

# MANOVA(Multivariate Analysis of Variance)

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## I . Model

From the Music and Film Experiment 2011 (Neuendorf et al.) Data Set

IVs:

DVs:

Main Effects

X1 (Music Condition) 



Y1 E3\_7 (Feeling Tender)

Y2 E3\_14 (Feeling Awestruck)

X2 (Sex:Male/Female) 

Y3 E3\_15 (Feeling Disappointed)

Y4 E3\_21 (Feeling Anticipation)

Interaction Effects 

(Music Condition×Sex) 

## *Variable Descriptions*

### Independent Variables

Music Condition (Nominal, 3 categories [1=Rock Music, 2=Classical, and 3=No Music], music condition SPSS label)

Male/Female (Nominal, 2 categories [1=Male, and 2=Female], SocDem\_1\_MaleOrFemale SPSS label)

### Dependent Variables

All of the dependent variables are metric with 0 = Not at All to 10 = Very Much.

Feeling Tender (E3\_7\_SG\_Extent You Felt Tender)

Feeling Awesome (E3\_14\_SG\_Extent You Felt Awestruck)

Feeling Disappointed (E3\_15\_SG\_Extent You Felt Disappointed)

Feeling Anticipation (E3\_21\_SG\_Extent You Felt Anticipation)

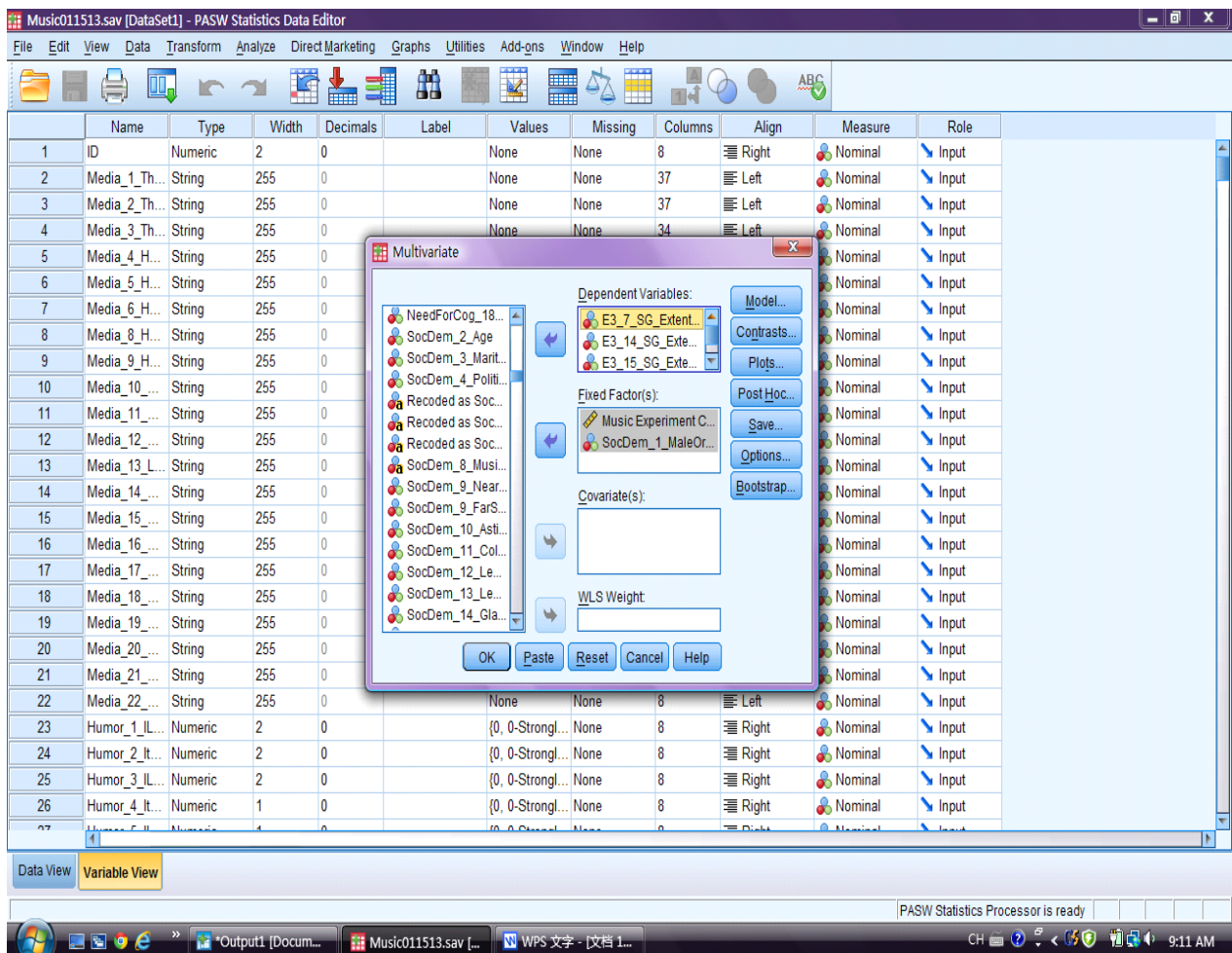
# II. RUNNING SPSS

## (1) Analyze → General Linear Model → Multivariate

The screenshot shows the SPSS Statistics Data Editor interface. The 'Analyze' menu is open, and the path 'General Linear Model' > 'Multivariate...' is selected. The main data window displays a table with the following columns: ID, Media\_2\_ThreeFavoriteMovies, Media\_3\_ThreeFavoriteTypesofMusic, and Media\_4\_Hours day. The data rows contain various TV shows and movies, such as 'CSI: Miami', 'That 70's Show', 'The Game', 'Seinfeld', 'MASH 3 St', 'Full House', 'Dancing With the Stars', 'Family Guy', 'Northern Exposure', 'Bailey Koss', 'Firefly Dr. V', 'Seinfeld C.O.', 'Lost - Seinfeld', 'Teen Mom', 'Monty Python', 'Family Guy', 'facts of life', 'Friends Dexter', 'the game of thrones', 'Desperate Housewives Weeds Dexter', 'rugrats secret life of an american teenager and 90210', 'Sex and the City Ugly Betty Family Guy', 'Scrubs The Office 30 Rock', and 'The Big Lebowski Blade Runner The Godfather Part 1'.

| ID | Media_2_ThreeFavoriteMovies                               | Media_3_ThreeFavoriteTypesofMusic                         | Media_4_Hours day                              |
|----|---|---|--|
| 1  | 101 CSI: Miami  |   |  |
| 2  | 102 That 70's S   | Titans Glory Road   | 30mins.  |
| 3  | 103 The Game f  | Millionaire Speak   | None   |
| 4  | 104 Seinfeld The  | Did I get married Bad Boys II                             | <6   |
| 5  | 105 MASH 3 St   | 3:10 to Yuma The Chronicles of Riddick Batman Begins      | 2  |
| 6  | 106 Full House  | A Few Good Men Green Mile GodFather Part 1                | 2  |
| 7  | 107 Dancing Wi  | Notebook Love and Basketball Sweet Home Alabama           | 3 and half                                     |
| 8  | 108 Family Guy  | It's Complicated The Fast And The Furious Avatar          | 30 minutes                                     |
| 9  | 109 Northern Ex   | Citizen Kane Inception Rocky Horror Picture Show          | Rock Metal Classical                           |
| 10 | 110 Bailey Kiss   | Little Miss Sunshine Big Fish Five People You Will Mee... | Soul Pop Classical                             |
| 11 | 111 Firefly Dr. V   | The Crow Interview with a Vampire and Charley and the ... | Heavy Metal Pop and Rock                       |
| 12 | 112 Seinfeld C.O.   | The American President V for Vendetta Spirited Away       | Japanese pop Europop techno                    |
| 13 | 113 Lost - Seinf  | Bloodsport Hackers Man On Fire                            | Hip-Hop/Rap Techno/Dance Smooth Jazz           |
| 14 | 114 Teen Mom  | Big Lebowski - Vanilla Sky - Shawshank Redemption         | Rock - Motown - Hip Hop                        |
| 15 | 115 Monty Pyth  | Titanic The Blind Side Legend of the Fall                 | Hip-hop Country Pop                            |
| 16 | 116 Family Guy  | Eraserhead Sunrise Pierrot le fou                         | Progressive rock Folk Experimental/avant-garde |
| 17 | 117 facts of life   | A Long Kiss Goodnight Yes Man The Devil Wears Prada       | R&B Rap Pop                                    |
| 18 | 118 Friends Dex   | Gone with the Wind Not without my daughter and oo7 Li...  | Gospel Jazz and pop                            |
| 19 | 119 the game Cl...  | Somekind Of Wonderful Say Anything Rear Window            | Hardcore Classic Rock Rock                     |
| 20 | 120 Desperate Housewives Weeds Dexter                     | baby boy halloween h2Olion king                           | r&b hip hop reggae                             |
| 21 | 121 rugrats secret life of an american teenager and 90210 | Titanic Forest Gump Harold and Kumar go to Whie Castle    | Indie Oldies Classic Rock                      |
| 22 | 122 Sex and the City Ugly Betty Family Guy                | toy story 3 mr. and mrs. smith and death race             | r and b rap and pop                            |
| 23 | 123 Scrubs The Office 30 Rock                             | Love Actually Pride and Prejudice Eat Pary and Love.      | R&B Rock Classical                             |
| 24 | 124 Firefly Dexter Lost                                   | There Will Be Blood Scotland PA. Fight Club               | indie rock experimental rock jazz              |
|    |   | The Big Lebowski Blade Runner The Godfather Part 1        | rock ambient classic country                   |

**(2) Dependent Variables go in the box labeled Dependent Variables**  
**Independent variables go in the box labeled Fixed Factors**  
**Dependent and Independent Variables added by clicking the arrow**



**(3) Go to the buttons on the right hand side  
Click Model → Full Factorial (SPSS default) → Click Continue**

The screenshot shows the SPSS Multivariate dialog boxes. The 'Multivariate' dialog has the following settings:

- Dependent Variables:** E3\_7\_SG\_Extent..., E3\_14\_SG\_Extent..., E3\_15\_SG\_Extent...
- Fixed Factor(s):** Music Experiment C..., SocDem\_1\_MaleOr...
- Model...** button is highlighted.

