Table 10. Results of linear regression carried out to explore relationships between our behavioral measures and individual Early ERP components elicited by items in the Visual Worform part of the study. A moderate correlation between averaged individual P100 amplitudes and vocabulary size was found, as well as a marginally significant relationship between N170 effect sizes and the reading span task (N170 effect sizes were calculated by averaging the three experimental conditions and subtracting the control condition).