The SAS System 10:07 Tuesday, October 15, 2013 59

The Mixed Procedure

Model Information

Data Set WORK.SHEET1

Dependent Variable best\_vs\_scenario\_highest

Covariance Structure Variance Components

Estimation Method REML

Residual Variance Method Profile

Fixed Effects SE Method Model-Based

Degrees of Freedom Method Containment

Class Level Information

Class Levels Values

subject 26 1 2 3 5 6 7 8 9 10 11 12 13 14

15 16 17 18 19 20 21 22 23 24

25 26 27

scenario 2 1 2

method 3 1 2 3

Dimensions

Covariance Parameters 4

Columns in X 12

Columns in Z 156

Subjects 1

Max Obs Per Subject 156

Number of Observations

Number of Observations Read 156

Number of Observations Used 156

Number of Observations Not Used 0

Iteration History

Iteration Evaluations -2 Res Log Like Criterion

0 1 -309.22873762

1 1 -342.85313486 0.00000000

Convergence criteria met.

The SAS System 10:07 Tuesday, October 15, 2013 60

The Mixed Procedure

Covariance Parameter

Estimates

Cov Parm Estimate

subject 0.001079

subject\*scenario 0.000572

subject\*method 0.002470

Residual 0.002420

Fit Statistics

-2 Res Log Likelihood -342.9

AIC (smaller is better) -334.9

AICC (smaller is better) -334.6

BIC (smaller is better) -329.8

Type 3 Tests of Fixed Effects

Num Den

Effect DF DF F Value Pr > F

scenario 1 25 7.51 0.0112

method 2 50 223.03 <.0001

scenario\*method 2 50 7.42 0.0015

Least Squares Means

Standard

Effect scenario method Estimate Error DF t Value Pr > |t|

scenario 1 0.7699 0.01123 25 68.54 <.0001

scenario 2 0.7417 0.01123 25 66.03 <.0001

method 1 0.5940 0.01393 50 42.65 <.0001

method 2 0.7275 0.01393 50 52.23 <.0001

method 3 0.9460 0.01393 50 67.91 <.0001

scenario\*method 1 1 0.6046 0.01586 50 38.12 <.0001

scenario\*method 1 2 0.7250 0.01586 50 45.71 <.0001

scenario\*method 1 3 0.9802 0.01586 50 61.80 <.0001

scenario\*method 2 1 0.5834 0.01586 50 36.78 <.0001

scenario\*method 2 2 0.7299 0.01586 50 46.02 <.0001

scenario\*method 2 3 0.9118 0.01586 50 57.49 <.0001

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The Mixed Procedure

Model Information

Data Set WORK.SHEET1

Dependent Variable time\_spent

Covariance Structure Variance Components

Estimation Method REML

Residual Variance Method Profile

Fixed Effects SE Method Model-Based

Degrees of Freedom Method Containment

Class Level Information

Class Levels Values

subject 26 1 2 3 5 6 7 8 9 10 11 12 13 14

15 16 17 18 19 20 21 22 23 24

25 26 27

scenario 2 1 2

method 3 1 2 3

Dimensions

Covariance Parameters 4

Columns in X 12

Columns in Z 156

Subjects 1

Max Obs Per Subject 156

Number of Observations

Number of Observations Read 156

Number of Observations Used 156

Number of Observations Not Used 0

Iteration History

Iteration Evaluations -2 Res Log Like Criterion

0 1 1730.94521989

1 1 1662.99723722 0.00000000

Convergence criteria met.

The SAS System 10:07 Tuesday, October 15, 2013 62

The Mixed Procedure

Covariance Parameter

Estimates

Cov Parm Estimate

subject 2513.89

subject\*scenario 522.07

subject\*method 538.00

Residual 1704.73

Fit Statistics

-2 Res Log Likelihood 1663.0

AIC (smaller is better) 1671.0

AICC (smaller is better) 1671.3

BIC (smaller is better) 1676.0

Type 3 Tests of Fixed Effects

Num Den

Effect DF DF F Value Pr > F

scenario 1 25 8.35 0.0079

method 2 50 1.16 0.3226

scenario\*method 2 50 2.52 0.0903

Least Squares Means

Standard

Effect scenario method Estimate Error DF t Value Pr > |t|

scenario 1 224.01 12.0632 25 18.57 <.0001

scenario 2 250.47 12.0632 25 20.76 <.0001

method 1 243.35 12.6572 50 19.23 <.0001

method 2 240.02 12.6572 50 18.96 <.0001

method 3 228.37 12.6572 50 18.04 <.0001

scenario\*method 1 1 240.04 14.2487 50 16.85 <.0001

scenario\*method 1 2 224.81 14.2487 50 15.78 <.0001

scenario\*method 1 3 207.19 14.2487 50 14.54 <.0001

scenario\*method 2 1 246.65 14.2487 50 17.31 <.0001

scenario\*method 2 2 255.23 14.2487 50 17.91 <.0001

scenario\*method 2 3 249.54 14.2487 50 17.51 <.0001

The SAS System 10:07 Tuesday, October 15, 2013 63

The Mixed Procedure

Model Information

Data Set WORK.SHEET1

Dependent Variable try\_count

Covariance Structure Variance Components

Estimation Method REML

Residual Variance Method Profile

Fixed Effects SE Method Model-Based

Degrees of Freedom Method Containment

Class Level Information

Class Levels Values

subject 26 1 2 3 5 6 7 8 9 10 11 12 13 14

15 16 17 18 19 20 21 22 23 24

25 26 27

scenario 2 1 2

method 3 1 2 3

Dimensions

Covariance Parameters 4

Columns in X 12

Columns in Z 156

Subjects 1

Max Obs Per Subject 156

Number of Observations

Number of Observations Read 156

Number of Observations Used 156

Number of Observations Not Used 0

Iteration History

Iteration Evaluations -2 Res Log Like Criterion

0 1 699.86154547

1 1 596.61571755 0.00000000

Convergence criteria met.