The 'Multivariate:Model' dialog has the following settings:

- Specify Model:**  Full factorial,  Custom
- Factors & Covariates:** Musiccond, SocDem\_1\_MaleOr...
- Build Term(s):** Type: Interaction
- Sum of squares:** Type III
- Include intercept in model
- Buttons:** Continue, Cancel, Help

The background shows the Variable View table with columns: Name, Type, Width, Decimals, Label, Values, Missing, Columns, Align, Measure, Role.

| Name             | Type    | Width | Decimals | Label | Values           | Missing | Columns | Align | Measure | Role  |
|------------------|---------|-------|----------|-------|------------------|---------|---------|-------|---------|-------|
| 1 ID             | Numeric | 2     | 0        |       | None             | None    | 8       | Right | Nominal | Input |
| 2 Me             |         |       |          |       |                  | None    | 37      | Left  | Nominal | Input |
| 3 Me             |         |       |          |       |                  | None    | 37      | Left  | Nominal | Input |
| 4 Me             |         |       |          |       |                  | None    | 34      | Left  | Nominal | Input |
| 5 Me             |         |       |          |       |                  |         |         |       |         |       |
| 6 Me             |         |       |          |       |                  |         |         |       |         |       |
| 7 Me             |         |       |          |       |                  |         |         |       |         |       |
| 8 Me             |         |       |          |       |                  |         |         |       |         |       |
| 9 Me             |         |       |          |       |                  |         |         |       |         |       |
| 10 Me            |         |       |          |       |                  |         |         |       |         |       |
| 11 Me            |         |       |          |       |                  |         |         |       |         |       |
| 12 Me            |         |       |          |       |                  |         |         |       |         |       |
| 13 Me            |         |       |          |       |                  |         |         |       |         |       |
| 14 Me            |         |       |          |       |                  |         |         |       |         |       |
| 15 Me            |         |       |          |       |                  |         |         |       |         |       |
| 16 Me            |         |       |          |       |                  |         |         |       |         |       |
| 17 Me            |         |       |          |       |                  |         |         |       |         |       |
| 18 Me            |         |       |          |       |                  |         |         |       |         |       |
| 19 Media_19_...  | String  | 255   | 0        |       | None             |         |         |       |         |       |
| 20 Media_20_...  | String  | 255   | 0        |       | None             |         |         |       |         |       |
| 21 Media_21_...  | String  | 255   | 0        |       | None             |         |         |       |         |       |
| 22 Media_22_...  | String  | 255   | 0        |       | None             |         |         |       |         |       |
| 23 Humor_1_IL... | Numeric | 2     | 0        |       | {0, 0-Strongl... |         |         |       |         |       |
| 24 Humor_2_It... | Numeric | 2     | 0        |       | {0, 0-Strongl... |         |         |       |         |       |
| 25 Humor_3_IL... | Numeric | 2     | 0        |       | {0, 0-Strongl... | None    | 8       | Right | Nominal | Input |
| 26 Humor_4_It... | Numeric | 1     | 0        |       | {0, 0-Strongl... | None    | 8       | Right | Nominal | Input |
| 27 Humor_5_It... | Numeric | 1     | 0        |       | {0, 0-Strongl... | None    | 8       | Right | Nominal | Input |

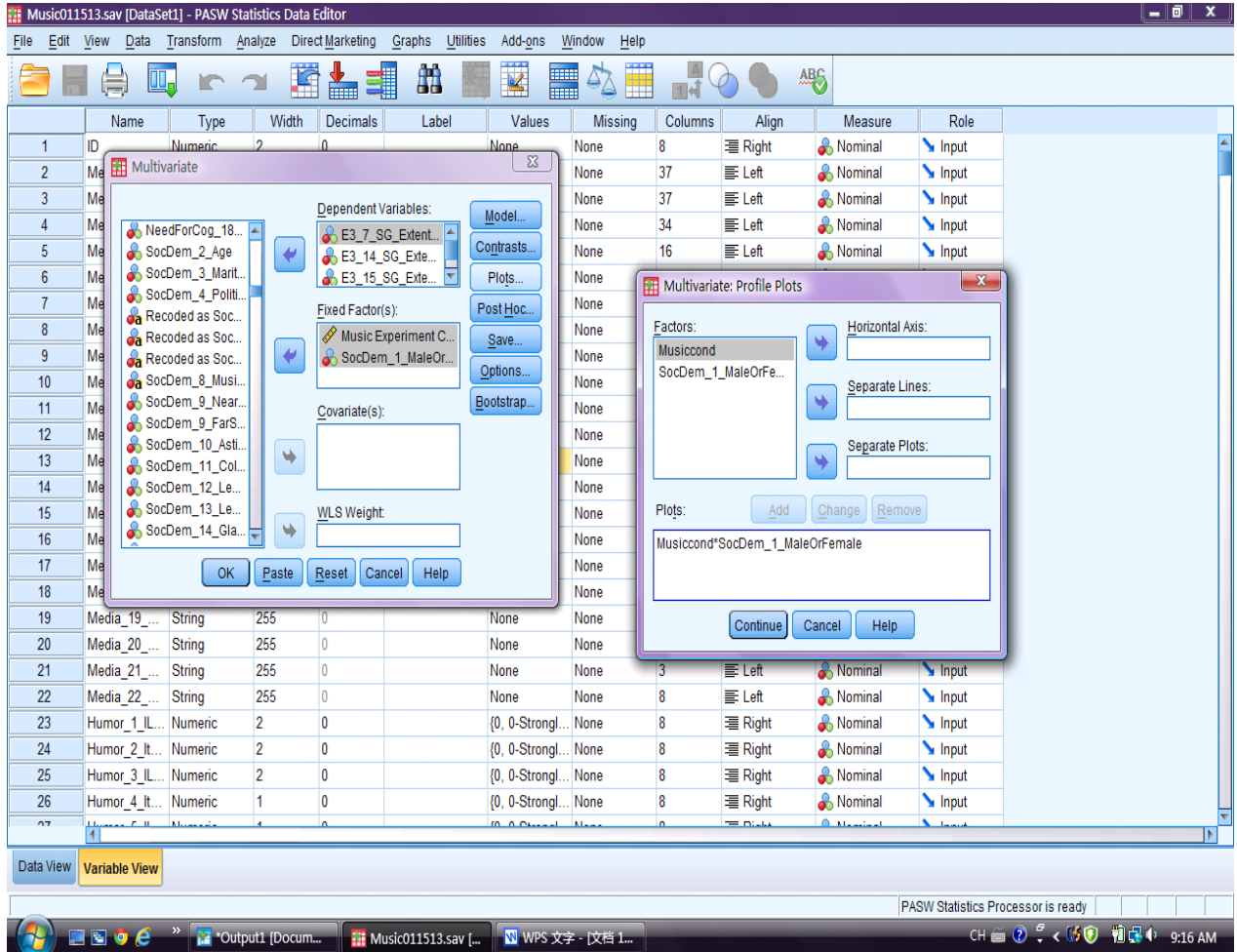
**(4) Select Plots from the same list on the right (skipping contrasts)**

**Click Plots → Multivariate: Profile Plots**

**Move Music Condition to Horizontal Axis with arrow**

**Move Sex to Separate Lines with arrow**

**Click Add → Click Continue**



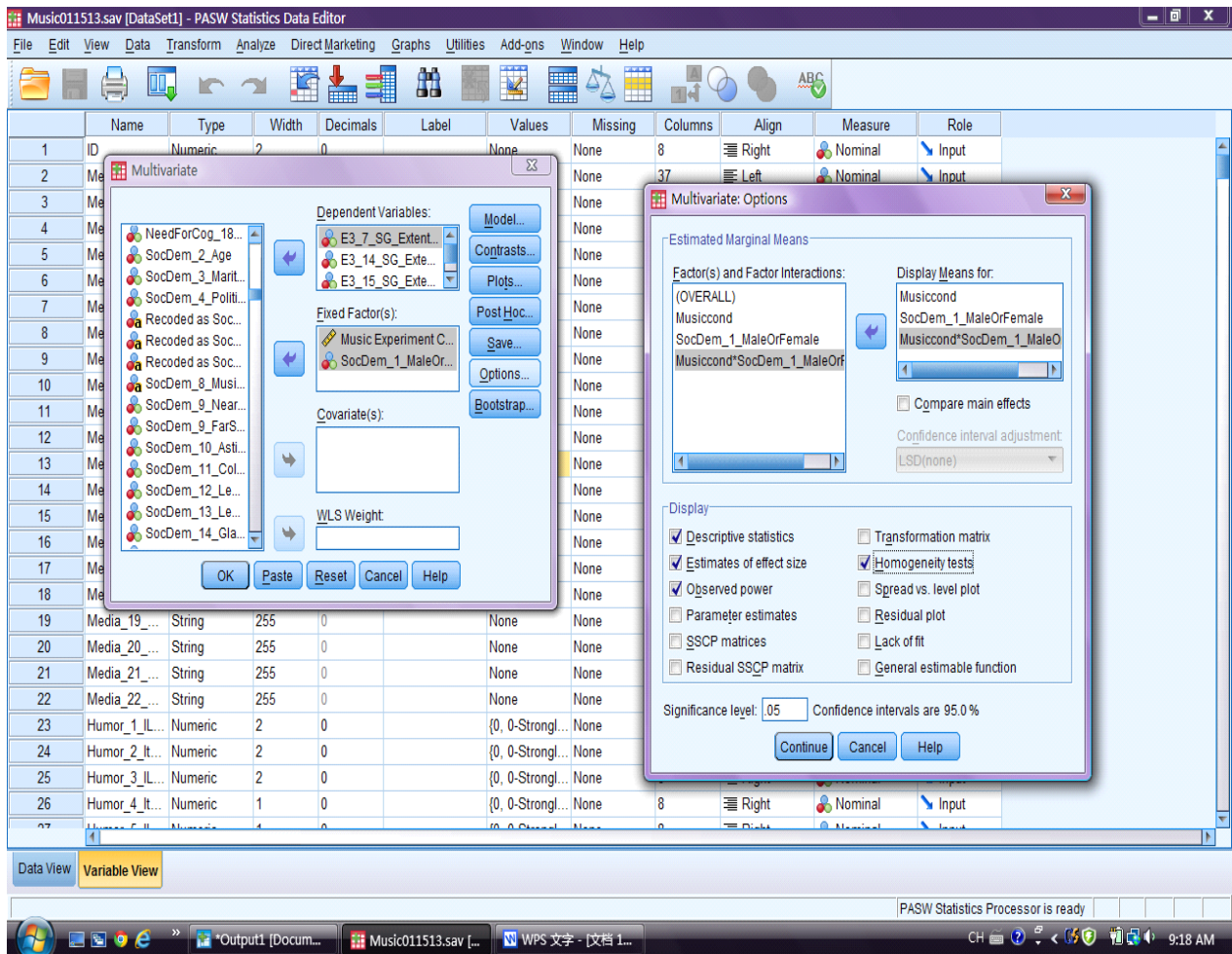
**(5) Click Post Hoc → Move over Music Condition with arrow, Not Sex (because it has only two groups) → Select Tukey's-b and Scheffe by checking boxes → Click continue to run post hoc tests for Music Condition**

