```
GLM VAR00001 VAR00002 VAR00003
  /WSFACTOR=system 3 Polynomial
  /MEASURE=keystrokes
  /METHOD=SSTYPE(3)
  /EMMEANS=TABLES(system) COMPARE ADJ(BONFERRONI)
  /PRINT=DESCRIPTIVE ETASQ
  /CRITERIA=ALPHA(.05)
  /WSDESIGN=system.
```

General Linear Model

Notes

Output Created		
Comments		
Input	Data	
	Active Dataset	
	Filter	
	Weight	
	Split File	
	N of Rows in Working Data File	
Missing Value Handling	Definition of Missing	
	Cases Used	
Syntax		
Resources	Processor Time	
	Elapsed Time	

Notes

Output Created		26-MAR-2014 22:15:13
Comments		
Input	Data	D:\Adiss\24Column.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	12
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.
Syntax		GLM VAR00001 VAR00002 VAR00003 /WSFACTOR=system 3 Polynomial /MEASURE=keystrokes /METHOD=SSTYPE(3) /EMMEANS=TABLES(system) COMPARE ADJ (BONFERRONI) /PRINT=DESCRIPTIVE ETASQ /CRITERIA=ALPHA(.05)...
Resources	Processor Time	00:00:00.06
	Elapsed Time	00:00:00.06

[DataSet1] D:\Adiss\24Column.sav

Within-Subjects Factors

Measure: keystrokes

system	Dependent Variable
1	VAR00001
2	VAR00002
3	VAR00003

Descriptive Statistics

	Mean	Std. Deviation	N
Chibipoint (crosshairs ONLY)	5.67	.492	12
Chibipoint (crosshairs AND flyouts)	3.00	.000	12
Tabbing	1.00	.000	12

Multivariate Tests[a]

Effect		Value	F	Hypothesis df	Error df	Sig.
system	Pillai's Trace	.990	1078.000[b]	1.000	11.000	.000
	Wilks' Lambda	.010	1078.000[b]	1.000	11.000	.000
	Hotelling's Trace	98.000	1078.000[b]	1.000	11.000	.000
	Roy's Largest Root	98.000	1078.000[b]	1.000	11.000	.000

Multivariate Tests[a]

Effect		Partial Eta Squared
system	Pillai's Trace	.990
	Wilks' Lambda	.990
	Hotelling's Trace	.990
	Roy's Largest Root	.990

a. Design: Intercept
Within Subjects Design: system

b. Exact statistic

Mauchly's Test of Sphericity[a]

Measure: keystrokes

Within Subjects Effect	Mauchly's W	Approx. Chi-Square	df	Sig.	Epsilon[b]
					Greenhouse-Geisser
system	.000	.	2	.	.500

Mauchly's Test of Sphericity[a]

Measure: keystrokes

Within Subjects Effect	Epsilon[b]	
	Huynh-Feldt	Lower-bound
system	.500	.500

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

a. Design: Intercept
Within Subjects Design: system

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: keystrokes

Source		Type III Sum of Squares	df	Mean Square	F
system	Sphericity Assumed	131.556	2	65.778	814.000
	Greenhouse-Geisser	131.556	1.000	131.556	814.000
	Huynh-Feldt	131.556	1.000	131.556	814.000
	Lower-bound	131.556	1.000	131.556	814.000
Error(system)	Sphericity Assumed	1.778	22	.081	
	Greenhouse-Geisser	1.778	11.000	.162	
	Huynh-Feldt	1.778	11.000	.162	
	Lower-bound	1.778	11.000	.162	

Tests of Within-Subjects Effects

Measure: keystrokes

Source		Sig.	Partial Eta Squared
system	Sphericity Assumed	.000	.987
	Greenhouse-Geisser	.000	.987
	Huynh-Feldt	.000	.987
	Lower-bound	.000	.987
Error(system)	Sphericity Assumed		
	Greenhouse-Geisser		
	Huynh-Feldt		
	Lower-bound		

Tests of Within-Subjects Contrasts

Measure: keystrokes

Source	system	Type III Sum of Squares	df	Mean Square	F	Sig.
system	Linear	130.667	1	130.667	1078.000	.000
	Quadratic	.889	1	.889	22.000	.001
Error(system)	Linear	1.333	11	.121		
	Quadratic	.444	11	.040		

Tests of Within-Subjects Contrasts

Measure: keystrokes

Source	system	Partial Eta Squared
system	Linear	.990
	Quadratic	.667
Error(system)	Linear	
	Quadratic	

Tests of Between-Subjects Effects

Measure: keystrokes

Transformed Variable: Average

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Intercept	373.778	1	373.778	4625.500	.000	.998
Error	.889	11	.081			

Estimated Marginal Means

system

Estimates

Measure: keystrokes

system	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
1	5.667	.142	5.354	5.980
2	3.000	.000	3.000	3.000
3	1.000	.000	1.000	1.000

Pairwise Comparisons

Measure: keystrokes

(I) system	(J) system	Mean Difference (I-J)	Std. Error	Sig.[b]	95% Confidence Interval for Difference[b]	
					Lower Bound	Upper Bound
1	2	2.667*	.142	.000	2.266	3.067
	3	4.667*	.142	.000	4.266	5.067
2	1	-2.667*	.142	.000	-3.067	-2.266
	3	2.000	.000	.	2.000	2.000
3	1	-4.667*	.142	.000	-5.067	-4.266
	2	-2.000	.000	.	-2.000	-2.000

Based on estimated marginal means

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

b. Adjustment for multiple comparisons: Bonferroni.