The SAS System 10:07 Tuesday, October 15, 2013 64

The Mixed Procedure

Covariance Parameter

Estimates

Cov Parm Estimate

subject 2.0592

subject\*scenario 0.4459

subject\*method 2.3156

Residual 0.6397

Fit Statistics

-2 Res Log Likelihood 596.6

AIC (smaller is better) 604.6

AICC (smaller is better) 604.9

BIC (smaller is better) 609.6

Type 3 Tests of Fixed Effects

Num Den

Effect DF DF F Value Pr > F

scenario 1 25 3.32 0.0804

method 2 50 9.47 0.0003

scenario\*method 2 50 9.39 0.0003

Least Squares Means

Standard

Effect scenario method Estimate Error DF t Value Pr > |t|

scenario 1 3.0769 0.3664 25 8.40 <.0001

scenario 2 2.6667 0.3664 25 7.28 <.0001

method 1 1.7500 0.4349 50 4.02 0.0002

method 2 3.5577 0.4349 50 8.18 <.0001

method 3 3.3077 0.4349 50 7.61 <.0001

scenario\*method 1 1 1.7308 0.4583 50 3.78 0.0004

scenario\*method 1 2 4.1538 0.4583 50 9.06 <.0001

scenario\*method 1 3 3.3462 0.4583 50 7.30 <.0001

scenario\*method 2 1 1.7692 0.4583 50 3.86 0.0003

scenario\*method 2 2 2.9615 0.4583 50 6.46 <.0001

scenario\*method 2 3 3.2692 0.4583 50 7.13 <.0001

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The Mixed Procedure

Model Information

Data Set WORK.SHEET1

Dependent Variable mouse\_clicks

Covariance Structure Variance Components

Estimation Method REML

Residual Variance Method Profile

Fixed Effects SE Method Model-Based

Degrees of Freedom Method Containment

Class Level Information

Class Levels Values

subject 26 1 2 3 5 6 7 8 9 10 11 12 13 14

15 16 17 18 19 20 21 22 23 24

25 26 27

scenario 2 1 2

method 3 1 2 3

Dimensions

Covariance Parameters 4

Columns in X 12

Columns in Z 156

Subjects 1

Max Obs Per Subject 156

Number of Observations

Number of Observations Read 156

Number of Observations Used 156

Number of Observations Not Used 0

Iteration History

Iteration Evaluations -2 Res Log Like Criterion

0 1 1484.22095923

1 1 1429.37991538 0.00000000

Convergence criteria met.

The SAS System 10:07 Tuesday, October 15, 2013 66

The Mixed Procedure

Covariance Parameter

Estimates

Cov Parm Estimate

subject 242.14

subject\*scenario 105.90

subject\*method 416.93

Residual 254.07

Fit Statistics

-2 Res Log Likelihood 1429.4

AIC (smaller is better) 1437.4

AICC (smaller is better) 1437.7

BIC (smaller is better) 1442.4

Type 3 Tests of Fixed Effects

Num Den

Effect DF DF F Value Pr > F

scenario 1 25 20.77 0.0001

method 2 50 46.20 <.0001

scenario\*method 2 50 1.50 0.2325

Least Squares Means

Standard

Effect scenario method Estimate Error DF t Value Pr > |t|

scenario 1 46.6410 4.6892 25 9.95 <.0001

scenario 2 64.0897 4.6892 25 13.67 <.0001

method 1 20.8269 5.6808 50 3.67 0.0006

method 2 81.1154 5.6808 50 14.28 <.0001

method 3 64.1538 5.6808 50 11.29 <.0001

scenario\*method 1 1 15.2308 6.2605 50 2.43 0.0186

scenario\*method 1 2 70.8077 6.2605 50 11.31 <.0001

scenario\*method 1 3 53.8846 6.2605 50 8.61 <.0001

scenario\*method 2 1 26.4231 6.2605 50 4.22 0.0001

scenario\*method 2 2 91.4231 6.2605 50 14.60 <.0001

scenario\*method 2 3 74.4231 6.2605 50 11.89 <.0001

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The Mixed Procedure

Model Information

Data Set WORK.SHEET1

Dependent Variable mouse\_clicks

Covariance Structure Variance Components

Estimation Method REML

Residual Variance Method Profile

Fixed Effects SE Method Model-Based

Degrees of Freedom Method Containment

Class Level Information

Class Levels Values

subject 26 1 2 3 5 6 7 8 9 10 11 12 13 14

15 16 17 18 19 20 21 22 23 24

25 26 27

scenario 2 1 2

method 3 1 2 3

Dimensions

Covariance Parameters 4

Columns in X 6

Columns in Z 156

Subjects 1

Max Obs Per Subject 156

Number of Observations

Number of Observations Read 156

Number of Observations Used 156

Number of Observations Not Used 0

Iteration History

Iteration Evaluations -2 Res Log Like Criterion

0 1 1498.46252851

1 1 1443.09440859 0.00000000

Convergence criteria met.

The SAS System 10:07 Tuesday, October 15, 2013 68

The Mixed Procedure

Covariance Parameter

Estimates

Cov Parm Estimate

subject 242.96

subject\*scenario 104.26

subject\*method 414.47

Residual 258.97

Fit Statistics

-2 Res Log Likelihood 1443.1

AIC (smaller is better) 1451.1

AICC (smaller is better) 1451.4

BIC (smaller is better) 1456.1

Type 3 Tests of Fixed Effects

Num Den

Effect DF DF F Value Pr > F

scenario 1 25 20.77 0.0001

method 2 50 46.20 <.0001

Least Squares Means

Standard

Effect scenario method Estimate Error DF t Value Pr > |t|

scenario 1 46.6410 4.6892 25 9.95 <.0001

scenario 2 64.0897 4.6892 25 13.67 <.0001

method 1 20.8269 5.6808 50 3.67 0.0006

method 2 81.1154 5.6808 50 14.28 <.0001

method 3 64.1538 5.6808 50 11.29 <.0001

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The Mixed Procedure

Model Information

Data Set WORK.SHEET1

Dependent Variable mouse\_clicks\_per\_try

Covariance Structure Variance Components

Estimation Method REML

Residual Variance Method Profile

Fixed Effects SE Method Model-Based

Degrees of Freedom Method Containment

Class Level Information

Class Levels Values

subject 26 1 2 3 5 6 7 8 9 10 11 12 13 14

15 16 17 18 19 20 21 22 23 24

25 26 27

scenario 2 1 2

method 3 1 2 3

Dimensions

Covariance Parameters 4

Columns in X 12

Columns in Z 156

Subjects 1

Max Obs Per Subject 156

Number of Observations

Number of Observations Read 156

Number of Observations Used 156

Number of Observations Not Used 0

Iteration History

Iteration Evaluations -2 Res Log Like Criterion

0 1 1327.55079465

1 1 1316.04836920 0.00000000

Convergence criteria met.