The screenshot shows the PASW Statistics Data Editor interface. The main window displays a data table with columns for Name, Type, Width, Decimals, Label, Values, Missing, Columns, Align, Measure, and Role. Two dialog boxes are open over the data table:

- Multivariate:** This dialog is used to specify dependent variables and fixed factors. The 'Fixed Factor(s)' list includes 'Music Experiment C...' and 'SocDem\_1\_MaleOr...'. The 'Post Hoc...' button is visible.
- Multivariate: Post Hoc Multiple Comparisons for Observed Means:** This dialog is used to select post hoc tests. The 'Factor(s)' list includes 'Musiccond' and 'SocDem\_1\_MaleOrFemale'. Under the 'Equal Variances Assumed' section, the 'Tukey's-b' and 'Scheffe' checkboxes are checked. The 'Control Category' is set to 'Last'.



**(6) Select Options → Display Means for: put in all factors and factor interactions (highlight all factors in the left box underneath OVERALL and click the arrow to move them over) → Under Display check: Click Descriptive Statistics, Estimates of effect size, Observed power, and Homogeneity tests → Click Continue**





## (7) Click OK to run the MANOVA

The screenshot shows the SPSS Multivariate dialog box open over a data editor window. The dialog box is configured with the following settings:

- Dependent Variables:** E3\_7\_SG\_Extent..., E3\_14\_SG\_Extent..., E3\_15\_SG\_Extent...
- Fixed Factor(s):** Music Experiment C..., SocDem\_1\_MaleOr...
- Covariate(s):** (Empty)
- WLS Weight:** (Empty)

The background data editor window shows a list of variables with columns for Name, Type, Width, Decimals, Label, Values, Missing, Columns, Align, Measure, and Role. The variables listed include ID, Me, NeedForCog\_18..., SocDem\_2\_Age, SocDem\_3\_Marit..., SocDem\_4\_Politi..., Recoded as Soc..., Recoded as Soc..., SocDem\_8\_Musi..., SocDem\_9\_Near..., SocDem\_9\_FarS..., SocDem\_10\_Asti..., SocDem\_11\_Col..., SocDem\_12\_Le..., SocDem\_13\_Le..., SocDem\_14\_Gla..., Media\_19..., Media\_20..., Media\_21..., Media\_22..., Humor\_1\_IL..., Humor\_2\_It..., Humor\_3\_IL..., Humor\_4\_It..., and Humor\_5\_It...

The bottom of the screen shows the Windows taskbar with the following open applications: Output1 [Docum..., Music011513.sav [...], and WPS 文字 - [文档 1...]. The system tray shows the time as 9:19 AM.

### III. SPSS OUTPUT

```

GET
  FILE='D:\TDDownload\Music011513.sav'.
DATASET NAME DataSet1 WINDOW=FRONT.
GLM E3_7_SG_ExtentYouFeltTender E3_14_SG_ExtentYouFeltAwestruck
E3_15_SG_ExtentYouFeltDisappointed E3_21_SG_ExtentYouFeltAnticipation BY
Musiccond SocDem_1_MaleOrFemale
  /METHOD=SSTYPE(3)
  /INTERCEPT=INCLUDE
  /POSTHOC=Musiccond(BTUKEY SCHEFFFE)
  /PLOT=PROFILE (Musiccond*SocDem_1_MaleOrFemale)
  /EMMEANS=TABLES (Musiccond)
  /EMMEANS=TABLES (SocDem_1_MaleOrFemale)
  /EMMEANS=TABLES (Musiccond*SocDem_1_MaleOrFemale)
  /PRINT=DESCRIPTIVE ETASQ OPOWER HOMOGENEITY
  /CRITERIA=ALPHA(.05)
  /DESIGN= Musiccond SocDem_1_MaleOrFemale Musiccond*SocDem_1_MaleOrFemale.

```

### General Linear Model

| Notes                  |                                |   |
|------------------------|--------------------------------|---|
| Output Created         |                                | 06-Apr-2013 09:19:24  |
| Comments               |                                |   |
| Input                  | Data                           | D:\TDDownload\Music011513.sav   |
|                        | Active Dataset                 | DataSet1  |
|                        | Filter                         | <none>  |
|                        | Weight                         | <none>  |
|                        | Split File                     | <none>  |
|                        | N of Rows in Working Data File | 101   |
| 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    |                | <pre> GLM E3_7_SG_ExtentYouFeltTender E3_14_SG_ExtentYouFeltAwestruck E3_15_SG_ExtentYouFeltDisappointe d E3_21_SG_ExtentYouFeltAnticipation BY Musiccond SocDem_1_MaleOrFemale /METHOD=SSTYPE(3) /INTERCEPT=INCLUDE /POSTHOC=Musiccond(BTUKEY SCHEFFE)  /PLOT=PROFILE(Musiccond*SocDem _1_MaleOrFemale) /EMMEANS=TABLES(Musiccond)  /EMMEANS=TABLES(SocDem_1_Mal eOrFemale)  /EMMEANS=TABLES(Musiccond*Soc Dem_1_MaleOrFemale) /PRINT=DESCRIPTIVE ETASQ OPOWER HOMOGENEITY /CRITERIA=ALPHA(.05) /DESIGN= Musiccond SocDem_1_MaleOrFemale Musiccond*SocDem_1_MaleOrFemale . </pre> |
| Resources | Processor Time | 00:00:02.450   |
|           | Elapsed Time   | 00:00:07.670   |

[DataSet1] D:\TDDownload\Music011513.sav

| <b>Between-Subjects Factors</b> |      |                   |    |
|---------------------------------|------|-------------------|----|
|                                 |      | Value Label       | N  |
| Music Experiment Condition      | 1.00 | 1-Rock Music      | 32 |
|                                 | 2.00 | 2-Classical Music | 28 |
|                                 | 3.00 | 3-No Music        | 28 |
| SocDem_1_MaleOrFemale           | 1    | 1-Male            | 45 |
|                                 | 2    | 2-Female          | 43 |

| Descriptive Statistics             |                            |                        |          |      |                |    |
|------------------------------------|----------------------------|------------------------|----------|------|----------------|----|
|                                    | Music Experiment Condition | SocDem_1_MaleOr Female |          | Mean | Std. Deviation | N  |
| E3_7_SG_ExtentYouFeltTender        | 1-Rock Music               | dimensio<br>n2         | 1-Male   | 2.44 | 2.220          | 16 |
|                                    |                            |                        | 2-Female | 1.44 | 2.190          | 16 |
|                                    |                            |                        | Total    | 1.94 | 2.228          | 32 |
|                                    | 2-Classical Music          | dimensio<br>n2         | 1-Male   | 3.07 | 2.814          | 14 |
|                                    |                            |                        | 2-Female | 3.43 | 3.131          | 14 |
|                                    |                            |                        | Total    | 3.25 | 2.927          | 28 |
|                                    | 3-No Music                 | dimensio<br>n2         | 1-Male   | 3.60 | 3.757          | 15 |
|                                    |                            |                        | 2-Female | 3.31 | 3.449          | 13 |
|                                    |                            |                        | Total    | 3.46 | 3.554          | 28 |
|                                    | Total                      | dimensio<br>n2         | 1-Male   | 3.02 | 2.958          | 45 |
|                                    |                            |                        | 2-Female | 2.65 | 3.007          | 43 |
|                                    |                            |                        | Total    | 2.84 | 2.971          | 88 |
| E3_14_SG_ExtentYouFeltAwestruck    | 1-Rock Music               | dimensio<br>n2         | 1-Male   | 1.69 | 2.272          | 16 |
|                                    |                            |                        | 2-Female | 1.38 | 2.446          | 16 |
|                                    |                            |                        | Total    | 1.53 | 2.328          | 32 |
|                                    | 2-Classical Music          | dimensio<br>n2         | 1-Male   | 3.00 | 2.935          | 14 |
|                                    |                            |                        | 2-Female | 3.43 | 3.275          | 14 |
|                                    |                            |                        | Total    | 3.21 | 3.059          | 28 |
|                                    | 3-No Music                 | dimensio<br>n2         | 1-Male   | 3.13 | 3.204          | 15 |
|                                    |                            |                        | 2-Female | 3.54 | 3.843          | 13 |
|                                    |                            |                        | Total    | 3.32 | 3.454          | 28 |
|                                    | Total                      | dimensio<br>n2         | 1-Male   | 2.58 | 2.832          | 45 |
|                                    |                            |                        | 2-Female | 2.70 | 3.277          | 43 |
|                                    |                            |                        | Total    | 2.64 | 3.041          | 88 |
| E3_15_SG_ExtentYouFeltDisappointed | 1-Rock Music               | dimensio<br>n2         | 1-Male   | 5.25 | 3.152          | 16 |
|                                    |                            |                        | 2-Female | 4.94 | 3.678          | 16 |
|                                    |                            |                        | Total    | 5.09 | 3.373          | 32 |
|                                    | 2-Classical Music          | dimensio<br>n2         | 1-Male   | 6.29 | 2.164          | 14 |
|                                    |                            |                        | 2-Female | 7.79 | 1.847          | 14 |
|                                    |                            |                        | Total    | 7.04 | 2.117          | 28 |
|                                    | 3-No Music                 | dimensio<br>n2         | 1-Male   | 6.20 | 3.212          | 15 |
|                                    |                            |                        | 2-Female | 6.54 | 3.992          | 13 |
|                                    |                            |                        | Total    | 6.36 | 3.530          | 28 |
|                                    | Total                      | dimensio<br>n2         | 1-Male   | 5.89 | 2.878          | 45 |
|                                    |                            |                        | 2-Female | 6.35 | 3.450          | 43 |
|                                    |                            |                        | Total    | 6.11 | 3.160          | 88 |
| E3_21_SG_ExtentYouFeltAnticipation | 1-Rock Music               | dimensio<br>n2         | 1-Male   | 3.75 | 2.769          | 16 |
|                                    |                            |                        | 2-Female | 2.13 | 3.202          | 16 |
|                                    |                            |                        | Total    | 2.94 | 3.058          | 32 |
|                                    | 2-Classical Music          | dimensio<br>n2         | 1-Male   | 3.14 | 3.371          | 14 |
|                                    |                            |                        | 2-Female | 2.57 | 3.298          | 14 |
|                                    |                            |                        | Total    | 2.86 | 3.285          | 28 |