Multivariate Tests

	Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared
Pillai's trace	.970	352.000[a]	1.000	11.000	.000	.970
Wilks' lambda	.030	352.000[a]	1.000	11.000	.000	.970
Hotelling's trace	32.000	352.000[a]	1.000	11.000	.000	.970
Roy's largest root	32.000	352.000[a]	1.000	11.000	.000	.970

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

a. Exact statistic

```
GLM VAR00004 VAR00005 VAR00006
  /WSFACTOR=system 3 Polynomial
  /MEASURE=keystrokes
  /METHOD=SSTYPE(3)
  /EMMEANS=TABLES(system) COMPARE ADJ(BONFERRONI)
  /PRINT=DESCRIPTIVE ETASQ
  /CRITERIA=ALPHA(.05)
  /WSDESIGN=system.
```

General Linear Model

Notes

Output Created		
Comments		
Input	Data	
	Active Dataset	
	Filter	
	Weight	
	Split File	
	N of Rows in Working Data File	
Missing Value Handling	Definition of Missing	
	Cases Used	
Syntax		
Resources	Processor Time	
	Elapsed Time	

Notes

Output Created		26-MAR-2014 22:31:22
Comments		
Input	Data	D:\Adiss\24Column.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	12
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.
Syntax		GLM VAR00004 VAR00005 VAR00006 /WSFACTOR=system 3 Polynomial /MEASURE=keystrokes /METHOD=SSTYPE(3) /EMMEANS=TABLES(system) COMPARE ADJ (BONFERRONI) /PRINT=DESCRIPTIVE ETASQ /CRITERIA=ALPHA(.05)...
Resources	Processor Time	00:00:00.05
	Elapsed Time	00:00:00.05

[DataSet1] D:\Adiss\24Column.sav

Within-Subjects Factors

Measure: keystrokes

system	Dependent Variable
1	VAR00004
2	VAR00005
3	VAR00006

Descriptive Statistics

	Mean	Std. Deviation	N
Chibipoint (crosshairs ONLY)	4.67	.492	12
Chibipoint (crosshairs AND flyouts)	2.25	.452	12
Tabbing	4.33	1.155	12

Multivariate Tests[a]

Effect		Value	F	Hypothesis df	Error df	Sig.
system	Pillai's Trace	.910	50.736[b]	2.000	10.000	.000
	Wilks' Lambda	.090	50.736[b]	2.000	10.000	.000
	Hotelling's Trace	10.147	50.736[b]	2.000	10.000	.000
	Roy's Largest Root	10.147	50.736[b]	2.000	10.000	.000

Multivariate Tests[a]

Effect		Partial Eta Squared
system	Pillai's Trace	.910
	Wilks' Lambda	.910
	Hotelling's Trace	.910
	Roy's Largest Root	.910

a. Design: Intercept
Within Subjects Design: system

b. Exact statistic

Mauchly's Test of Sphericity[a]

Measure: keystrokes

Within Subjects Effect	Mauchly's W	Approx. Chi-Square	df	Sig.	Epsilon[b] Greenhouse-Geisser
system	.729	3.159	2	.206	.787

Mauchly's Test of Sphericity[a]

Measure: keystrokes

Within Subjects Effect	Epsilon[b] Huynh-Feldt	Lower-bound
system	.896	.500

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

a. Design: Intercept
Within Subjects Design: system

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: keystrokes

Source		Type III Sum of Squares	df	Mean Square	F
system	Sphericity Assumed	41.167	2	20.583	33.543
	Greenhouse-Geisser	41.167	1.574	26.158	33.543
	Huynh-Feldt	41.167	1.791	22.982	33.543
	Lower-bound	41.167	1.000	41.167	33.543
Error(system)	Sphericity Assumed	13.500	22	.614	
	Greenhouse-Geisser	13.500	17.311	.780	
	Huynh-Feldt	13.500	19.704	.685	
	Lower-bound	13.500	11.000	1.227	

Tests of Within-Subjects Effects

Measure: keystrokes

Source		Sig.	Partial Eta Squared
system	Sphericity Assumed	.000	.753
	Greenhouse-Geisser	.000	.753
	Huynh-Feldt	.000	.753
	Lower-bound	.000	.753
Error(system)	Sphericity Assumed		
	Greenhouse-Geisser		
	Huynh-Feldt		
	Lower-bound		

Tests of Within-Subjects Contrasts

Measure: keystrokes

Source	system	Type III Sum of Squares	df	Mean Square	F	Sig.
system	Linear	.667	1	.667	1.000	.339
	Quadratic	40.500	1	40.500	72.243	.000
Error(system)	Linear	7.333	11	.667		
	Quadratic	6.167	11	.561		

Tests of Within-Subjects Contrasts

Measure: keystrokes

Source	system	Partial Eta Squared
system	Linear	.083
	Quadratic	.868
Error(system)	Linear	
	Quadratic	

Tests of Between-Subjects Effects

Measure: keystrokes

Transformed Variable: Average

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Intercept	506.250	1	506.250	915.411	.000	.988
Error	6.083	11	.553			

Estimated Marginal Means

system

Estimates

Measure: keystrokes

system	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
1	4.667	.142	4.354	4.980
2	2.250	.131	1.963	2.537
3	4.333	.333	3.600	5.067

Pairwise Comparisons

Measure: keystrokes

(I) system	(J) system	Mean Difference (I-J)	Std. Error	Sig.[b]	95% Confidence Interval for Difference[b]	
					Lower Bound	Upper Bound
1	2	2.417*	.229	.000	1.771	3.062
	3	.333	.333	1.000	-.607	1.273
2	1	-2.417*	.229	.000	-3.062	-1.771
	3	-2.083*	.379	.001	-3.151	-1.016
3	1	-.333	.333	1.000	-1.273	.607
	2	2.083*	.379	.001	1.016	3.151

Based on estimated marginal means

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

b. Adjustment for multiple comparisons: Bonferroni.