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The Mixed Procedure

Covariance Parameter

Estimates

Cov Parm Estimate

subject 12.0615

subject\*scenario 71.2079

subject\*method 67.9936

Residual 207.31

Fit Statistics

-2 Res Log Likelihood 1316.0

AIC (smaller is better) 1324.0

AICC (smaller is better) 1324.3

BIC (smaller is better) 1329.1

Type 3 Tests of Fixed Effects

Num Den

Effect DF DF F Value Pr > F

scenario 1 25 28.65 <.0001

method 2 50 19.47 <.0001

scenario\*method 2 50 9.36 0.0004

Least Squares Means

Standard

Effect scenario method Estimate Error DF t Value Pr > |t|

scenario 1 15.9509 2.5947 25 6.15 <.0001

scenario 2 33.5367 2.5947 25 12.93 <.0001

method 1 13.0096 2.9043 50 4.48 <.0001

method 2 35.6412 2.9043 50 12.27 <.0001

method 3 25.5805 2.9043 50 8.81 <.0001

scenario\*method 1 1 9.0833 3.7137 50 2.45 0.0180

scenario\*method 1 2 19.9929 3.7137 50 5.38 <.0001

scenario\*method 1 3 18.7765 3.7137 50 5.06 <.0001

scenario\*method 2 1 16.9359 3.7137 50 4.56 <.0001

scenario\*method 2 2 51.2894 3.7137 50 13.81 <.0001

scenario\*method 2 3 32.3846 3.7137 50 8.72 <.0001

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The Mixed Procedure

Model Information

Data Set WORK.SHEET1

Dependent Variable error\_rate

Covariance Structure Variance Components

Estimation Method REML

Residual Variance Method Profile

Fixed Effects SE Method Model-Based

Degrees of Freedom Method Containment

Class Level Information

Class Levels Values

subject 26 1 2 3 5 6 7 8 9 10 11 12 13 14

15 16 17 18 19 20 21 22 23 24

25 26 27

scenario 2 1 2

method 3 1 2 3

Dimensions

Covariance Parameters 4

Columns in X 12

Columns in Z 156

Subjects 1

Max Obs Per Subject 156

Number of Observations

Number of Observations Read 156

Number of Observations Used 156

Number of Observations Not Used 0

Iteration History

Iteration Evaluations -2 Res Log Like Criterion

0 1 62.13460646

1 1 -109.43458229 0.00000000

Convergence criteria met.

The SAS System 10:07 Tuesday, October 15, 2013 72

The Mixed Procedure

Covariance Parameter

Estimates

Cov Parm Estimate

subject 0.05873

subject\*scenario 0.006951

subject\*method 0.002497

Residual 0.009596

Fit Statistics

-2 Res Log Likelihood -109.4

AIC (smaller is better) -101.4

AICC (smaller is better) -101.2

BIC (smaller is better) -96.4

Type 3 Tests of Fixed Effects

Num Den

Effect DF DF F Value Pr > F

scenario 1 25 0.00 0.9941

method 2 50 1.26 0.2915

scenario\*method 2 50 0.31 0.7322

Least Squares Means

Standard

Effect scenario method Estimate Error DF t Value Pr > |t|

scenario 1 0.5488 0.05178 25 10.60 <.0001

scenario 2 0.5490 0.05178 25 10.60 <.0001

method 1 0.5294 0.05170 50 10.24 <.0001

method 2 0.5669 0.05170 50 10.97 <.0001

method 3 0.5504 0.05170 50 10.65 <.0001

scenario\*method 1 1 0.5259 0.05469 50 9.62 <.0001

scenario\*method 1 2 0.5756 0.05469 50 10.52 <.0001

scenario\*method 1 3 0.5450 0.05469 50 9.96 <.0001

scenario\*method 2 1 0.5329 0.05469 50 9.74 <.0001

scenario\*method 2 2 0.5583 0.05469 50 10.21 <.0001

scenario\*method 2 3 0.5558 0.05469 50 10.16 <.0001

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The Mixed Procedure

Model Information

Data Set WORK.SHEET1

Dependent Variable avg\_delay

Covariance Structure Variance Components

Estimation Method REML

Residual Variance Method Profile

Fixed Effects SE Method Model-Based

Degrees of Freedom Method Containment

Class Level Information

Class Levels Values

subject 26 1 2 3 5 6 7 8 9 10 11 12 13 14

15 16 17 18 19 20 21 22 23 24

25 26 27

scenario 2 1 2

method 3 1 2 3

Dimensions

Covariance Parameters 4

Columns in X 12

Columns in Z 156

Subjects 1

Max Obs Per Subject 156

Number of Observations

Number of Observations Read 156

Number of Observations Used 156

Number of Observations Not Used 0

Iteration History

Iteration Evaluations -2 Res Log Like Criterion

0 1 893.46972410

1 3 889.57794044 0.00003133

2 1 889.56798986 0.00000009

3 1 889.56796158 0.00000000

Convergence criteria met.