|  |            |                |          |      |       |    |
|--|------------|----------------|----------|------|-------|----|
|  | 3-No Music | dimensio<br>n2 | 1-Male   | 4.93 | 4.026 | 15 |
|  |            |                | 2-Female | 4.85 | 3.671 | 13 |
|  |            |                | Total    | 4.89 | 3.794 | 28 |
|  | Total      | dimensio<br>n2 | 1-Male   | 3.96 | 3.418 | 45 |
|  |            |                | 2-Female | 3.09 | 3.504 | 43 |
|  |            |                | Total    | 3.53 | 3.467 | 88 |

| <b>Box's Test of Equality of Covariance Matrices<sup>a</sup></b>  |           |
|---|-----------|
| Box's M   | 46.561    |
| F   | .813      |
| df1   | 50        |
| df2   | 11829.369 |
| Sig.  | .825      |
| Tests the null hypothesis that the observed covariance matrices of the dependent variables are equal across groups. |           |
| a. Design: Intercept + Musiccond + SocDem_1_MaleOrFemale + Musiccond * SocDem_1_MaleOrFemale                        |           |

| <b>Multivariate Tests<sup>d</sup></b> |                    |       |                     |               |          |      |                     |
|---------------------------------------|--------------------|-------|---------------------|---------------|----------|------|---------------------|
| Effect                                |                    | Value | F                   | Hypothesis df | Error df | Sig. | Partial Eta Squared |
| Intercept                             | Pillai's Trace     | .823  | 91.664 <sup>a</sup> | 4.000         | 79.000   | .000 | .823                |
|                                       | Wilks' Lambda      | .177  | 91.664 <sup>a</sup> | 4.000         | 79.000   | .000 | .823                |
|                                       | Hotelling's Trace  | 4.641 | 91.664 <sup>a</sup> | 4.000         | 79.000   | .000 | .823                |
|                                       | Roy's Largest Root | 4.641 | 91.664 <sup>a</sup> | 4.000         | 79.000   | .000 | .823                |
| Musiccond                             | Pillai's Trace     | .185  | 2.044               | 8.000         | 160.000  | .044 | .093                |

|  |                    |      |                    |       |         |      |      |
|--|--------------------|------|--------------------|-------|---------|------|------|
|  | Wilks' Lambda      | .823 | 2.022 <sup>a</sup> | 8.000 | 158.000 | .047 | .093 |
|  | Hotelling's Trace  | .205 | 1.999              | 8.000 | 156.000 | .050 | .093 |
|  | Roy's Largest Root | .122 | 2.435 <sup>c</sup> | 4.000 | 80.000  | .054 | .109 |
| SocDem_1_MaleOrFemale  | Pillai's Trace     | .032 | .658 <sup>a</sup>  | 4.000 | 79.000  | .623 | .032 |
|  | Wilks' Lambda      | .968 | .658 <sup>a</sup>  | 4.000 | 79.000  | .623 | .032 |
|  | Hotelling's Trace  | .033 | .658 <sup>a</sup>  | 4.000 | 79.000  | .623 | .032 |
|  | Roy's Largest Root | .033 | .658 <sup>a</sup>  | 4.000 | 79.000  | .623 | .032 |
| Musiccond * SocDem_1_MaleOrFemale  | Pillai's Trace     | .029 | .290               | 8.000 | 160.000 | .969 | .014 |
|  | Wilks' Lambda      | .972 | .287 <sup>a</sup>  | 8.000 | 158.000 | .970 | .014 |
|  | Hotelling's Trace  | .029 | .284               | 8.000 | 156.000 | .971 | .014 |
|  | Roy's Largest Root | .021 | .428 <sup>c</sup>  | 4.000 | 80.000  | .788 | .021 |
| a. Exact statistic   |                    |      |                    |       |         |      |      |
| c. The statistic is an upper bound on F that yields a lower bound on the significance level. |                    |      |                    |       |         |      |      |
| d. Design: Intercept + Musiccond + SocDem_1_MaleOrFemale + Musiccond * SocDem_1_MaleOrFemale |                    |      |                    |       |         |      |      |

| Multivariate Tests <sup>d</sup> |                    |                    |                             |
|---------------------------------|--------------------|--------------------|-----------------------------|
| Effect                          |                    | Noncent. Parameter | Observed Power <sup>b</sup> |
| Intercept                       | Pillai's Trace     | 366.657            | 1.000                       |
|                                 | Wilks' Lambda      | 366.657            | 1.000                       |
|                                 | Hotelling's Trace  | 366.657            | 1.000                       |
|                                 | Roy's Largest Root | 366.657            | 1.000                       |
| Musiccond                       | Pillai's Trace     | 16.351             | .817                        |
|                                 | Wilks' Lambda      | 16.173             | .812                        |

|                                   |                    |        |      |
|-----------------------------------|--------------------|--------|------|
|                                   | Hotelling's Trace  | 15.995 | .806 |
|                                   | Roy's Largest Root | 9.742  | .674 |
| SocDem_1_MaleOrFemale             | Pillai's Trace     | 2.634  | .206 |
|                                   | Wilks' Lambda      | 2.634  | .206 |
|                                   | Hotelling's Trace  | 2.634  | .206 |
|                                   | Roy's Largest Root | 2.634  | .206 |
| Musiccond * SocDem_1_MaleOrFemale | Pillai's Trace     | 2.319  | .141 |
|                                   | Wilks' Lambda      | 2.294  | .140 |
|                                   | Hotelling's Trace  | 2.269  | .139 |
|                                   | Roy's Largest Root | 1.714  | .145 |

b. Computed using alpha = .05

d. Design: Intercept + Musiccond + SocDem\_1\_MaleOrFemale + Musiccond \* SocDem\_1\_MaleOrFemale

| Levene's Test of Equality of Error Variances <sup>a</sup>   |       |     |     |      |
|---|-------|-----|-----|------|
|   | F     | df1 | df2 | Sig. |
| E3_7_SG_ExtentYouFeltTender   | 3.944 | 5   | 82  | .003 |
| E3_14_SG_ExtentYouFeltAwestruck   | 1.783 | 5   | 82  | .125 |
| E3_15_SG_ExtentYouFeltDisappointed  | 2.633 | 5   | 82  | .029 |
| E3_21_SG_ExtentYouFeltAnticipation  | 1.523 | 5   | 82  | .192 |
| Tests the null hypothesis that the error variance of the dependent variable is equal across groups. |       |     |     |      |
| a. Design: Intercept + Musiccond + SocDem_1_MaleOrFemale + Musiccond * SocDem_1_MaleOrFemale        |       |     |     |      |

