

```

GLM Direct Abstract BY Interaction
/WSFACTOR=Directness 2 Polynomial
/MEASURE=Time
/METHOD=SSTYPE(3)
/SAVE=SRESID
/POSTHOC=Interaction(TUKEY SCHEFFE BONFERRONI SIDAK GABRIEL GH)
/PLOT=PROFILE(Interaction*Directness)
/EMMEANS=TABLES(Interaction) COMPARE ADJ(BONFERRONI)
/EMMEANS=TABLES(OVERALL)
/EMMEANS=TABLES(Directness) COMPARE ADJ(BONFERRONI)
/EMMEANS=TABLES(Interaction*Directness)
/PRINT=DESCRIPTIVE ETASQ OPOWER TEST(MMATRIX) HOMOGENEITY
/CRITERIA=ALPHA(.05)
/WSDESIGN=Directness
/DESIGN=Interaction

```

General Linear Model

Notes

Output Created		03-FEB-2017 16:15:05	
Comments			
Input	Active Dataset	DataSet0	
	Filter	<none>	
	Weight	<none>	
	Split File	<none>	
	N of Rows in Working Data File	16	
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.	
	Cases Used	Statistics are based on all cases with valid data for all variables in the model.	

Notes

Syntax		GLM Direct Abstract BY Interaction /WSFACTOR=Directness 2 Polynomial /MEASURE=Time /METHOD=SSTYPE(3) /SAVE=SRESID /POSTHOC=Interaction(TUKEY SCHEFFE BONFERRONI SIDAK GABRIEL GH) /PLOT=PROFILE (Interaction*Directness) /EMMEANS=TABLES(Interaction) COMPARE ADJ(BONFERRONI) /EMMEANS=TABLES(OVERALL) /EMMEANS=TABLES(Directness) COMPARE ADJ(BONFERRONI) /EMMEANS=TABLES (Interaction*Directness) /PRINT=DESCRIPTIVE ETASQ OPOWER TEST(MMATRIX) HOMOGENEITY /CRITERIA=ALPHA(.05) /WSDSIGN=Directness /DESIGN=Interaction.
Resources	Processor Time	00:00:00.55
	Elapsed Time	00:00:00.69
Variables Created or Modified	SRE_1	Studentized Residual for Direct
	SRE_2	Studentized Residual for Abstract

Warnings

Post hoc tests are not performed for Interaction because there are fewer than three groups.

Within-Subjects Factors

Measure: Time

Directness	Dependent Variable
1	Direct
2	Abstract

Between-Subjects Factors

		N
Interaction	MVS	8
	VbD	8

Descriptive Statistics

Interaction		Mean	Std. Deviation	N
Direct	MVS	6.5469	.88876	8
	VbD	10.8438	3.10583	8
	Total	8.6953	3.12949	16
Abstract	MVS	8.0625	.66815	8
	VbD	8.2031	1.97861	8
	Total	8.1328	1.42848	16

Box's Test of Equality of Covariance Matrices^a

Box's M	14.818
F	4.174
df1	3
df2	35280.000
Sig.	.006

Tests the null hypothesis that the observed covariance matrices of the dependent variables are equal across groups.

a. Design: Intercept + Interaction
Within Subjects Design: Directness

Multivariate Tests^a

Effect		Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power ^c
Directness	Pillai's Trace	.077	1.162 ^b	1.000	14.000	.299	.077	1.162	.171
	Wilks' Lambda	.923	1.162 ^b	1.000	14.000	.299	.077	1.162	.171
	Hotelling's Trace	.083	1.162 ^b	1.000	14.000	.299	.077	1.162	.171
	Roy's Largest Root	.083	1.162 ^b	1.000	14.000	.299	.077	1.162	.171
Directness * Interaction	Pillai's Trace	.531	15.859 ^b	1.000	14.000	.001	.531	15.859	.959
	Wilks' Lambda	.469	15.859 ^b	1.000	14.000	.001	.531	15.859	.959
	Hotelling's Trace	1.133	15.859 ^b	1.000	14.000	.001	.531	15.859	.959
	Roy's Largest Root	1.133	15.859 ^b	1.000	14.000	.001	.531	15.859	.959

a. Design: Intercept + Interaction
Within Subjects Design: Directness

b. Exact statistic

c. Computed using alpha = .05

Mauchly's Test of Sphericity^a

Measure: Time

Within Subjects Effect	Mauchly's W	Approx. Chi-Square	df	Sig.	Epsilon ^b		
					Greenhouse-Geisser	Huynh-Feldt	Lower-bound
Directness	1.000	.000	0	.	1.000	1.000	1.000

Tests the null hypothesis that the error covariance matrix of the orthonormalized transformed dependent variables is proportional to an identity matrix.

a. Design: Intercept + Interaction
Within Subjects Design: Directness

b. May be used to adjust the degrees of freedom for the averaged tests of significance. Corrected tests are displayed in the Tests of Within-Subjects Effects table.