Multivariate Tests

	Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared
Pillai's trace	.910	50.736[a]	2.000	10.000	.000	.910
Wilks' lambda	.090	50.736[a]	2.000	10.000	.000	.910
Hotelling's trace	10.147	50.736[a]	2.000	10.000	.000	.910
Roy's largest root	10.147	50.736[a]	2.000	10.000	.000	.910

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

a. Exact statistic

```
GLM VAR00007 VAR00008 VAR00009
 /WSFACTOR=system 3 Polynomial
 /MEASURE=keystrokes
 /METHOD=SSTYPE(3)
```

```
  /EMMEANS=TABLES(system) COMPARE ADJ(BONFERRONI)
  /PRINT=DESCRIPTIVE ETASQ
  /CRITERIA=ALPHA(.05)
  /WSDESIGN=system.
```

General Linear Model

Notes

Output Created	
Comments	
Input	Data
	Active Dataset
	Filter
	Weight
	Split File
	N of Rows in Working Data File
Missing Value Handling	Definition of Missing
	Cases Used
Syntax	
Resources	Processor Time
	Elapsed Time

Notes

Output Created		26-MAR-2014 22:32:02
Comments		
Input	Data	D:\Adiss\24Column.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	12
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.
Syntax		GLM VAR00007 VAR00008 VAR00009 /WSFACTOR=system 3 Polynomial /MEASURE=keystrokes /METHOD=SSTYPE(3) /EMMEANS=TABLES(system) COMPARE ADJ (BONFERRONI) /PRINT=DESCRIPTIVE ETASQ /CRITERIA=ALPHA(.05)...
Resources	Processor Time	00:00:00.05
	Elapsed Time	00:00:00.06

[DataSet1] D:\Adiss\24Column.sav

Within-Subjects Factors

Measure: keystrokes

system	Dependent Variable
1	VAR00007
2	VAR00008
3	VAR00009

Descriptive Statistics

	Mean	Std. Deviation	N
Chibipoint (crosshairs ONLY)	5.00	.603	12
Chibipoint (crosshairs AND flyouts)	4.67	.888	12
Tabbing	7.00	.000	12

Multivariate Tests[a]

Effect		Value	F	Hypothesis df	Error df	Sig.
system	Pillai's Trace	.944	83.960[b]	2.000	10.000	.000
	Wilks' Lambda	.056	83.960[b]	2.000	10.000	.000
	Hotelling's Trace	16.792	83.960[b]	2.000	10.000	.000
	Roy's Largest Root	16.792	83.960[b]	2.000	10.000	.000

Multivariate Tests[a]

Effect		Partial Eta Squared
system	Pillai's Trace	.944
	Wilks' Lambda	.944
	Hotelling's Trace	.944
	Roy's Largest Root	.944

a. Design: Intercept
Within Subjects Design: system

b. Exact statistic

Mauchly's Test of Sphericity[a]

Measure: keystrokes

Within Subjects Effect	Mauchly's W	Approx. Chi-Square	df	Sig.	Epsilon[b]
					Greenhouse-Geisser
system	.742	2.984	2	.225	.795

Mauchly's Test of Sphericity[a]

Measure: keystrokes

Within Subjects Effect	Epsilon[b]	
	Huynh-Feldt	Lower-bound
system	.907	.500

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

a. Design: Intercept
Within Subjects Design: system

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: keystrokes

Source		Type III Sum of Squares	df	Mean Square	F
system	Sphericity Assumed	38.222	2	19.111	54.057
	Greenhouse-Geisser	38.222	1.590	24.041	54.057
	Huynh-Feldt	38.222	1.815	21.060	54.057
	Lower-bound	38.222	1.000	38.222	54.057
Error(system)	Sphericity Assumed	7.778	22	.354	
	Greenhouse-Geisser	7.778	17.489	.445	
	Huynh-Feldt	7.778	19.964	.390	
	Lower-bound	7.778	11.000	.707	

Tests of Within-Subjects Effects

Measure: keystrokes

Source		Sig.	Partial Eta Squared
system	Sphericity Assumed	.000	.831
	Greenhouse-Geisser	.000	.831
	Huynh-Feldt	.000	.831
	Lower-bound	.000	.831
Error(system)	Sphericity Assumed		
	Greenhouse-Geisser		
	Huynh-Feldt		
	Lower-bound		

Tests of Within-Subjects Contrasts

Measure: keystrokes

Source	system	Type III Sum of Squares	df	Mean Square	F	Sig.
system	Linear	24.000	1	24.000	132.000	.000
	Quadratic	14.222	1	14.222	27.077	.000
Error(system)	Linear	2.000	11	.182		
	Quadratic	5.778	11	.525		

Tests of Within-Subjects Contrasts

Measure: keystrokes

Source	system	Partial Eta Squared
system	Linear	.923
	Quadratic	.711
Error(system)	Linear	
	Quadratic	

Tests of Between-Subjects Effects

Measure: keystrokes

Transformed Variable: Average

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Intercept	1111.111	1	1111.111	2500.000	.000	.996
Error	4.889	11	.444			

Estimated Marginal Means

system

Estimates

Measure: keystrokes

system	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
1	5.000	.174	4.617	5.383
2	4.667	.256	4.103	5.231
3	7.000	.000	7.000	7.000

Pairwise Comparisons

Measure: keystrokes

(I) system	(J) system	Mean Difference (I-J)	Std. Error	Sig.[b]	95% Confidence Interval for Difference[b]	
					Lower Bound	Upper Bound
1	2	.333	.284	.797	-.468	1.135
	3	-2.000*	.174	.000	-2.491	-1.509
2	1	-.333	.284	.797	-1.135	.468
	3	-2.333*	.256	.000	-3.056	-1.611
3	1	2.000*	.174	.000	1.509	2.491
	2	2.333*	.256	.000	1.611	3.056

Based on estimated marginal means

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

b. Adjustment for multiple comparisons: Bonferroni.