| Tests of Between-Subjects Effects |                                    |                         |    |             |         |      |                     |                    |                             |
|-----------------------------------|------------------------------------|-------------------------|----|-------------|---------|------|---------------------|--------------------|-----------------------------|
| Source                            | Dependent Variable                 | Type III Sum of Squares | df | Mean Square | F       | Sig. | Partial Eta Squared | Noncent. Parameter | Observed Power <sup>b</sup> |
| Corrected Model                   | E3_7_SG_ExtentYouFeltTender        | 51.171 <sup>a</sup>     | 5  | 10.234      | 1.171   | .330 | .067                | 5.855              | .397                        |
|                                   | E3_14_SG_ExtentYouFeltAwestruck    | 64.783 <sup>c</sup>     | 5  | 12.957      | 1.437   | .220 | .081                | 7.183              | .482                        |
|                                   | E3_15_SG_ExtentYouFeltDisappointed | 76.081 <sup>d</sup>     | 5  | 15.216      | 1.574   | .177 | .088                | 7.869              | .524                        |
|                                   | E3_21_SG_ExtentYouFeltAnticipation | 99.379 <sup>e</sup>     | 5  | 19.876      | 1.722   | .139 | .095                | 8.610              | .568                        |
| Intercept                         | E3_7_SG_ExtentYouFeltTender        | 725.954                 | 1  | 725.954     | 83.070  | .000 | .503                | 83.070             | 1.000                       |
|                                   | E3_14_SG_ExtentYouFeltAwestruck    | 634.926                 | 1  | 634.926     | 70.397  | .000 | .462                | 70.397             | 1.000                       |
|                                   | E3_15_SG_ExtentYouFeltDisappointed | 3.327E3                 | 1  | 3.327E3     | 344.103 | .000 | .808                | 344.103            | 1.000                       |
|                                   | E3_21_SG_ExtentYouFeltAnticipation | 1.110E3                 | 1  | 1.110E3     | 96.146  | .000 | .540                | 96.146             | 1.000                       |
| Musiccond                         | E3_7_SG_ExtentYouFeltTender        | 41.267                  | 2  | 20.633      | 2.361   | .101 | .054                | 4.722              | .465                        |
|                                   | E3_14_SG_ExtentYouFeltAwestruck    | 62.063                  | 2  | 31.032      | 3.441   | .037 | .077                | 6.881              | .630                        |
|                                   | E3_15_SG_ExtentYouFeltDisappointed | 58.911                  | 2  | 29.455      | 3.047   | .053 | .069                | 6.093              | .574                        |
|                                   | E3_21_SG_ExtentYouFeltAnticipation | 75.416                  | 2  | 37.708      | 3.267   | .043 | .074                | 6.533              | .606                        |
| SocDem_1_MaleOrFemale             | E3_7_SG_ExtentYouFeltTender        | 2.126                   | 1  | 2.126       | .243    | .623 | .003                | .243               | .078                        |



|                                      |                                    |         |    |        |       |      |      |       |      |
|--------------------------------------|------------------------------------|---------|----|--------|-------|------|------|-------|------|
|                                      | E3_14_SG_ExtentYouFeltAwestruck    | .660    | 1  | .660   | .073  | .787 | .001 | .073  | .058 |
|                                      | E3_15_SG_ExtentYouFeltDisappointed | 5.659   | 1  | 5.659  | .585  | .446 | .007 | .585  | .118 |
|                                      | E3_21_SG_ExtentYouFeltAnticipation | 12.674  | 1  | 12.674 | 1.098 | .298 | .013 | 1.098 | .179 |
| Musiccond *<br>SocDem_1_MaleOrFemale | E3_7_SG_ExtentYouFeltTender        | 6.902   | 2  | 3.451  | .395  | .675 | .010 | .790  | .112 |
|                                      | E3_14_SG_ExtentYouFeltAwestruck    | 2.708   | 2  | 1.354  | .150  | .861 | .004 | .300  | .072 |
|                                      | E3_15_SG_ExtentYouFeltDisappointed | 12.445  | 2  | 6.223  | .644  | .528 | .015 | 1.287 | .154 |
|                                      | E3_21_SG_ExtentYouFeltAnticipation | 9.349   | 2  | 4.675  | .405  | .668 | .010 | .810  | .113 |
| Error                                | E3_7_SG_ExtentYouFeltTender        | 716.601 | 82 | 8.739  |       |      |      |       |      |
|                                      | E3_14_SG_ExtentYouFeltAwestruck    | 739.580 | 82 | 9.019  |       |      |      |       |      |
|                                      | E3_15_SG_ExtentYouFeltDisappointed | 792.783 | 82 | 9.668  |       |      |      |       |      |
|                                      | E3_21_SG_ExtentYouFeltAnticipation | 946.518 | 82 | 11.543 |       |      |      |       |      |
| Total                                | E3_7_SG_ExtentYouFeltTender        | 1.478E3 | 88 |        |       |      |      |       |      |
|                                      | E3_14_SG_ExtentYouFeltAwestruck    | 1.416E3 | 88 |        |       |      |      |       |      |
|                                      | E3_15_SG_ExtentYouFeltDisappointed | 4.158E3 | 88 |        |       |      |      |       |      |
|                                      | E3_21_SG_ExtentYouFeltAnticipation | 2.145E3 | 88 |        |       |      |      |       |      |

|   |                                    |         |    |  |  |  |  |  |  |
|---|------------------------------------|---------|----|--|--|--|--|--|--|
| Corrected Total                                 | E3_7_SG_ExtentYouFeltTender        | 767.773 | 87 |  |  |  |  |  |  |
|   | E3_14_SG_ExtentYouFeltAwestruck    | 804.364 | 87 |  |  |  |  |  |  |
|   | E3_15_SG_ExtentYouFeltDisappointed | 868.864 | 87 |  |  |  |  |  |  |
|   | E3_21_SG_ExtentYouFeltAnticipation | 1.046E3 | 87 |  |  |  |  |  |  |
| a. R Squared = .067 (Adjusted R Squared = .010) |                                    |         |    |  |  |  |  |  |  |
| b. Computed using alpha = .05                   |                                    |         |    |  |  |  |  |  |  |
| c. R Squared = .081 (Adjusted R Squared = .024) |                                    |         |    |  |  |  |  |  |  |
| d. R Squared = .088 (Adjusted R Squared = .032) |                                    |         |    |  |  |  |  |  |  |
| e. R Squared = .095 (Adjusted R Squared = .040) |                                    |         |    |  |  |  |  |  |  |

## Estimated Marginal Means

| 1. Music Experiment Condition      |                            |       |            |                         |             |
|------------------------------------|----------------------------|-------|------------|-------------------------|-------------|
| Dependent Variable                 | Music Experiment Condition | Mean  | Std. Error | 95% Confidence Interval |             |
|                                    |                            |       |            | Lower Bound             | Upper Bound |
| E3_7_SG_ExtentYouFeltTender        | 1-Rock Music               | 1.938 | .523       | .898                    | 2.977       |
|                                    | 2-Classical Music          | 3.250 | .559       | 2.139                   | 4.361       |
|                                    | 3-No Music                 | 3.454 | .560       | 2.340                   | 4.568       |
| E3_14_SG_ExtentYouFeltAwestruck    | 1-Rock Music               | 1.531 | .531       | .475                    | 2.587       |
|                                    | 2-Classical Music          | 3.214 | .568       | 2.085                   | 4.343       |
|                                    | 3-No Music                 | 3.336 | .569       | 2.204                   | 4.468       |
| E3_15_SG_ExtentYouFeltDisappointed | 1-Rock Music               | 5.094 | .550       | 4.000                   | 6.187       |
|                                    | 2-Classical Music          | 7.036 | .588       | 5.867                   | 8.205       |
|                                    | 3-No Music                 | 6.369 | .589       | 5.197                   | 7.541       |
| E3_21_SG_ExtentYouFeltAnticipation | 1-Rock Music               | 2.938 | .601       | 1.743                   | 4.132       |
|                                    | 2-Classical Music          | 2.857 | .642       | 1.580                   | 4.134       |
|                                    | 3-No Music                 | 4.890 | .644       | 3.609                   | 6.170       |

| 2. SocDem_1_MaleOrFemale    |                       |    |       |            |
|-----------------------------|-----------------------|----|-------|------------|
| Dependent Variable          | SocDem_1_MaleOrFemale |    | Mean  | Std. Error |
|                             | dimensio              | n1 |       |            |
| E3_7_SG_ExtentYouFeltTender | 1-Male                |    | 3.036 | .441       |

|                                    |            |          |       |      |
|------------------------------------|------------|----------|-------|------|
|                                    |            | 2-Female | 2.725 | .452 |
| E3_14_SG_ExtentYouFeltAwestruck    | dimension1 | 1-Male   | 2.607 | .448 |
|                                    |            | 2-Female | 2.781 | .460 |
| E3_15_SG_ExtentYouFeltDisappointed | dimension1 | 1-Male   | 5.912 | .464 |
|                                    |            | 2-Female | 6.421 | .476 |
| E3_21_SG_ExtentYouFeltAnticipation | dimension1 | 1-Male   | 3.942 | .507 |
|                                    |            | 2-Female | 3.181 | .520 |

| 2. SocDem_1_MaleOrFemale           |                       |                         |             |       |
|------------------------------------|-----------------------|-------------------------|-------------|-------|
| Dependent Variable                 | SocDem_1_MaleOrFemale | 95% Confidence Interval |             |       |
|                                    |                       | Lower Bound             | Upper Bound |       |
| E3_7_SG_ExtentYouFeltTender        | dimension1            | 1-Male                  | 2.158       | 3.914 |
|                                    |                       | 2-Female                | 1.824       | 3.625 |
| E3_14_SG_ExtentYouFeltAwestruck    | dimension1            | 1-Male                  | 1.715       | 3.499 |
|                                    |                       | 2-Female                | 1.866       | 3.695 |
| E3_15_SG_ExtentYouFeltDisappointed | dimension1            | 1-Male                  | 4.988       | 6.835 |
|                                    |                       | 2-Female                | 5.474       | 7.367 |
| E3_21_SG_ExtentYouFeltAnticipation | dimension1            | 1-Male                  | 2.933       | 4.951 |
|                                    |                       | 2-Female                | 2.146       | 4.215 |