The SAS System 10:07 Tuesday, October 15, 2013 74

The Mixed Procedure

Covariance Parameter

Estimates

Cov Parm Estimate

subject 2.2788

subject\*scenario 0

subject\*method 0

Residual 17.5724

Fit Statistics

-2 Res Log Likelihood 889.6

AIC (smaller is better) 893.6

AICC (smaller is better) 893.6

BIC (smaller is better) 896.1

Type 3 Tests of Fixed Effects

Num Den

Effect DF DF F Value Pr > F

scenario 1 25 0.03 0.8755

method 2 50 0.46 0.6327

scenario\*method 2 50 0.04 0.9650

Least Squares Means

Standard

Effect scenario method Estimate Error DF t Value Pr > |t|

scenario 1 10.8796 0.5594 25 19.45 <.0001

scenario 2 10.7733 0.5594 25 19.26 <.0001

method 1 10.3946 0.6524 50 15.93 <.0001

method 2 11.1698 0.6524 50 17.12 <.0001

method 3 10.9150 0.6524 50 16.73 <.0001

scenario\*method 1 1 10.3458 0.8738 50 11.84 <.0001

scenario\*method 1 2 11.3392 0.8738 50 12.98 <.0001

scenario\*method 1 3 10.9538 0.8738 50 12.54 <.0001

scenario\*method 2 1 10.4435 0.8738 50 11.95 <.0001

scenario\*method 2 2 11.0004 0.8738 50 12.59 <.0001

scenario\*method 2 3 10.8762 0.8738 50 12.45 <.0001

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The Mixed Procedure

Model Information

Data Set WORK.SHEET1

Dependent Variable Raw\_TLX

Covariance Structure Variance Components

Estimation Method REML

Residual Variance Method Profile

Fixed Effects SE Method Model-Based

Degrees of Freedom Method Containment

Class Level Information

Class Levels Values

subject 26 1 2 3 5 6 7 8 9 10 11 12 13 14

15 16 17 18 19 20 21 22 23 24

25 26 27

scenario 2 1 2

method 3 1 2 3

Dimensions

Covariance Parameters 4

Columns in X 12

Columns in Z 156

Subjects 1

Max Obs Per Subject 156

Number of Observations

Number of Observations Read 156

Number of Observations Used 156

Number of Observations Not Used 0

Iteration History

Iteration Evaluations -2 Res Log Like Criterion

0 1 1272.71629231

1 1 1207.18360254 0.00000000

Convergence criteria met.

The SAS System 10:07 Tuesday, October 15, 2013 76

The Mixed Procedure

Covariance Parameter

Estimates

Cov Parm Estimate

subject 100.82

subject\*scenario 19.0059

subject\*method 62.1051

Residual 66.8520

Fit Statistics

-2 Res Log Likelihood 1207.2

AIC (smaller is better) 1215.2

AICC (smaller is better) 1215.5

BIC (smaller is better) 1220.2

Type 3 Tests of Fixed Effects

Num Den

Effect DF DF F Value Pr > F

scenario 1 25 31.35 <.0001

method 2 50 14.15 <.0001

scenario\*method 2 50 1.56 0.2202

Least Squares Means

Standard

Effect scenario method Estimate Error DF t Value Pr > |t|

scenario 1 48.1944 2.5024 25 19.26 <.0001

scenario 2 58.1731 2.5024 25 23.25 <.0001

method 1 61.5064 2.8138 50 21.86 <.0001

method 2 49.1827 2.8138 50 17.48 <.0001

method 3 48.8622 2.8138 50 17.37 <.0001

scenario\*method 1 1 57.2115 3.0933 50 18.50 <.0001

scenario\*method 1 2 45.1282 3.0933 50 14.59 <.0001

scenario\*method 1 3 42.2436 3.0933 50 13.66 <.0001

scenario\*method 2 1 65.8013 3.0933 50 21.27 <.0001

scenario\*method 2 2 53.2372 3.0933 50 17.21 <.0001

scenario\*method 2 3 55.4808 3.0933 50 17.94 <.0001

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The Mixed Procedure

Model Information

Data Set WORK.SHEET1

Dependent Variable Raw\_TLX

Covariance Structure Variance Components

Estimation Method REML

Residual Variance Method Profile

Fixed Effects SE Method Model-Based

Degrees of Freedom Method Containment

Class Level Information

Class Levels Values

subject 26 1 2 3 5 6 7 8 9 10 11 12 13 14

15 16 17 18 19 20 21 22 23 24

25 26 27

scenario 2 1 2

method 3 1 2 3

Dimensions

Covariance Parameters 4

Columns in X 6

Columns in Z 156

Subjects 1

Max Obs Per Subject 156

Number of Observations

Number of Observations Read 156

Number of Observations Used 156

Number of Observations Not Used 0

Iteration History

Iteration Evaluations -2 Res Log Like Criterion

0 1 1284.22775687

1 1 1218.34081417 0.00000000

Convergence criteria met.

The SAS System 10:07 Tuesday, October 15, 2013 78

The Mixed Procedure

Covariance Parameter

Estimates

Cov Parm Estimate

subject 101.06

subject\*scenario 18.5261

subject\*method 61.3853

Residual 68.2915

Fit Statistics

-2 Res Log Likelihood 1218.3

AIC (smaller is better) 1226.3

AICC (smaller is better) 1226.6

BIC (smaller is better) 1231.4

Type 3 Tests of Fixed Effects

Num Den

Effect DF DF F Value Pr > F

scenario 1 25 31.35 <.0001

method 2 50 14.15 <.0001

Least Squares Means

Standard

Effect scenario method Estimate Error DF t Value Pr > |t|

scenario 1 48.1944 2.5024 25 19.26 <.0001

scenario 2 58.1731 2.5024 25 23.25 <.0001

method 1 61.5064 2.8138 50 21.86 <.0001

method 2 49.1827 2.8138 50 17.48 <.0001

method 3 48.8622 2.8138 50 17.37 <.0001

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The CORR Procedure

2 Variables: error\_rate Raw\_TLX

Simple Statistics

Variable N Mean Std Dev Sum Minimum Maximum Label

error\_rate 156 0.54890 0.27485 85.62880 0 1.00000 error\_rate

Raw\_TLX 156 53.18376 17.37899 8297 4.16667 86.66667 Raw\_TLX

Pearson Correlation Coefficients, N = 156

Prob > |r| under H0: Rho=0

error\_

rate Raw\_TLX

error\_rate 1.00000 -0.22587

error\_rate 0.0046

Raw\_TLX -0.22587 1.00000

Raw\_TLX 0.0046

The SAS System 10:07 Tuesday, October 15, 2013 80

-------------------------------------------- method=1 --------------------------------------------