Tests of Within-Subjects Effects

Measure: Time

Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power ^a
Directness	Sphericity Assumed	2.531	1	2.531	1.162	.299	.077	1.162	.171
	Greenhouse-Geisser	2.531	1.000	2.531	1.162	.299	.077	1.162	.171
	Huynh-Feldt	2.531	1.000	2.531	1.162	.299	.077	1.162	.171
	Lower-bound	2.531	1.000	2.531	1.162	.299	.077	1.162	.171
Directness * Interaction	Sphericity Assumed	34.549	1	34.549	15.859	.001	.531	15.859	.959
	Greenhouse-Geisser	34.549	1.000	34.549	15.859	.001	.531	15.859	.959
	Huynh-Feldt	34.549	1.000	34.549	15.859	.001	.531	15.859	.959
	Lower-bound	34.549	1.000	34.549	15.859	.001	.531	15.859	.959
Error(Directness)	Sphericity Assumed	30.498	14	2.178					
	Greenhouse-Geisser	30.498	14.000	2.178					
	Huynh-Feldt	30.498	14.000	2.178					
	Lower-bound	30.498	14.000	2.178					

a. Computed using alpha = .05

Tests of Within-Subjects Contrasts

Measure: Time

Source	Directness	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power ^a
Directness	Linear	2.531	1	2.531	1.162	.299	.077	1.162	.171
Directness * Interaction	Linear	34.549	1	34.549	15.859	.001	.531	15.859	.959
Error(Directness)	Linear	30.498	14	2.178					

a. Computed using alpha = .05

Levene's Test of Equality of Error Variances^a

	F	df1	df2	Sig.
Direct	16.416	1	14	.001
Abstract	2.716	1	14	.122

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + Interaction
Within Subjects Design: Directness

Tests of Between-Subjects Effects

Measure: Time

Transformed Variable: Average

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power ^a
Intercept	2265.486	1	2265.486	433.978	.000	.969	433.978	1.000
Interaction	39.383	1	39.383	7.544	.016	.350	7.544	.724
Error	73.084	14	5.220					

a. Computed using alpha = .05

Transformation Coefficients (M Matrix)

Average

Measure: Time

Transformed Variable:

Direct	.707
Abstract	.707

Directness^a

Measure: Time

Dependent Variable	Directness
	Linear
Direct	-.707
Abstract	.707

a. The contrasts for the within subjects factors are:
Directness: Polynomial contrast

Estimated Marginal Means

1. Interaction

Transformation Coefficients (Matrix)

Dependent Variable	Measure
	Time
Direct	.500
Abstract	.500

Estimates

Measure: Time

Interaction	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
MVS	7.305	.571	6.080	8.530
VbD	9.523	.571	8.298	10.749

Pairwise Comparisons

Measure: Time

(I) Interaction	(J) Interaction	Mean Difference (I-J)	Std. Error	Sig. ^b	95% Confidence Interval for Difference ^b	
					Lower Bound	Upper Bound
MVS	VbD	-2.219 [*]	.808	.016	-3.951	-.486
VbD	MVS	2.219 [*]	.808	.016	.486	3.951

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

b. Adjustment for multiple comparisons: Bonferroni.

Univariate Tests

Measure: Time

	Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power ^a
Contrast	19.691	1	19.691	7.544	.016	.350	7.544	.724
Error	36.542	14	2.610					

The F tests the effect of Interaction. This test is based on the linearly independent pairwise comparisons among the estimated marginal means.

a. Computed using alpha = .05

2. Grand Mean

Transformation Coefficients (M Matrix)

	Measure
Dependent Variable	Time
Direct	.500
Abstract	.500

Estimates

Measure: Time

Mean	Std. Error	95% Confidence Interval	
		Lower Bound	Upper Bound
8.414	.404	7.548	9.280

3. Directness

Transformation Coefficients (M Matrix)

Measure: Time

	Directness	
Dependent Variable	1	2
Direct	1	0
Abstract	0	1

Estimates

Measure: Time

Directness	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
1	8.695	.571	7.470	9.920
2	8.133	.369	7.341	8.925

Pairwise Comparisons

Measure: Time

(I) Directness	(J) Directness	Mean Difference (I-J)	Std. Error	Sig. ^a	95% Confidence Interval for Difference ^a	
					Lower Bound	Upper Bound
1	2	.563	.522	.299	-.557	1.682
2	1	-.563	.522	.299	-1.682	.557

Based on estimated marginal means

a. Adjustment for multiple comparisons: Bonferroni.

Multivariate Tests

	Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power ^b
Pillai's trace	.077	1.162 ^a	1.000	14.000	.299	.077	1.162	.171
Wilks' lambda	.923	1.162 ^a	1.000	14.000	.299	.077	1.162	.171
Hotelling's trace	.083	1.162 ^a	1.000	14.000	.299	.077	1.162	.171
Roy's largest root	.083	1.162 ^a	1.000	14.000	.299	.077	1.162	.171

Each F tests the multivariate effect of Directness. These tests are based on the linearly independent pairwise comparisons among the estimated marginal means.

a. Exact statistic

b. Computed using alpha = .05

4. Interaction * Directness

Transformation Coefficients (M Matrix)

Measure: Time

Dependent Variable	Directness	
	1	2
Direct	1	0
Abstract	0	1

Estimates

Measure: Time

Interaction	Directness	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
MVS	1	6.547	.808	4.815	8.279
	2	8.063	.522	6.943	9.182
VbD	1	10.844	.808	9.112	12.576
	2	8.203	.522	7.083	9.323

Profile Plots