Multivariate Tests

	Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared
Pillai's trace	.944	83.960[a]	2.000	10.000	.000	.944
Wilks' lambda	.056	83.960[a]	2.000	10.000	.000	.944
Hotelling's trace	16.792	83.960[a]	2.000	10.000	.000	.944
Roy's largest root	16.792	83.960[a]	2.000	10.000	.000	.944

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

a. Exact statistic

```
GLM VAR00010 VAR00011 VAR00012
  /WSFACTOR=system 3 Polynomial
  /MEASURE=keystrokes
  /METHOD=SSTYPE(3)
  /EMMEANS=TABLES(system) COMPARE ADJ(BONFERRONI)
  /PRINT=DESCRIPTIVE ETASQ
  /CRITERIA=ALPHA(.05)
  /WSDESIGN=system.
```

General Linear Model

Notes

Output Created		
Comments		
Input	Data	
	Active Dataset	
	Filter	
	Weight	
	Split File	
	N of Rows in Working Data File	
Missing Value Handling	Definition of Missing	
	Cases Used	
Syntax		
Resources	Processor Time	
	Elapsed Time	

Notes

Output Created		26-MAR-2014 22:32:37
Comments		
Input	Data	D:\Adiss\24Column.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	12
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.
Syntax		GLM VAR00010 VAR00011 VAR00012 /WSFACTOR=system 3 Polynomial /MEASURE=keystrokes /METHOD=SSTYPE(3) /EMMEANS=TABLES(system) COMPARE ADJ (BONFERRONI) /PRINT=DESCRIPTIVE ETASQ /CRITERIA=ALPHA(.05)...
Resources	Processor Time	00:00:00.05
	Elapsed Time	00:00:00.06

[DataSet1] D:\Adiss\24Column.sav

Within-Subjects Factors

Measure: keystrokes

system	Dependent Variable
1	VAR00010
2	VAR00011
3	VAR00012

Descriptive Statistics

	Mean	Std. Deviation	N
Chibipoint (crosshairs ONLY)	5.25	.452	12
Chibipoint (crosshairs AND flyouts)	3.17	.577	12
Tabbing	72.50	1.732	12

Multivariate Tests[a]

Effect		Value	F	Hypothesis df	Error df	Sig.
system	Pillai's Trace	.999	8435.636[b]	2.000	10.000	.000
	Wilks' Lambda	.001	8435.636[b]	2.000	10.000	.000
	Hotelling's Trace	1687.127	8435.636[b]	2.000	10.000	.000
	Roy's Largest Root	1687.127	8435.636[b]	2.000	10.000	.000

Multivariate Tests[a]

Effect		Partial Eta Squared
system	Pillai's Trace	.999
	Wilks' Lambda	.999
	Hotelling's Trace	.999
	Roy's Largest Root	.999

a. Design: Intercept
Within Subjects Design: system

b. Exact statistic

Mauchly's Test of Sphericity[a]

Measure: keystrokes

Within Subjects Effect	Mauchly's W	Approx. Chi-Square	df	Sig.	Epsilon[b] Greenhouse-Geisser
system	.394	9.308	2	.010	.623

Mauchly's Test of Sphericity[a]

Measure: keystrokes

Within Subjects Effect	Epsilon[b] Huynh-Feldt	Lower-bound
system	.664	.500

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

a. Design: Intercept
Within Subjects Design: system

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: keystrokes

Source		Type III Sum of Squares	df	Mean Square	F
system	Sphericity Assumed	37336.056	2	18668.028	15056.088
	Greenhouse-Geisser	37336.056	1.246	29976.664	15056.088
	Huynh-Feldt	37336.056	1.327	28131.705	15056.088
	Lower-bound	37336.056	1.000	37336.056	15056.088
Error(system)	Sphericity Assumed	27.278	22	1.240	
	Greenhouse-Geisser	27.278	13.701	1.991	
	Huynh-Feldt	27.278	14.599	1.868	
	Lower-bound	27.278	11.000	2.480	

Tests of Within-Subjects Effects

Measure: keystrokes

Source		Sig.	Partial Eta Squared
system	Sphericity Assumed	.000	.999
	Greenhouse-Geisser	.000	.999
	Huynh-Feldt	.000	.999
	Lower-bound	.000	.999
Error(system)	Sphericity Assumed		
	Greenhouse-Geisser		
	Huynh-Feldt		
	Lower-bound		

Tests of Within-Subjects Contrasts

Measure: keystrokes

Source	system	Type III Sum of Squares	df	Mean Square	F	Sig.
system	Linear	27135.375	1	27135.375	18510.953	.000
	Quadratic	10200.681	1	10200.681	10060.945	.000
Error(system)	Linear	16.125	11	1.466		
	Quadratic	11.153	11	1.014		

Tests of Within-Subjects Contrasts

Measure: keystrokes

Source	system	Partial Eta Squared
system	Linear	.999
	Quadratic	.999
Error(system)	Linear	
	Quadratic	

Tests of Between-Subjects Effects

Measure: keystrokes

Transformed Variable: Average

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Intercept	26190.028	1	26190.028	24752.389	.000	1.000
Error	11.639	11	1.058			

Estimated Marginal Means

system

Estimates

Measure: keystrokes

system	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
1	5.250	.131	4.963	5.537
2	3.167	.167	2.800	3.533
3	72.500	.500	71.400	73.600

Pairwise Comparisons

Measure: keystrokes

(I) system	(J) system	Mean Difference (I-J)	Std. Error	Sig.[b]	95% Confidence Interval for Difference[b]	
					Lower Bound	Upper Bound
1	2	2.083*	.229	.000	1.438	2.729
	3	-67.250*	.494	.000	-68.644	-65.856
2	1	-2.083*	.229	.000	-2.729	-1.438
	3	-69.333*	.569	.000	-70.937	-67.730
3	1	67.250*	.494	.000	65.856	68.644
	2	69.333*	.569	.000	67.730	70.937

Based on estimated marginal means

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

b. Adjustment for multiple comparisons: Bonferroni.