| 3. Music Experiment Condition * SocDem_1_MaleOrFemale |                            |                       |          |            |      |
|---|----------------------------|-----------------------|----------|------------|------|
| Dependent Variable                                    | Music Experiment Condition | SocDem_1_MaleOrFemale |          |            |      |
|   |                            |                       | Mean     | Std. Error |      |
| E3_7_SG_ExtentYouFeltTender                           | 1-Rock Music               | dimension2            | 1-Male   | 2.438      | .739 |
|   |                            |                       | 2-Female | 1.438      | .739 |
|   | 2-Classical Music          | dimension2            | 1-Male   | 3.071      | .790 |
|   |                            |                       | 2-Female | 3.429      | .790 |
|   | 3-No Music                 | dimension2            | 1-Male   | 3.600      | .763 |
|   |                            |                       | 2-Female | 3.308      | .820 |
| E3_14_SG_ExtentYouFeltAwestruck                       | 1-Rock Music               | dimension2            | 1-Male   | 1.687      | .751 |
|   |                            |                       | 2-Female | 1.375      | .751 |
|   | 2-Classical Music          | dimension2            | 1-Male   | 3.000      | .803 |
|   |                            |                       | 2-Female | 3.429      | .803 |
|   | 3-No Music                 | dimension2            | 1-Male   | 3.133      | .775 |
|   |                            |                       | 2-Female | 3.538      | .833 |
| E3_15_SG_ExtentYouFeltDisappointed                    | 1-Rock Music               | dimension2            | 1-Male   | 5.250      | .777 |
|   |                            |                       | 2-Female | 4.937      | .777 |
|   | 2-Classical Music          | dimension2            | 1-Male   | 6.286      | .831 |
|   |                            |                       | 2-Female | 7.786      | .831 |
|   | 3-No Music                 | dimension2            | 1-Male   | 6.200      | .803 |
|   |                            |                       | 2-Female | 6.538      | .862 |
| E3_21_SG_ExtentYouFeltAnticipation                    | 1-Rock Music               | dimension2            | 1-Male   | 3.750      | .849 |
|   |                            |                       | 2-Female | 2.125      | .849 |
|   | 2-Classical Music          | dimension2            | 1-Male   | 3.143      | .908 |

n2

|  |            |                |          |       |      |
|--|------------|----------------|----------|-------|------|
|  |            |                | 2-Female | 2.571 | .908 |
|  | 3-No Music | dimensio<br>n2 | 1-Male   | 4.933 | .877 |
|  |            |                | 2-Female | 4.846 | .942 |

| <b>3. Music Experiment Condition * SocDem_1_MaleOrFemale</b> |                            |                       |                         |             |             |
|--|----------------------------|-----------------------|-------------------------|-------------|-------------|
| Dependent Variable   | Music Experiment Condition | SocDem_1_MaleOrFemale | 95% Confidence Interval |             |             |
|  |                            |                       |                         | Lower Bound | Upper Bound |
| E3_7_SG_ExtentYouFeltTender                                  | 1-Rock Music               | dimensio<br>n2        | 1-Male                  | .967        | 3.908       |
|  |                            |                       | 2-Female                | -.033       | 2.908       |
|  | 2-Classical Music          | dimensio<br>n2        | 1-Male                  | 1.500       | 4.643       |
|  |                            |                       | 2-Female                | 1.857       | 5.000       |
|  | 3-No Music                 | dimensio<br>n2        | 1-Male                  | 2.082       | 5.118       |
|  |                            |                       | 2-Female                | 1.677       | 4.939       |
| E3_14_SG_ExtentYouFeltAwestruck                              | 1-Rock Music               | dimensio<br>n2        | 1-Male                  | .194        | 3.181       |
|  |                            |                       | 2-Female                | -.119       | 2.869       |
|  | 2-Classical Music          | dimensio<br>n2        | 1-Male                  | 1.403       | 4.597       |
|  |                            |                       | 2-Female                | 1.832       | 5.025       |
|  | 3-No Music                 | dimensio<br>n2        | 1-Male                  | 1.591       | 4.676       |
|  |                            |                       | 2-Female                | 1.881       | 5.195       |
| E3_15_SG_ExtentYouFeltDisappointed                           | 1-Rock Music               | dimensio<br>n2        | 1-Male                  | 3.704       | 6.796       |
|  |                            |                       | 2-Female                | 3.391       | 6.484       |
|  | 2-Classical Music          | dimensio<br>n2        | 1-Male                  | 4.633       | 7.939       |
|  |                            |                       | 2-Female                | 6.133       | 9.439       |
|  | 3-No Music                 | dimensio<br>n2        | 1-Male                  | 4.603       | 7.797       |
|  |                            |                       | 2-Female                | 4.823       | 8.254       |
| E3_21_SG_ExtentYouFeltAnticipation                           | 1-Rock Music               | dimensio<br>n2        | 1-Male                  | 2.060       | 5.440       |
|  |                            |                       | 2-Female                | .435        | 3.815       |
|  | 2-Classical Music          | dimensio<br>n2        | 1-Male                  | 1.337       | 4.949       |
|  |                            |                       | 2-Female                | .765        | 4.378       |
|  | 3-No Music                 | dimensio<br>n2        | 1-Male                  | 3.188       | 6.678       |
|  |                            |                       | 2-Female                | 2.972       | 6.721       |

## Post Hoc Tests

### Music Experiment Condition

| Multiple Comparisons               |         |                                |                                |                       |            |      |                         |             |
|------------------------------------|---------|--------------------------------|--------------------------------|-----------------------|------------|------|-------------------------|-------------|
| Dependent Variable                 |         | (I) Music Experiment Condition | (J) Music Experiment Condition | Mean Difference (I-J) | Std. Error | Sig. | 95% Confidence Interval |             |
|                                    |         |                                |                                |                       |            |      | Lower Bound             | Upper Bound |
| E3_7_SG_ExtentYouFeltTender        | Scheffe | 1-Rock Music                   | 2-Classical Music              | -1.31                 | .765       | .236 | -3.22                   | .59         |
|                                    |         |                                | 3-No Music                     | -1.53                 | .765       | .143 | -3.43                   | .38         |
|                                    |         | 2-Classical Music              | 1-Rock Music                   | 1.31                  | .765       | .236 | -.59                    | 3.22        |
|                                    |         |                                | 3-No Music                     | -.21                  | .790       | .964 | -2.18                   | 1.76        |
|                                    |         | 3-No Music                     | 1-Rock Music                   | 1.53                  | .765       | .143 | -.38                    | 3.43        |
|                                    |         |                                | 2-Classical Music              | .21                   | .790       | .964 | -1.76                   | 2.18        |
| E3_14_SG_ExtentYouFeltAwesome      | Scheffe | 1-Rock Music                   | 2-Classical Music              | -1.68                 | .777       | .102 | -3.62                   | .25         |
|                                    |         |                                | 3-No Music                     | -1.79                 | .777       | .076 | -3.73                   | .15         |
|                                    |         | 2-Classical Music              | 1-Rock Music                   | 1.68                  | .777       | .102 | -.25                    | 3.62        |
|                                    |         |                                | 3-No Music                     | -.11                  | .803       | .991 | -2.11                   | 1.89        |
|                                    |         | 3-No Music                     | 1-Rock Music                   | 1.79                  | .777       | .076 | -.15                    | 3.73        |
|                                    |         |                                | 2-Classical Music              | .11                   | .803       | .991 | -1.89                   | 2.11        |
| E3_15_SG_ExtentYouFeltDisappointed | Scheffe | 1-Rock Music                   | 2-Classical Music              | -1.94                 | .805       | .060 | -3.95                   | .06         |
|                                    |         |                                | 3-No Music                     | -1.26                 | .805       | .297 | -3.27                   | .74         |
|                                    |         | 2-Classical Music              | 1-Rock Music                   | 1.94                  | .805       | .060 | -.06                    | 3.95        |
|                                    |         |                                | 3-No Music                     | .68                   | .831       | .717 | -1.39                   | 2.75        |
|                                    |         | 3-No Music                     | 1-Rock Music                   | 1.26                  | .805       | .297 | -.74                    | 3.27        |
|                                    |         |                                | 2-Classical Music              | -.68                  | .831       | .717 | -2.75                   | 1.39        |
| E3_21_SG_ExtentYouFeltAnticipation | Scheffe | 1-Rock Music                   | 2-Classical Music              | .08                   | .879       | .996 | -2.11                   | 2.27        |
|                                    |         |                                | 3-No Music                     | -1.96                 | .879       | .091 | -4.15                   | .24         |
|                                    |         | 2-Classical Music              | 1-Rock Music                   | -.08                  | .879       | .996 | -2.27                   | 2.11        |
|                                    |         |                                | 3-No Music                     | -2.04                 | .908       | .087 | -4.30                   | .23         |
|                                    |         | 3-No Music                     | 1-Rock Music                   | 1.96                  | .879       | .091 | -.24                    | 4.15        |
|                                    |         |                                | 2-Classical Music              | 2.04                  | .908       | .087 | -.23                    | 4.30        |