The CORR Procedure

2 Variables: error\_rate Raw\_TLX

Simple Statistics

Variable N Mean Std Dev Sum Minimum Maximum Label

error\_rate 52 0.52937 0.28492 27.52730 0 1.00000 error\_rate

Raw\_TLX 52 61.50641 15.45871 3198 17.50000 86.66667 Raw\_TLX

Pearson Correlation Coefficients, N = 52

Prob > |r| under H0: Rho=0

error\_

rate Raw\_TLX

error\_rate 1.00000 -0.35021

error\_rate 0.0109

Raw\_TLX -0.35021 1.00000

Raw\_TLX 0.0109

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-------------------------------------------- method=2 --------------------------------------------

The CORR Procedure

2 Variables: error\_rate Raw\_TLX

Simple Statistics

Variable N Mean Std Dev Sum Minimum Maximum Label

error\_rate 52 0.56694 0.28368 29.48090 0 1.00000 error\_rate

Raw\_TLX 52 49.18269 16.24423 2558 12.50000 78.33333 Raw\_TLX

Pearson Correlation Coefficients, N = 52

Prob > |r| under H0: Rho=0

error\_

rate Raw\_TLX

error\_rate 1.00000 -0.17366

error\_rate 0.2183

Raw\_TLX -0.17366 1.00000

Raw\_TLX 0.2183

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-------------------------------------------- method=3 --------------------------------------------

The CORR Procedure

2 Variables: error\_rate Raw\_TLX

Simple Statistics

Variable N Mean Std Dev Sum Minimum Maximum Label

error\_rate 52 0.55040 0.25924 28.62060 0 1.00000 error\_rate

Raw\_TLX 52 48.86218 17.58114 2541 4.16667 77.50000 Raw\_TLX

Pearson Correlation Coefficients, N = 52

Prob > |r| under H0: Rho=0

error\_

rate Raw\_TLX

error\_rate 1.00000 -0.15145

error\_rate 0.2838

Raw\_TLX -0.15145 1.00000

Raw\_TLX 0.2838

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------------------------------------------- scenario=1 -------------------------------------------

The CORR Procedure

2 Variables: error\_rate Raw\_TLX

Simple Statistics

Variable N Mean Std Dev Sum Minimum Maximum Label

error\_rate 78 0.54880 0.25640 42.80620 0 1.00000 error\_rate

Raw\_TLX 78 48.19444 17.96432 3759 4.16667 82.50000 Raw\_TLX

Pearson Correlation Coefficients, N = 78

Prob > |r| under H0: Rho=0

error\_

rate Raw\_TLX

error\_rate 1.00000 -0.16471

error\_rate 0.1496

Raw\_TLX -0.16471 1.00000

Raw\_TLX 0.1496

The SAS System 10:07 Tuesday, October 15, 2013 84

------------------------------------------- scenario=2 -------------------------------------------

The CORR Procedure

2 Variables: error\_rate Raw\_TLX

Simple Statistics

Variable N Mean Std Dev Sum Minimum Maximum Label

error\_rate 78 0.54901 0.29381 42.82260 0 1.00000 error\_rate

Raw\_TLX 78 58.17308 15.32421 4538 12.50000 86.66667 Raw\_TLX

Pearson Correlation Coefficients, N = 78

Prob > |r| under H0: Rho=0

error\_

rate Raw\_TLX

error\_rate 1.00000 -0.31409

error\_rate 0.0051

Raw\_TLX -0.31409 1.00000

Raw\_TLX 0.0051

The SAS System 10:07 Tuesday, October 15, 2013 85

The Mixed Procedure

Model Information

Data Set WORK.SHEET1\_2

Dependent Variable best\_vs\_scenario\_highest

Covariance Structure Variance Components

Estimation Method REML

Residual Variance Method Profile

Fixed Effects SE Method Model-Based

Degrees of Freedom Method Containment

Class Level Information

Class Levels Values

subject 26 1 2 3 5 6 7 8 9 10 11 12 13 14

15 16 17 18 19 20 21 22 23 24

25 26 27

scenario 2 1 2

method 3 1 2 3

gender 2 Female Male

Dimensions

Covariance Parameters 4

Columns in X 24

Columns in Z 156

Subjects 1

Max Obs Per Subject 156

Number of Observations

Number of Observations Read 156

Number of Observations Used 156

Number of Observations Not Used 0

Iteration History

Iteration Evaluations -2 Res Log Like Criterion

0 1 -288.47002331

1 1 -322.81335605 0.00000000

Convergence criteria met.