Multivariate Tests

	Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared
Pillai's trace	.999	8435.636[a]	2.000	10.000	.000	.999
Wilks' lambda	.001	8435.636[a]	2.000	10.000	.000	.999
Hotelling's trace	1687.127	8435.636[a]	2.000	10.000	.000	.999
Roy's largest root	1687.127	8435.636[a]	2.000	10.000	.000	.999

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

a. Exact statistic

```
GLM VAR00013 VAR00014 VAR00015
 /WSFACTOR=system 3 Polynomial
 /MEASURE=keystrokes
 /METHOD=SSTYPE(3)
```

```
  /EMMEANS=TABLES(system) COMPARE ADJ(BONFERRONI)
  /PRINT=DESCRIPTIVE ETASQ
  /CRITERIA=ALPHA(.05)
  /WSDESIGN=system.
```

General Linear Model

Notes

Output Created	
Comments	
Input	Data
	Active Dataset
	Filter
	Weight
	Split File
	N of Rows in Working Data File
Missing Value Handling	Definition of Missing
	Cases Used
Syntax	
Resources	Processor Time
	Elapsed Time

Notes

Output Created		26-MAR-2014 22:33:08
Comments		
Input	Data	D:\Adiss\24Column.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	12
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.
Syntax		GLM VAR00013 VAR00014 VAR00015 /WSFACTOR=system 3 Polynomial /MEASURE=keystrokes /METHOD=SSTYPE(3) /EMMEANS=TABLES(system) COMPARE ADJ (BONFERRONI) /PRINT=DESCRIPTIVE ETASQ /CRITERIA=ALPHA(.05)...
Resources	Processor Time	00:00:00.08
	Elapsed Time	00:00:00.09

[DataSet1] D:\Adiss\24Column.sav

Within-Subjects Factors

Measure: keystrokes

system	Dependent Variable
1	VAR00013
2	VAR00014
3	VAR00015

Descriptive Statistics

	Mean	Std. Deviation	N
Chibipoint (crosshairs ONLY)	4.42	.996	12
Chibipoint (crosshairs AND flyouts)	2.92	.289	12
Tabbing	29.75	9.324	12

Multivariate Tests[a]

Effect		Value	F	Hypothesis df	Error df	Sig.
system	Pillai's Trace	.895	42.718[b]	2.000	10.000	.000
	Wilks' Lambda	.105	42.718[b]	2.000	10.000	.000
	Hotelling's Trace	8.544	42.718[b]	2.000	10.000	.000
	Roy's Largest Root	8.544	42.718[b]	2.000	10.000	.000

Multivariate Tests[a]

Effect		Partial Eta Squared
system	Pillai's Trace	.895
	Wilks' Lambda	.895
	Hotelling's Trace	.895
	Roy's Largest Root	.895

a. Design: Intercept
Within Subjects Design: system

b. Exact statistic

Mauchly's Test of Sphericity[a]

Measure: keystrokes

Within Subjects Effect	Mauchly's W	Approx. Chi-Square	df	Sig.	Epsilon[b]
					Greenhouse-Geisser
system	.034	33.954	2	.000	.509

Mauchly's Test of Sphericity[a]

Measure: keystrokes

Within Subjects Effect	Epsilon[b]	
	Huynh-Feldt	Lower-bound
system	.511	.500

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

a. Design: Intercept
Within Subjects Design: system

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: keystrokes

Source		Type III Sum of Squares	df	Mean Square	F
system	Sphericity Assumed	5456.222	2	2728.111	91.990
	Greenhouse-Geisser	5456.222	1.017	5364.759	91.990
	Huynh-Feldt	5456.222	1.022	5337.717	91.990
	Lower-bound	5456.222	1.000	5456.222	91.990
Error(system)	Sphericity Assumed	652.444	22	29.657	
	Greenhouse-Geisser	652.444	11.188	58.319	
	Huynh-Feldt	652.444	11.244	58.025	
	Lower-bound	652.444	11.000	59.313	

Tests of Within-Subjects Effects

Measure: keystrokes

Source		Sig.	Partial Eta Squared
system	Sphericity Assumed	.000	.893
	Greenhouse-Geisser	.000	.893
	Huynh-Feldt	.000	.893
	Lower-bound	.000	.893
Error(system)	Sphericity Assumed		
	Greenhouse-Geisser		
	Huynh-Feldt		
	Lower-bound		

Tests of Within-Subjects Contrasts

Measure: keystrokes

Source	system	Type III Sum of Squares	df	Mean Square	F	Sig.
system	Linear	3850.667	1	3850.667	91.222	.000
	Quadratic	1605.556	1	1605.556	93.887	.000
Error(system)	Linear	464.333	11	42.212		
	Quadratic	188.111	11	17.101		

Tests of Within-Subjects Contrasts

Measure: keystrokes

Source	system	Partial Eta Squared
system	Linear	.892
	Quadratic	.895
Error(system)	Linear	
	Quadratic	

Tests of Between-Subjects Effects

Measure: keystrokes

Transformed Variable: Average

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Intercept	5500.694	1	5500.694	191.699	.000	.946
Error	315.639	11	28.694			

Estimated Marginal Means

system

Estimates

Measure: keystrokes

system	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
1	4.417	.288	3.784	5.050
2	2.917	.083	2.733	3.100
3	29.750	2.692	23.826	35.674

Pairwise Comparisons

Measure: keystrokes

(I) system	(J) system	Mean Difference (I-J)	Std. Error	Sig.[b]	95% Confidence Interval for Difference[b]	
					Lower Bound	Upper Bound
1	2	1.500*	.314	.002	.615	2.385
	3	-25.333*	2.652	.000	-32.813	-17.853
2	1	-1.500*	.314	.002	-2.385	-.615
	3	-26.833*	2.774	.000	-34.656	-19.011
3	1	25.333*	2.652	.000	17.853	32.813
	2	26.833*	2.774	.000	19.011	34.656

Based on estimated marginal means

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

b. Adjustment for multiple comparisons: Bonferroni.