| Multiple Comparisons               |         |                                |                                |                       |            |      |                         |             |
|------------------------------------|---------|--------------------------------|--------------------------------|-----------------------|------------|------|-------------------------|-------------|
| Dependent Variable                 |         | (I) Music Experiment Condition | (J) Music Experiment Condition | Mean Difference (I-J) | Std. Error | Sig. | 95% Confidence Interval |             |
|                                    |         |                                |                                |                       |            |      | Lower Bound             | Upper Bound |
| E3_7_SG_ExtentYouFeltTender        | Scheffe | 1-Rock Music                   | 2-Classical Music              | -1.31                 | .765       | .236 | -3.22                   | .59         |
|                                    |         |                                | 3-No Music                     | -1.53                 | .765       | .143 | -3.43                   | .38         |
|                                    |         | 2-Classical Music              | 1-Rock Music                   | 1.31                  | .765       | .236 | -.59                    | 3.22        |
|                                    |         |                                | 3-No Music                     | -.21                  | .790       | .964 | -2.18                   | 1.76        |
|                                    |         | 3-No Music                     | 1-Rock Music                   | 1.53                  | .765       | .143 | -.38                    | 3.43        |
|                                    |         |                                | 2-Classical Music              | .21                   | .790       | .964 | -1.76                   | 2.18        |
| E3_14_SG_ExtentYouFeltAwesome      | Scheffe | 1-Rock Music                   | 2-Classical Music              | -1.68                 | .777       | .102 | -3.62                   | .25         |
|                                    |         |                                | 3-No Music                     | -1.79                 | .777       | .076 | -3.73                   | .15         |
|                                    |         | 2-Classical Music              | 1-Rock Music                   | 1.68                  | .777       | .102 | -.25                    | 3.62        |
|                                    |         |                                | 3-No Music                     | -.11                  | .803       | .991 | -2.11                   | 1.89        |
|                                    |         | 3-No Music                     | 1-Rock Music                   | 1.79                  | .777       | .076 | -.15                    | 3.73        |
|                                    |         |                                | 2-Classical Music              | .11                   | .803       | .991 | -1.89                   | 2.11        |
| E3_15_SG_ExtentYouFeltDisappointed | Scheffe | 1-Rock Music                   | 2-Classical Music              | -1.94                 | .805       | .060 | -3.95                   | .06         |
|                                    |         |                                | 3-No Music                     | -1.26                 | .805       | .297 | -3.27                   | .74         |
|                                    |         | 2-Classical Music              | 1-Rock Music                   | 1.94                  | .805       | .060 | -.06                    | 3.95        |
|                                    |         |                                | 3-No Music                     | .68                   | .831       | .717 | -1.39                   | 2.75        |
|                                    |         | 3-No Music                     | 1-Rock Music                   | 1.26                  | .805       | .297 | -.74                    | 3.27        |
|                                    |         |                                | 2-Classical Music              | -.68                  | .831       | .717 | -2.75                   | 1.39        |
| E3_21_SG_ExtentYouFeltAnticipation | Scheffe | 1-Rock Music                   | 2-Classical Music              | .08                   | .879       | .996 | -2.11                   | 2.27        |
|                                    |         |                                | 3-No Music                     | -1.96                 | .879       | .091 | -4.15                   | .24         |
|                                    |         | 2-Classical Music              | 1-Rock Music                   | -.08                  | .879       | .996 | -2.27                   | 2.11        |
|                                    |         |                                | 3-No Music                     | -2.04                 | .908       | .087 | -4.30                   | .23         |
|                                    |         | 3-No Music                     | 1-Rock Music                   | 1.96                  | .879       | .091 | -.24                    | 4.15        |
|                                    |         |                                | 2-Classical Music              | 2.04                  | .908       | .087 | -.23                    | 4.30        |

Based on observed means.  
The error term is Mean Square(Error) = 11.543.

## Homogeneous Subsets

| <b>E3_7_SG_ExtentYouFeltTender</b>  |                            |    |        |
|---|----------------------------|----|--------|
|   | Music Experiment Condition | N  | Subset |
|   |                            |    | 1      |
| Tukey B <sup>a,b</sup>  | 1-Rock Music               | 32 | 1.94   |
|   | 2-Classical Music          | 28 | 3.25   |
|   | 3-No Music                 | 28 | 3.46   |
| Scheffe <sup>a,b</sup>  | 1-Rock Music               | 32 | 1.94   |
|   | 2-Classical Music          | 28 | 3.25   |
|   | 3-No Music                 | 28 | 3.46   |
|   | Sig.                       |    | .149   |
| Means for groups in homogeneous subsets are displayed.<br>Based on observed means.<br>The error term is Mean Square(Error) = 8.739. |                            |    |        |
| a. Uses Harmonic Mean Sample Size = 29.217.   |                            |    |        |
| b. Alpha = .05.   |                            |    |        |

| <b>E3_14_SG_ExtentYouFeltAwestruck</b>  |                            |    |        |
|---|----------------------------|----|--------|
|   | Music Experiment Condition | N  | Subset |
|   |                            |    | 1      |
| Tukey B <sup>a,b</sup>  | 1-Rock Music               | 32 | 1.53   |
|   | 2-Classical Music          | 28 | 3.21   |
|   | 3-No Music                 | 28 | 3.32   |
| Scheffe <sup>a,b</sup>  | 1-Rock Music               | 32 | 1.53   |
|   | 2-Classical Music          | 28 | 3.21   |
|   | 3-No Music                 | 28 | 3.32   |
|   | Sig.                       |    | .081   |
| Means for groups in homogeneous subsets are displayed.<br>Based on observed means.<br>The error term is Mean Square(Error) = 9.019. |                            |    |        |
| a. Uses Harmonic Mean Sample Size = 29.217.   |                            |    |        |
| b. Alpha = .05.   |                            |    |        |

| <b>E3_15_SG_ExtentYouFeltDisappointed</b> |                            |    |        |      |
|---|----------------------------|----|--------|------|
|   | Music Experiment Condition | N  | Subset |      |
|   |                            |    | 1      | 2    |
| Tukey B <sup>a,b</sup>                    | 1-Rock Music               | 32 | 5.09   |      |
|   | 3-No Music                 | 28 | 6.36   | 6.36 |

|                        |                   |    |      |      |
|------------------------|-------------------|----|------|------|
|                        | 2-Classical Music | 28 |      | 7.04 |
| Scheffe <sup>a,b</sup> | 1-Rock Music      | 32 | 5.09 |      |
|                        | 3-No Music        | 28 | 6.36 |      |
|                        | 2-Classical Music | 28 | 7.04 |      |
|                        | Sig.              |    | .064 |      |

Means for groups in homogeneous subsets are displayed.

Based on observed means.

The error term is Mean Square(Error) = 9.668.

a. Uses Harmonic Mean Sample Size = 29.217.

b. Alpha = .05.

| <b>E3_21_SG_ExtentYouFeltAnticipation</b> |                            |    |          |
|---|----------------------------|----|----------|
|   | Music Experiment Condition | N  | Subset 1 |
| Tukey B <sup>a,b,c</sup>                  | 2-Classical Music          | 28 | 2.86     |
|   | 1-Rock Music               | 32 | 2.94     |
|   | 3-No Music                 | 28 | 4.89     |
| Scheffe <sup>a,b,c</sup>                  | 2-Classical Music          | 28 | 2.86     |
|   | 1-Rock Music               | 32 | 2.94     |
|   | 3-No Music                 | 28 | 4.89     |
|   | Sig.                       |    | .079     |

Means for groups in homogeneous subsets are displayed.

Based on observed means.

The error term is Mean Square(Error) = 11.543.

a. Uses Harmonic Mean Sample Size = 29.217.

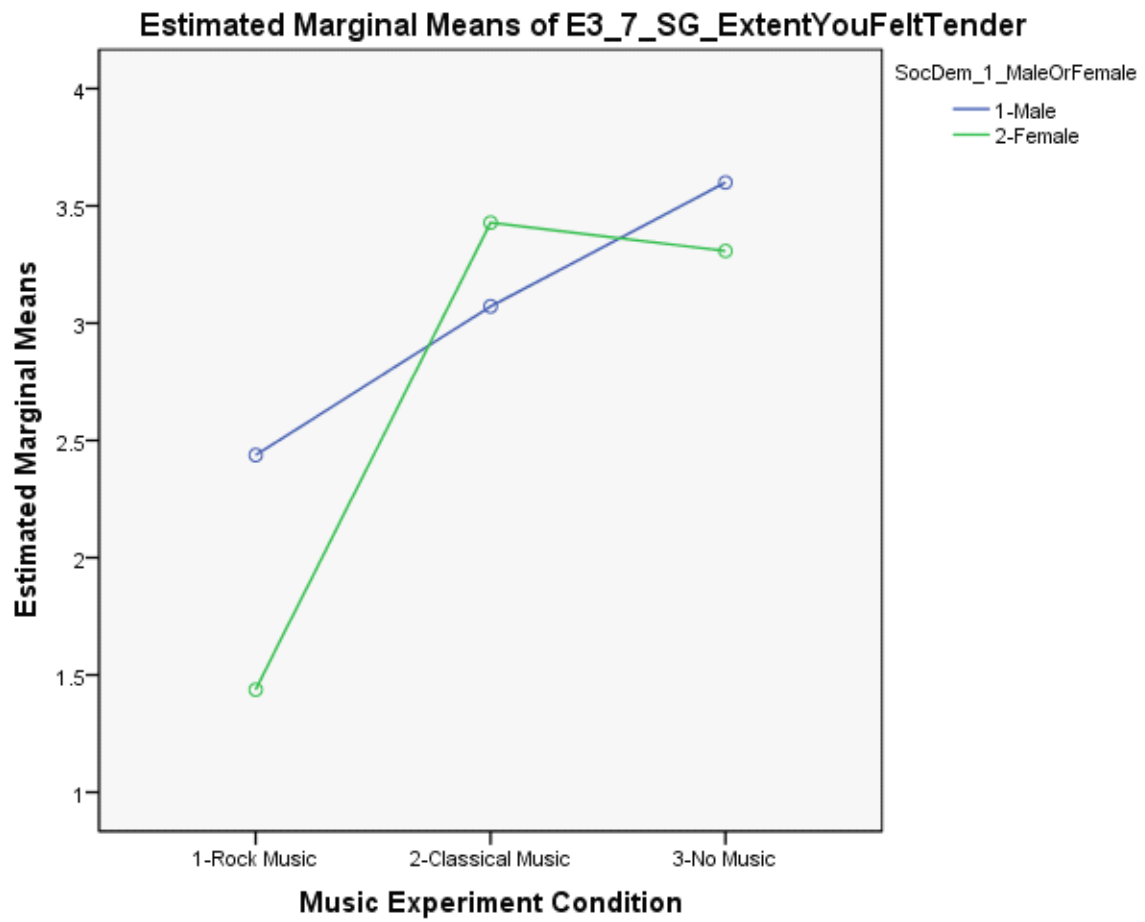
b. The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.

c. Alpha = .05.