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The Mixed Procedure

Covariance Parameter Estimates

Cov Parm Estimate

subject(gender) 0.001154

subje\*scenar(gender) 0.000586

subje\*method(gender) 0.002532

Residual 0.002420

Fit Statistics

-2 Res Log Likelihood -322.8

AIC (smaller is better) -314.8

AICC (smaller is better) -314.5

BIC (smaller is better) -309.8

Type 3 Tests of Fixed Effects

Num Den

Effect DF DF F Value Pr > F

scenario 1 24 7.76 0.0103

method 2 48 216.88 <.0001

scenario\*method 2 50 7.42 0.0015

gender 1 24 0.05 0.8292

scenario\*gender 1 24 0.76 0.3930

method\*gender 2 48 0.59 0.5602

Least Squares Means

Standard

Effect gender scenario method Estimate Error DF t Value Pr > |t|

scenario 1 0.7704 0.01145 24 67.27 <.0001

scenario 2 0.7415 0.01145 24 64.75 <.0001

method 1 0.5943 0.01417 48 41.94 <.0001

method 2 0.7283 0.01417 48 51.40 <.0001

method 3 0.9454 0.01417 48 66.73 <.0001

scenario\*method 1 1 0.6052 0.01608 50 37.63 <.0001

scenario\*method 1 2 0.7262 0.01608 50 45.15 <.0001

scenario\*method 1 3 0.9799 0.01608 50 60.93 <.0001

scenario\*method 2 1 0.5833 0.01608 50 36.27 <.0001

scenario\*method 2 2 0.7304 0.01608 50 45.41 <.0001

scenario\*method 2 3 0.9109 0.01608 50 56.63 <.0001

gender Female 0.7582 0.01498 24 50.60 <.0001

gender Male 0.7538 0.01387 24 54.34 <.0001

scenario\*gender Female 1 0.7772 0.01681 24 46.24 <.0001

scenario\*gender Male 1 0.7637 0.01556 24 49.08 <.0001

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The Mixed Procedure

Least Squares Means

Standard

Effect gender scenario method Estimate Error DF t Value Pr > |t|

scenario\*gender Female 2 0.7392 0.01681 24 43.98 <.0001

scenario\*gender Male 2 0.7438 0.01556 24 47.80 <.0001

method\*gender Female 1 0.5972 0.02079 48 28.72 <.0001

method\*gender Male 1 0.5913 0.01925 48 30.71 <.0001

method\*gender Female 2 0.7394 0.02079 48 35.56 <.0001

method\*gender Male 2 0.7173 0.01925 48 37.26 <.0001

method\*gender Female 3 0.9381 0.02079 48 45.11 <.0001

method\*gender Male 3 0.9527 0.01925 48 49.49 <.0001

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The Mixed Procedure

Model Information

Data Set WORK.SHEET1\_2

Dependent Variable best\_vs\_scenario\_highest

Covariance Structure Variance Components

Estimation Method REML

Residual Variance Method Profile

Fixed Effects SE Method Model-Based

Degrees of Freedom Method Containment

Class Level Information

Class Levels Values

subject 26 1 2 3 5 6 7 8 9 10 11 12 13 14

15 16 17 18 19 20 21 22 23 24

25 26 27

scenario 2 1 2

method 3 1 2 3

exp\_video\_game 5 Extremely experienced

Moderately experienced Not at

all experienced Slightly

experienced Very experienced

Dimensions

Covariance Parameters 4

Columns in X 42

Columns in Z 156

Subjects 1

Max Obs Per Subject 156

Number of Observations

Number of Observations Read 156

Number of Observations Used 156

Number of Observations Not Used 0

Iteration History

Iteration Evaluations -2 Res Log Like Criterion

0 1 -253.95011095

1 1 -286.77599233 0.00000000

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The Mixed Procedure

Convergence criteria met.