Multivariate Tests

	Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared
Pillai's trace	.895	42.718[a]	2.000	10.000	.000	.895
Wilks' lambda	.105	42.718[a]	2.000	10.000	.000	.895
Hotelling's trace	8.544	42.718[a]	2.000	10.000	.000	.895
Roy's largest root	8.544	42.718[a]	2.000	10.000	.000	.895

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

a. Exact statistic

```
GLM VAR00016 VAR00017 VAR00018
  /WSFACTOR=system 3 Polynomial
  /MEASURE=keystrokes
  /METHOD=SSTYPE(3)
  /EMMEANS=TABLES(system) COMPARE ADJ(BONFERRONI)
  /PRINT=DESCRIPTIVE ETASQ
  /CRITERIA=ALPHA(.05)
  /WSDESIGN=system.
```

General Linear Model

Notes

Output Created		
Comments		
Input	Data	
	Active Dataset	
	Filter	
	Weight	
	Split File	
	N of Rows in Working Data File	
Missing Value Handling	Definition of Missing	
	Cases Used	
Syntax		
Resources	Processor Time	
	Elapsed Time	

Notes

Output Created		26-MAR-2014 22:33:24
Comments		
Input	Data	D:\Adiss\24Column.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	12
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.
Syntax		GLM VAR00016 VAR00017 VAR00018 /WSFACTOR=system 3 Polynomial /MEASURE=keystrokes /METHOD=SSTYPE(3) /EMMEANS=TABLES(system) COMPARE ADJ (BONFERRONI) /PRINT=DESCRIPTIVE ETASQ /CRITERIA=ALPHA(.05)...
Resources	Processor Time	00:00:00.05
	Elapsed Time	00:00:00.14

[DataSet1] D:\Adiss\24Column.sav

Within-Subjects Factors

Measure: keystrokes

system	Dependent Variable
1	VAR00016
2	VAR00017
3	VAR00018

Descriptive Statistics

	Mean	Std. Deviation	N
Chibipoint (crosshairs ONLY)	6.42	3.204	12
Chibipoint (crosshairs AND flyouts)	2.33	.492	12
Tabbing	48.50	30.485	12

Multivariate Tests[a]

Effect		Value	F	Hypothesis df	Error df	Sig.
system	Pillai's Trace	.867	32.506[b]	2.000	10.000	.000
	Wilks' Lambda	.133	32.506[b]	2.000	10.000	.000
	Hotelling's Trace	6.501	32.506[b]	2.000	10.000	.000
	Roy's Largest Root	6.501	32.506[b]	2.000	10.000	.000

Multivariate Tests[a]

Effect		Partial Eta Squared
system	Pillai's Trace	.867
	Wilks' Lambda	.867
	Hotelling's Trace	.867
	Roy's Largest Root	.867

a. Design: Intercept
Within Subjects Design: system

b. Exact statistic

Mauchly's Test of Sphericity[a]

Measure: keystrokes

Within Subjects Effect	Mauchly's W	Approx. Chi-Square	df	Sig.	Epsilon[b] Greenhouse-Geisser
system	.023	37.699	2	.000	.506

Mauchly's Test of Sphericity[a]

Measure: keystrokes

Within Subjects Effect	Epsilon[b] Huynh-Feldt	Lower-bound
system	.508	.500

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

a. Design: Intercept
Within Subjects Design: system

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: keystrokes

Source		Type III Sum of Squares	df	Mean Square	F
system	Sphericity Assumed	15676.167	2	7838.083	24.176
	Greenhouse-Geisser	15676.167	1.012	15495.465	24.176
	Huynh-Feldt	15676.167	1.015	15441.795	24.176
	Lower-bound	15676.167	1.000	15676.167	24.176
Error(system)	Sphericity Assumed	7132.500	22	324.205	
	Greenhouse-Geisser	7132.500	11.128	640.935	
	Huynh-Feldt	7132.500	11.167	638.715	
	Lower-bound	7132.500	11.000	648.409	

Tests of Within-Subjects Effects

Measure: keystrokes

Source		Sig.	Partial Eta Squared
system	Sphericity Assumed	.000	.687
	Greenhouse-Geisser	.000	.687
	Huynh-Feldt	.000	.687
	Lower-bound	.000	.687
Error(system)	Sphericity Assumed		
	Greenhouse-Geisser		
	Huynh-Feldt		
	Lower-bound		

Tests of Within-Subjects Contrasts

Measure: keystrokes

Source	system	Type III Sum of Squares	df	Mean Square	F	Sig.
system	Linear	10626.042	1	10626.042	21.289	.001
	Quadratic	5050.125	1	5050.125	33.831	.000
Error(system)	Linear	5490.458	11	499.133		
	Quadratic	1642.042	11	149.277		

Tests of Within-Subjects Contrasts

Measure: keystrokes

Source	system	Partial Eta Squared
system	Linear	.659
	Quadratic	.755
Error(system)	Linear	
	Quadratic	

Tests of Between-Subjects Effects

Measure: keystrokes

Transformed Variable: Average

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Intercept	13110.250	1	13110.250	44.981	.000	.804
Error	3206.083	11	291.462			

Estimated Marginal Means

system

Estimates

Measure: keystrokes

system	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
1	6.417	.925	4.381	8.452
2	2.333	.142	2.020	2.646
3	48.500	8.800	29.130	67.870

Pairwise Comparisons

Measure: keystrokes

(I) system	(J) system	Mean Difference (I-J)	Std. Error	Sig.[b]	95% Confidence Interval for Difference[b]	
					Lower Bound	Upper Bound
1	2	4.083*	.839	.001	1.717	6.449
	3	-42.083*	9.121	.002	-67.804	-16.362
2	1	-4.083*	.839	.001	-6.449	-1.717
	3	-46.167*	8.844	.001	-71.106	-21.227
3	1	42.083*	9.121	.002	16.362	67.804
	2	46.167*	8.844	.001	21.227	71.106

Based on estimated marginal means

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

b. Adjustment for multiple comparisons: Bonferroni.

Multivariate Tests

	Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared
Pillai's trace	.867	32.506[a]	2.000	10.000	.000	.867
Wilks' lambda	.133	32.506[a]	2.000	10.000	.000	.867
Hotelling's trace	6.501	32.506[a]	2.000	10.000	.000	.867
Roy's largest root	6.501	32.506[a]	2.000	10.000	.000	.867

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

a. Exact statistic

```
GLM VAR00019 VAR00020 VAR00021
 /WSFACTOR=system 3 Polynomial
 /MEASURE=keystrokes
 /METHOD=SSTYPE(3)
```

```
  /EMMEANS=TABLES(system) COMPARE ADJ(BONFERRONI)
  /PRINT=DESCRIPTIVE ETASQ
  /CRITERIA=ALPHA(.05)
  /WSDESIGN=system.
```

General Linear Model

Notes

Output Created	
Comments	
Input	Data
	Active Dataset
	Filter
	Weight
	Split File
	N of Rows in Working Data File
Missing Value Handling	Definition of Missing
	Cases Used
Syntax	
Resources	Processor Time
	Elapsed Time

Notes

Output Created		26-MAR-2014 22:33:40
Comments		
Input	Data	D:\Adiss\24Column.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	12
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.
Syntax		GLM VAR00019 VAR00020 VAR00021 /WSFACTOR=system 3 Polynomial /MEASURE=keystrokes /METHOD=SSTYPE(3) /EMMEANS=TABLES(system) COMPARE ADJ (BONFERRONI) /PRINT=DESCRIPTIVE ETASQ /CRITERIA=ALPHA(.05)...
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.02

[DataSet1] D:\Adiss\24Column.sav

Within-Subjects Factors

Measure: keystrokes

system	Dependent Variable
1	VAR00019
2	VAR00020
3	VAR00021

Descriptive Statistics

	Mean	Std. Deviation	N
Chibipoint (crosshairs ONLY)	5.83	1.115	12
Chibipoint (crosshairs AND flyouts)	3.50	1.087	12
Tabbing	23.33	1.155	12

Multivariate Tests[a]

Effect		Value	F	Hypothesis df	Error df	Sig.
system	Pillai's Trace	.998	3079.255[b]	2.000	10.000	.000
	Wilks' Lambda	.002	3079.255[b]	2.000	10.000	.000
	Hotelling's Trace	615.851	3079.255[b]	2.000	10.000	.000
	Roy's Largest Root	615.851	3079.255[b]	2.000	10.000	.000

Multivariate Tests[a]

Effect		Partial Eta Squared
system	Pillai's Trace	.998
	Wilks' Lambda	.998
	Hotelling's Trace	.998
	Roy's Largest Root	.998

a. Design: Intercept
Within Subjects Design: system

b. Exact statistic

Mauchly's Test of Sphericity[a]

Measure: keystrokes

Within Subjects Effect	Mauchly's W	Approx. Chi-Square	df	Sig.	Epsilon[b]
					Greenhouse-Geisser
system	.517	6.592	2	.037	.674

Mauchly's Test of Sphericity[a]

Measure: keystrokes

Within Subjects Effect	Epsilon[b]	
	Huynh-Feldt	Lower-bound
system	.735	.500

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

a. Design: Intercept
Within Subjects Design: system

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: keystrokes

Source		Type III Sum of Squares	df	Mean Square	F
system	Sphericity Assumed	2820.222	2	1410.111	1304.682
	Greenhouse-Geisser	2820.222	1.349	2090.842	1304.682
	Huynh-Feldt	2820.222	1.470	1918.661	1304.682
	Lower-bound	2820.222	1.000	2820.222	1304.682
Error(system)	Sphericity Assumed	23.778	22	1.081	
	Greenhouse-Geisser	23.778	14.837	1.603	
	Huynh-Feldt	23.778	16.169	1.471	
	Lower-bound	23.778	11.000	2.162	

Tests of Within-Subjects Effects

Measure: keystrokes

Source		Sig.	Partial Eta Squared
system	Sphericity Assumed	.000	.992
	Greenhouse-Geisser	.000	.992
	Huynh-Feldt	.000	.992
	Lower-bound	.000	.992
Error(system)	Sphericity Assumed		
	Greenhouse-Geisser		
	Huynh-Feldt		
	Lower-bound		

Tests of Within-Subjects Contrasts

Measure: keystrokes

Source	system	Type III Sum of Squares	df	Mean Square	F	Sig.
system	Linear	1837.500	1	1837.500	1155.000	.000
	Quadratic	982.722	1	982.722	1721.938	.000
Error(system)	Linear	17.500	11	1.591		
	Quadratic	6.278	11	.571		

Tests of Within-Subjects Contrasts

Measure: keystrokes

Source	system	Partial Eta Squared
system	Linear	.991
	Quadratic	.994
Error(system)	Linear	
	Quadratic	

Tests of Between-Subjects Effects

Measure: keystrokes

Transformed Variable: Average

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Intercept	4268.444	1	4268.444	2674.532	.000	.996
Error	17.556	11	1.596			

Estimated Marginal Means

system

Estimates

Measure: keystrokes

system	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
1	5.833	.322	5.125	6.542
2	3.500	.314	2.809	4.191
3	23.333	.333	22.600	24.067

Pairwise Comparisons

Measure: keystrokes

(I) system	(J) system	Mean Difference (I-J)	Std. Error	Sig.[b]	95% Confidence Interval for Difference[b]	
					Lower Bound	Upper Bound
1	2	2.333*	.466	.001	1.019	3.648
	3	-17.500*	.515	.000	-18.952	-16.048
2	1	-2.333*	.466	.001	-3.648	-1.019
	3	-19.833*	.241	.000	-20.513	-19.154
3	1	17.500*	.515	.000	16.048	18.952
	2	19.833*	.241	.000	19.154	20.513

Based on estimated marginal means

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

b. Adjustment for multiple comparisons: Bonferroni.