Covariance Parameter Estimates

Cov Parm Estimate

subject(exp\_video\_g) 0.001261

subje\*scenar(exp\_vi) 0.000444

subje\*method(exp\_vi) 0.002396

Residual 0.002420

Fit Statistics

-2 Res Log Likelihood -286.8

AIC (smaller is better) -278.8

AICC (smaller is better) -278.5

BIC (smaller is better) -273.7

Type 3 Tests of Fixed Effects

Num Den

Effect DF DF F Value Pr > F

scenario 1 21 2.00 0.1717

method 2 42 124.80 <.0001

scenario\*method 2 50 7.42 0.0015

exp\_video\_game 4 21 0.78 0.5497

scenario\*exp\_video\_g 4 21 1.64 0.2011

method\*exp\_video\_gam 8 42 1.13 0.3650

Least Squares Means

Standard

Effect exp\_video\_game scenario method Estimate Error DF t Value

scenario 1 0.7713 0.01490 21 51.75

scenario 2 0.7530 0.01490 21 50.52

Least Squares Means

Effect exp\_video\_game scenario method Pr > |t|

scenario 1 <.0001

scenario 2 <.0001

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The Mixed Procedure

Least Squares Means

Standard

Effect exp\_video\_game scenario method Estimate Error DF t Value

method 1 0.6038 0.01848 42 32.67

method 2 0.7346 0.01848 42 39.75

method 3 0.9481 0.01848 42 51.30

scenario\*method 1 1 0.6095 0.02036 50 29.93

scenario\*method 1 2 0.7272 0.02036 50 35.72

scenario\*method 1 3 0.9774 0.02036 50 48.00

scenario\*method 2 1 0.5981 0.02036 50 29.38

scenario\*method 2 2 0.7421 0.02036 50 36.45

scenario\*method 2 3 0.9188 0.02036 50 45.13

exp\_video\_game Extremely experienced 0.7843 0.05182 21 15.14

exp\_video\_game Moderately experienced 0.7492 0.01727 21 43.37

exp\_video\_game Not at all experienced 0.7373 0.02115 21 34.86

exp\_video\_game Slightly experienced 0.7524 0.02317 21 32.47

exp\_video\_game Very experienced 0.7877 0.02317 21 33.99

scenario\*exp\_video\_g Extremely experienced 1 0.7714 0.05753 21 13.41

scenario\*exp\_video\_g Moderately experienced 1 0.7641 0.01918 21 39.84

scenario\*exp\_video\_g Not at all experienced 1 0.7636 0.02349 21 32.51

scenario\*exp\_video\_g Slightly experienced 1 0.7760 0.02573 21 30.16

scenario\*exp\_video\_g Very experienced 1 0.7816 0.02573 21 30.38

scenario\*exp\_video\_g Extremely experienced 2 0.7972 0.05753 21 13.86

scenario\*exp\_video\_g Moderately experienced 2 0.7342 0.01918 21 38.28

scenario\*exp\_video\_g Not at all experienced 2 0.7111 0.02349 21 30.27

scenario\*exp\_video\_g Slightly experienced 2 0.7288 0.02573 21 28.33

scenario\*exp\_video\_g Very experienced 2 0.7938 0.02573 21 30.85

method\*exp\_video\_gam Extremely experienced 1 0.6395 0.07134 42 8.96

method\*exp\_video\_gam Moderately experienced 1 0.5951 0.02378 42 25.02

method\*exp\_video\_gam Not at all experienced 1 0.5271 0.02912 42 18.10

method\*exp\_video\_gam Slightly experienced 1 0.6081 0.03190 42 19.06

method\*exp\_video\_gam Very experienced 1 0.6492 0.03190 42 20.35

method\*exp\_video\_gam Extremely experienced 2 0.7540 0.07134 42 10.57

method\*exp\_video\_gam Moderately experienced 2 0.7063 0.02378 42 29.70

method\*exp\_video\_gam Not at all experienced 2 0.7391 0.02912 42 25.38

method\*exp\_video\_gam Slightly experienced 2 0.7266 0.03190 42 22.77

method\*exp\_video\_gam Very experienced 2 0.7473 0.03190 42 23.42

method\*exp\_video\_gam Extremely experienced 3 0.9594 0.07134 42 13.45

method\*exp\_video\_gam Moderately experienced 3 0.9461 0.02378 42 39.79

method\*exp\_video\_gam Not at all experienced 3 0.9459 0.02912 42 32.48

method\*exp\_video\_gam Slightly experienced 3 0.9226 0.03190 42 28.92

method\*exp\_video\_gam Very experienced 3 0.9666 0.03190 42 30.30

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The Mixed Procedure

Least Squares Means

Effect exp\_video\_game scenario method Pr > |t|

method 1 <.0001

method 2 <.0001

method 3 <.0001

scenario\*method 1 1 <.0001

scenario\*method 1 2 <.0001

scenario\*method 1 3 <.0001

scenario\*method 2 1 <.0001

scenario\*method 2 2 <.0001

scenario\*method 2 3 <.0001

exp\_video\_game Extremely experienced <.0001

exp\_video\_game Moderately experienced <.0001

exp\_video\_game Not at all experienced <.0001

exp\_video\_game Slightly experienced <.0001

exp\_video\_game Very experienced <.0001

scenario\*exp\_video\_g Extremely experienced 1 <.0001

scenario\*exp\_video\_g Moderately experienced 1 <.0001

scenario\*exp\_video\_g Not at all experienced 1 <.0001

scenario\*exp\_video\_g Slightly experienced 1 <.0001

scenario\*exp\_video\_g Very experienced 1 <.0001

scenario\*exp\_video\_g Extremely experienced 2 <.0001

scenario\*exp\_video\_g Moderately experienced 2 <.0001

scenario\*exp\_video\_g Not at all experienced 2 <.0001

scenario\*exp\_video\_g Slightly experienced 2 <.0001

scenario\*exp\_video\_g Very experienced 2 <.0001

method\*exp\_video\_gam Extremely experienced 1 <.0001

method\*exp\_video\_gam Moderately experienced 1 <.0001

method\*exp\_video\_gam Not at all experienced 1 <.0001

method\*exp\_video\_gam Slightly experienced 1 <.0001

method\*exp\_video\_gam Very experienced 1 <.0001

method\*exp\_video\_gam Extremely experienced 2 <.0001

method\*exp\_video\_gam Moderately experienced 2 <.0001

method\*exp\_video\_gam Not at all experienced 2 <.0001

method\*exp\_video\_gam Slightly experienced 2 <.0001

method\*exp\_video\_gam Very experienced 2 <.0001

method\*exp\_video\_gam Extremely experienced 3 <.0001

method\*exp\_video\_gam Moderately experienced 3 <.0001

method\*exp\_video\_gam Not at all experienced 3 <.0001

method\*exp\_video\_gam Slightly experienced 3 <.0001

method\*exp\_video\_gam Very experienced 3 <.0001

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The Mixed Procedure

Model Information

Data Set WORK.SHEET1\_2

Dependent Variable best\_vs\_scenario\_highest

Covariance Structure Variance Components

Estimation Method REML

Residual Variance Method Profile

Fixed Effects SE Method Model-Based

Degrees of Freedom Method Containment

Class Level Information

Class Levels Values

subject 24 1 2 3 5 6 7 9 10 11 12 13 14

15 16 17 18 19 20 21 22 23 24

25 27

scenario 2 1 2

method 3 1 2 3

use\_full\_autonomy 2 No Yes

Dimensions

Covariance Parameters 4

Columns in X 24

Columns in Z 144

Subjects 1

Max Obs Per Subject 144

Number of Observations

Number of Observations Read 144

Number of Observations Used 144

Number of Observations Not Used 0

Iteration History

Iteration Evaluations -2 Res Log Like Criterion

0 1 -264.20173091

1 1 -296.16373644 0.00000000

Convergence criteria met.