Multivariate Tests

	Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared
Pillai's trace	.998	3079.255[a]	2.000	10.000	.000	.998
Wilks' lambda	.002	3079.255[a]	2.000	10.000	.000	.998
Hotelling's trace	615.851	3079.255[a]	2.000	10.000	.000	.998
Roy's largest root	615.851	3079.255[a]	2.000	10.000	.000	.998

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

a. Exact statistic

```
GLM VAR00022 VAR00023 VAR00024
  /WSFACTOR=system 3 Polynomial
  /MEASURE=keystrokes
  /METHOD=SSTYPE(3)
  /EMMEANS=TABLES(system) COMPARE ADJ(BONFERRONI)
  /PRINT=DESCRIPTIVE ETASQ
  /CRITERIA=ALPHA(.05)
  /WSDESIGN=system.
```

General Linear Model

Notes

Output Created		
Comments		
Input	Data	
	Active Dataset	
	Filter	
	Weight	
	Split File	
	N of Rows in Working Data File	
Missing Value Handling	Definition of Missing	
	Cases Used	
Syntax		
Resources	Processor Time	
	Elapsed Time	

Notes

Output Created		26-MAR-2014 22:33:53
Comments		
Input	Data	D:\Adiss\24Column.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	12
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.
Syntax		GLM VAR00022 VAR00023 VAR00024 /WSFACTOR=system 3 Polynomial /MEASURE=keystrokes /METHOD=SSTYPE(3) /EMMEANS=TABLES(system) COMPARE ADJ (BONFERRONI) /PRINT=DESCRIPTIVE ETASQ /CRITERIA=ALPHA(.05)...
Resources	Processor Time	00:00:00.03
	Elapsed Time	00:00:00.06

[DataSet1] D:\Adiss\24Column.sav

Within-Subjects Factors

Measure: keystrokes

system	Dependent Variable
1	VAR00022
2	VAR00023
3	VAR00024

Descriptive Statistics

	Mean	Std. Deviation	N
Chibipoint (crosshairs ONLY)	6.67	1.371	12
Chibipoint (crosshairs AND flyouts)	3.75	.452	12
Tabbing	48.67	2.934	12

Multivariate Tests[a]

Effect		Value	F	Hypothesis df	Error df	Sig.
system	Pillai's Trace	.996	1255.979[b]	2.000	10.000	.000
	Wilks' Lambda	.004	1255.979[b]	2.000	10.000	.000
	Hotelling's Trace	251.196	1255.979[b]	2.000	10.000	.000
	Roy's Largest Root	251.196	1255.979[b]	2.000	10.000	.000

Multivariate Tests[a]

Effect		Partial Eta Squared
system	Pillai's Trace	.996
	Wilks' Lambda	.996
	Hotelling's Trace	.996
	Roy's Largest Root	.996

a. Design: Intercept
Within Subjects Design: system

b. Exact statistic

Mauchly's Test of Sphericity[a]

Measure: keystrokes

Within Subjects Effect	Mauchly's W	Approx. Chi-Square	df	Sig.	Epsilon[b] Greenhouse-Geisser
system	.558	5.834	2	.054	.693

Mauchly's Test of Sphericity[a]

Measure: keystrokes

Within Subjects Effect	Epsilon[b] Huynh-Feldt	Lower-bound
system	.762	.500

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

a. Design: Intercept
Within Subjects Design: system

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: keystrokes

Source		Type III Sum of Squares	df	Mean Square	F
system	Sphericity Assumed	15160.056	2	7580.028	2296.627
	Greenhouse-Geisser	15160.056	1.387	10930.378	2296.627
	Huynh-Feldt	15160.056	1.523	9952.081	2296.627
	Lower-bound	15160.056	1.000	15160.056	2296.627
Error(system)	Sphericity Assumed	72.611	22	3.301	
	Greenhouse-Geisser	72.611	15.257	4.759	
	Huynh-Feldt	72.611	16.756	4.333	
	Lower-bound	72.611	11.000	6.601	

Tests of Within-Subjects Effects

Measure: keystrokes

Source		Sig.	Partial Eta Squared
system	Sphericity Assumed	.000	.995
	Greenhouse-Geisser	.000	.995
	Huynh-Feldt	.000	.995
	Lower-bound	.000	.995
Error(system)	Sphericity Assumed		
	Greenhouse-Geisser		
	Huynh-Feldt		
	Lower-bound		

Tests of Within-Subjects Contrasts

Measure: keystrokes

Source	system	Type III Sum of Squares	df	Mean Square	F	Sig.
system	Linear	10584.000	1	10584.000	2587.200	.000
	Quadratic	4576.056	1	4576.056	1823.056	.000
Error(system)	Linear	45.000	11	4.091		
	Quadratic	27.611	11	2.510		

Tests of Within-Subjects Contrasts

Measure: keystrokes

Source	system	Partial Eta Squared
system	Linear	.996
	Quadratic	.994
Error(system)	Linear	
	Quadratic	

Tests of Between-Subjects Effects

Measure: keystrokes

Transformed Variable: Average

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Intercept	13963.361	1	13963.361	3415.374	.000	.997
Error	44.972	11	4.088			

Estimated Marginal Means

system

Estimates

Measure: keystrokes

system	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
1	6.667	.396	5.796	7.538
2	3.750	.131	3.463	4.037
3	48.667	.847	46.803	50.531

Pairwise Comparisons

Measure: keystrokes

(I) system	(J) system	Mean Difference (I-J)	Std. Error	Sig.[b]	95% Confidence Interval for Difference[b]	
					Lower Bound	Upper Bound
1	2	2.917*	.434	.000	1.691	4.142
	3	-42.000*	.826	.000	-44.329	-39.671
2	1	-2.917*	.434	.000	-4.142	-1.691
	3	-44.917*	.883	.000	-47.407	-42.427
3	1	42.000*	.826	.000	39.671	44.329
	2	44.917*	.883	.000	42.427	47.407

Based on estimated marginal means

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

b. Adjustment for multiple comparisons: Bonferroni.

Multivariate Tests

	Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared
Pillai's trace	.996	1255.979[a]	2.000	10.000	.000	.996
Wilks' lambda	.004	1255.979[a]	2.000	10.000	.000	.996
Hotelling's trace	251.196	1255.979[a]	2.000	10.000	.000	.996
Roy's largest root	251.196	1255.979[a]	2.000	10.000	.000	.996

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

a. Exact statistic