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The Mixed Procedure

Covariance Parameter Estimates

Cov Parm Estimate

subject(use\_full\_au) 0.000828

subje\*scenar(use\_fu) 0.000628

subje\*method(use\_fu) 0.002927

Residual 0.002262

Fit Statistics

-2 Res Log Likelihood -296.2

AIC (smaller is better) -288.2

AICC (smaller is better) -287.9

BIC (smaller is better) -283.5

Type 3 Tests of Fixed Effects

Num Den

Effect DF DF F Value Pr > F

scenario 1 22 7.50 0.0120

method 2 44 183.27 <.0001

scenario\*method 2 46 8.03 0.0010

use\_full\_autonomy 1 22 3.70 0.0675

scenario\*use\_full\_au 1 22 0.36 0.5559

method\*use\_full\_auto 2 44 0.04 0.9599

Least Squares Means

use\_full\_ Standard

Effect autonomy scenario method Estimate Error DF t Value

scenario 1 0.7703 0.01152 22 66.87

scenario 2 0.7410 0.01152 22 64.32

method 1 0.5952 0.01472 44 40.44

method 2 0.7278 0.01472 44 49.44

Least Squares Means

use\_full\_

Effect autonomy scenario method Pr > |t|

scenario 1 <.0001

scenario 2 <.0001

method 1 <.0001

method 2 <.0001

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The Mixed Procedure

Least Squares Means

use\_full\_ Standard

Effect autonomy scenario method Estimate Error DF t Value

method 3 0.9439 0.01472 44 64.13

scenario\*method 1 1 0.6038 0.01664 46 36.29

scenario\*method 1 2 0.7268 0.01664 46 43.68

scenario\*method 1 3 0.9804 0.01664 46 58.92

scenario\*method 2 1 0.5866 0.01664 46 35.25

scenario\*method 2 2 0.7288 0.01664 46 43.80

scenario\*method 2 3 0.9075 0.01664 46 54.54

use\_full\_autonomy No 0.7753 0.01442 22 53.77

use\_full\_autonomy Yes 0.7360 0.01442 22 51.05

scenario\*use\_full\_au No 1 0.7867 0.01629 22 48.29

scenario\*use\_full\_au Yes 1 0.7540 0.01629 22 46.28

scenario\*use\_full\_au No 2 0.7638 0.01629 22 46.88

scenario\*use\_full\_au Yes 2 0.7181 0.01629 22 44.08

method\*use\_full\_auto No 1 0.6175 0.02082 44 29.66

method\*use\_full\_auto Yes 1 0.5729 0.02082 44 27.52

method\*use\_full\_auto No 2 0.7473 0.02082 44 35.90

method\*use\_full\_auto Yes 2 0.7083 0.02082 44 34.03

method\*use\_full\_auto No 3 0.9610 0.02082 44 46.16

method\*use\_full\_auto Yes 3 0.9269 0.02082 44 44.53

Least Squares Means

use\_full\_

Effect autonomy scenario method Pr > |t|

method 3 <.0001

scenario\*method 1 1 <.0001

scenario\*method 1 2 <.0001

scenario\*method 1 3 <.0001

scenario\*method 2 1 <.0001

scenario\*method 2 2 <.0001

scenario\*method 2 3 <.0001

use\_full\_autonomy No <.0001

use\_full\_autonomy Yes <.0001

scenario\*use\_full\_au No 1 <.0001

scenario\*use\_full\_au Yes 1 <.0001

scenario\*use\_full\_au No 2 <.0001

scenario\*use\_full\_au Yes 2 <.0001

method\*use\_full\_auto No 1 <.0001

method\*use\_full\_auto Yes 1 <.0001

method\*use\_full\_auto No 2 <.0001

method\*use\_full\_auto Yes 2 <.0001

method\*use\_full\_auto No 3 <.0001

method\*use\_full\_auto Yes 3 <.0001

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The Mixed Procedure

Model Information

Data Set WORK.SHEET1

Dependent Variable best\_vs\_scenario\_highest

Covariance Structure Variance Components

Estimation Method REML

Residual Variance Method Profile

Fixed Effects SE Method Model-Based

Degrees of Freedom Method Containment

Class Level Information

Class Levels Values

subject 26 1 2 3 5 6 7 8 9 10 11 12 13 14

15 16 17 18 19 20 21 22 23 24

25 26 27

scenario 2 1 2

method 3 1 2 3

order 2 0 1

Dimensions

Covariance Parameters 4

Columns in X 24

Columns in Z 156

Subjects 1

Max Obs Per Subject 156

Number of Observations

Number of Observations Read 156

Number of Observations Used 156

Number of Observations Not Used 0

Iteration History

Iteration Evaluations -2 Res Log Like Criterion

0 1 -290.35047575

1 1 -324.29759343 0.00000000

Convergence criteria met.

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The Mixed Procedure

Covariance Parameter Estimates

Cov Parm Estimate

subject(order) 0.001185

subjec\*scenar(order) 0.000606

subjec\*method(order) 0.002394

Residual 0.002420

Fit Statistics

-2 Res Log Likelihood -324.3

AIC (smaller is better) -316.3

AICC (smaller is better) -316.0

BIC (smaller is better) -311.3

Type 3 Tests of Fixed Effects

Num Den

Effect DF DF F Value Pr > F

scenario 1 24 7.02 0.0140

method 2 48 229.05 <.0001

scenario\*method 2 50 7.42 0.0015

order 1 24 0.09 0.7672

scenario\*order 1 24 0.39 0.5378

method\*order 2 48 1.53 0.2278

Least Squares Means

Standard

Effect scenario method order Estimate Error DF t Value Pr > |t|

scenario 1 0.7694 0.01146 24 67.13 <.0001

scenario 2 0.7417 0.01146 24 64.71 <.0001

method 1 0.5931 0.01404 48 42.26 <.0001

method 2 0.7266 0.01404 48 51.77 <.0001

method 3 0.9470 0.01404 48 67.47 <.0001

scenario\*method 1 1 0.6035 0.01598 50 37.76 <.0001

scenario\*method 1 2 0.7239 0.01598 50 45.30 <.0001

scenario\*method 1 3 0.9810 0.01598 50 61.39 <.0001

scenario\*method 2 1 0.5828 0.01598 50 36.47 <.0001

scenario\*method 2 2 0.7293 0.01598 50 45.64 <.0001

scenario\*method 2 3 0.9131 0.01598 50 57.14 <.0001

order 0 0.7525 0.01497 24 50.27 <.0001

order 1 0.7586 0.01386 24 54.74 <.0001

scenario\*order 1 0 0.7631 0.01682 24 45.36 <.0001

scenario\*order 1 1 0.7758 0.01557 24 49.81 <.0001

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The Mixed Procedure

Least Squares Means

Standard

Effect scenario method order Estimate Error DF t Value Pr > |t|

scenario\*order 2 0 0.7419 0.01682 24 44.11 <.0001

scenario\*order 2 1 0.7415 0.01557 24 47.61 <.0001

method\*order 1 0 0.5815 0.02060 48 28.23 <.0001

method\*order 1 1 0.6048 0.01907 48 31.71 <.0001

method\*order 2 0 0.7153 0.02060 48 34.73 <.0001

method\*order 2 1 0.7379 0.01907 48 38.69 <.0001

method\*order 3 0 0.9608 0.02060 48 46.64 <.0001

method\*order 3 1 0.9332 0.01907 48 48.93 <.0001