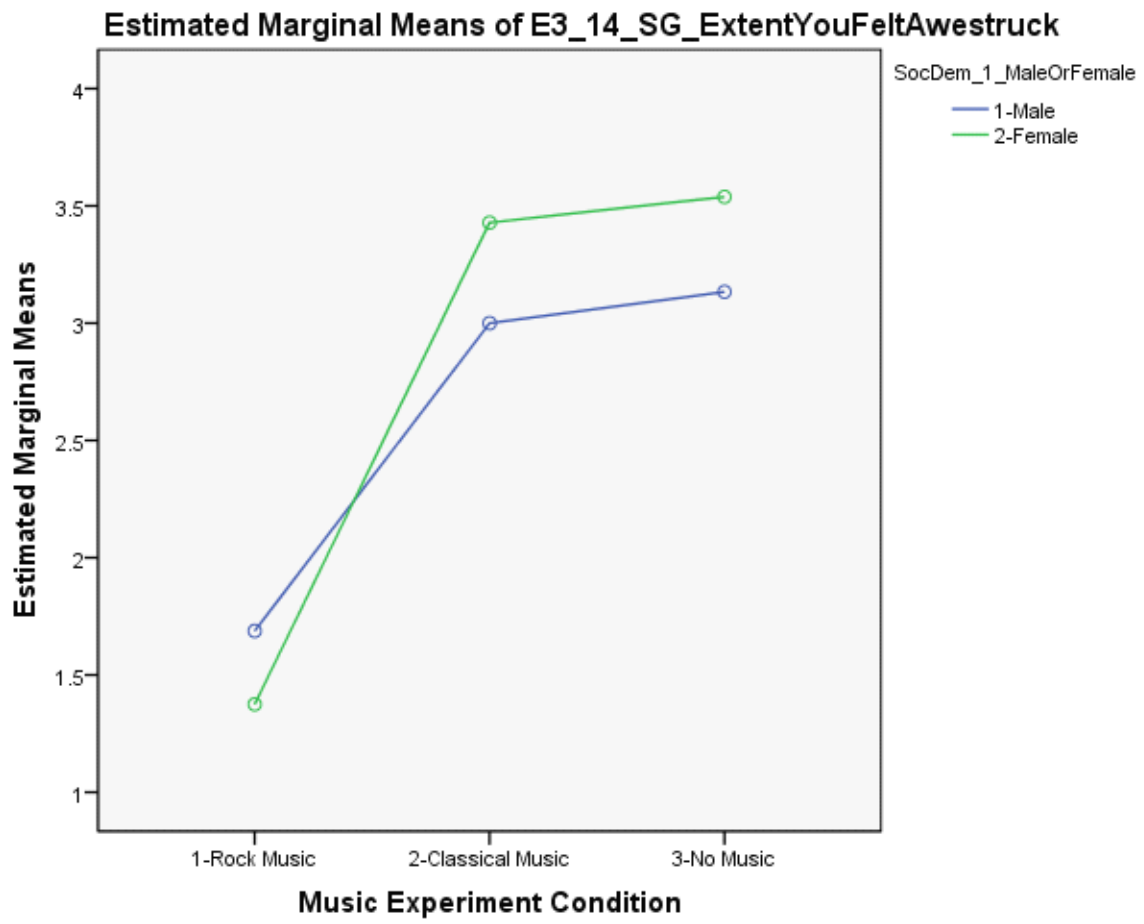


## Profile Plots

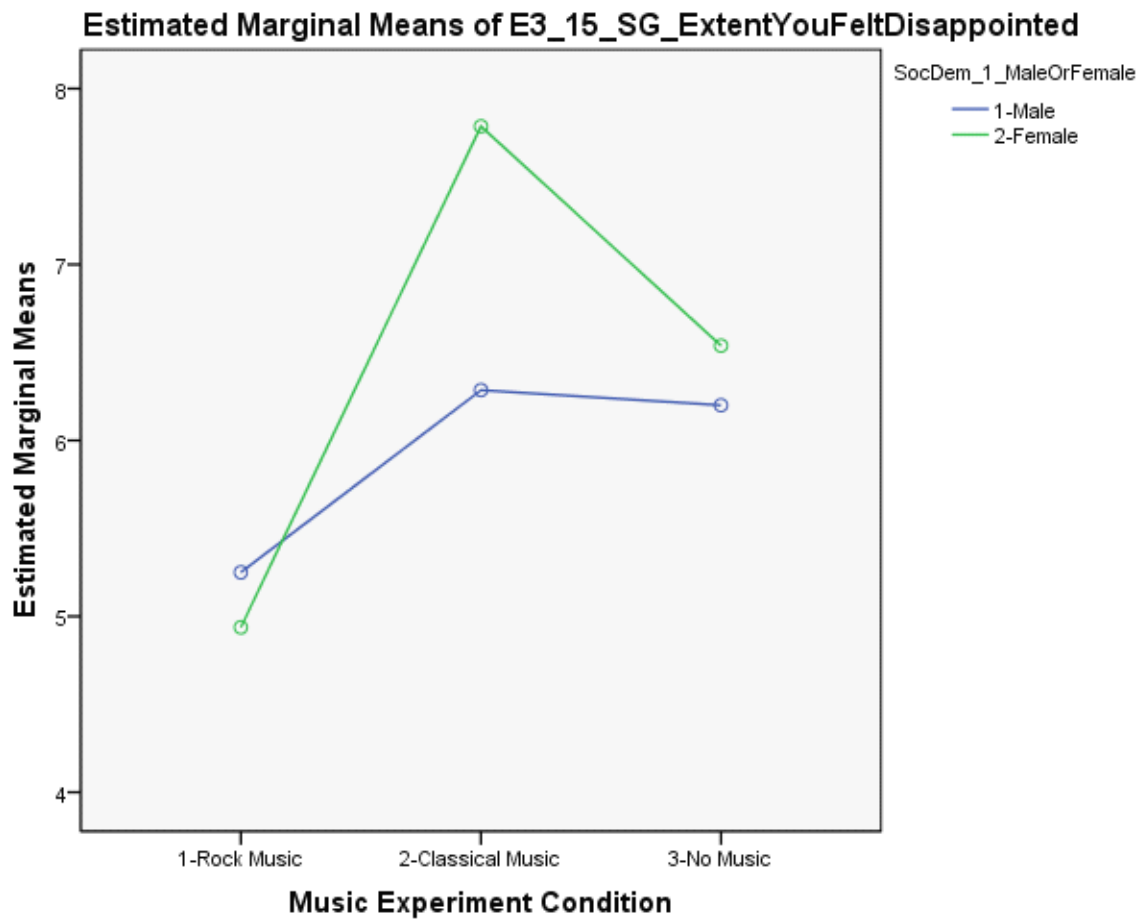
### E3\_7\_SG\_ExtentYouFeltTender



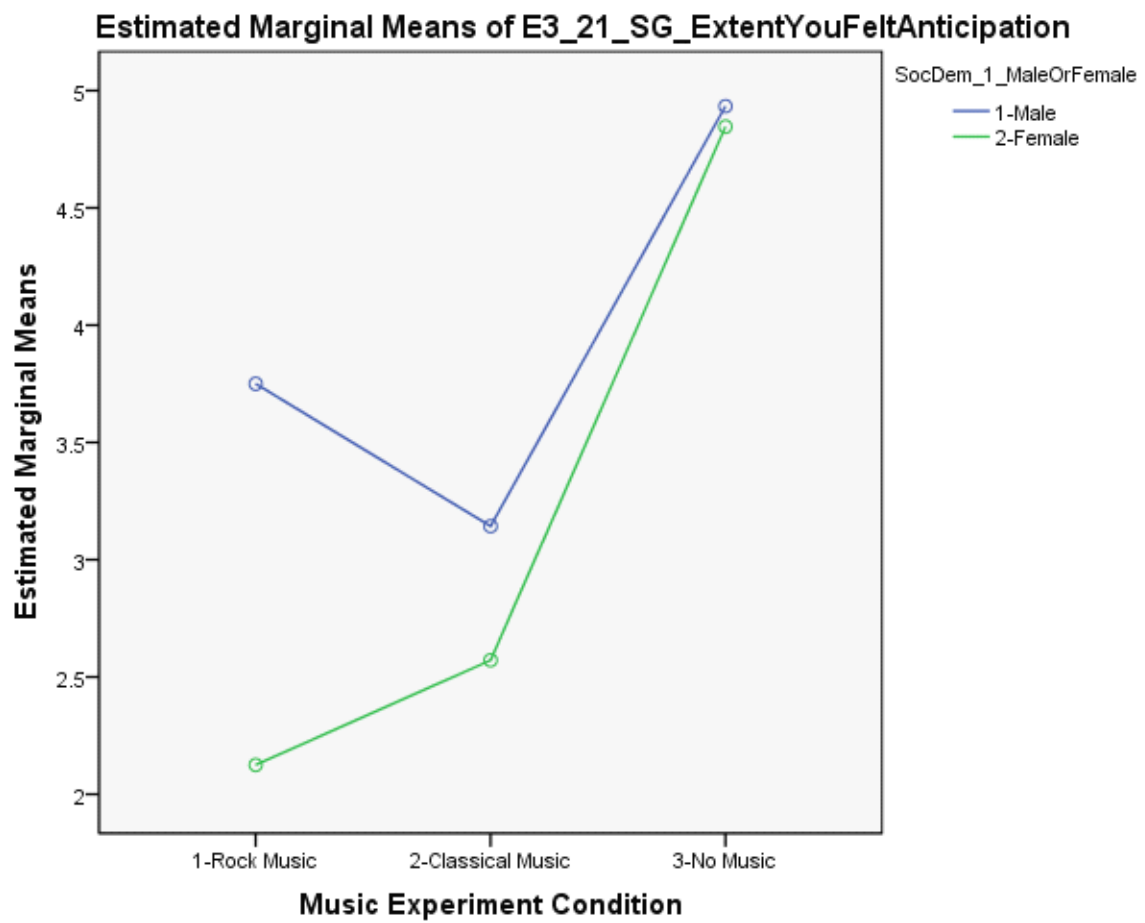
## E3\_14\_SG\_ExtentYouFeltAwestruck



### E3\_15\_SG\_ExtentYouFeltDisappointed



## E3\_21\_SG\_ExtentYouFeltAnticipation



## IV. TABLING RESULTS

**Table 1 Multivariate Tests for MANOVA**

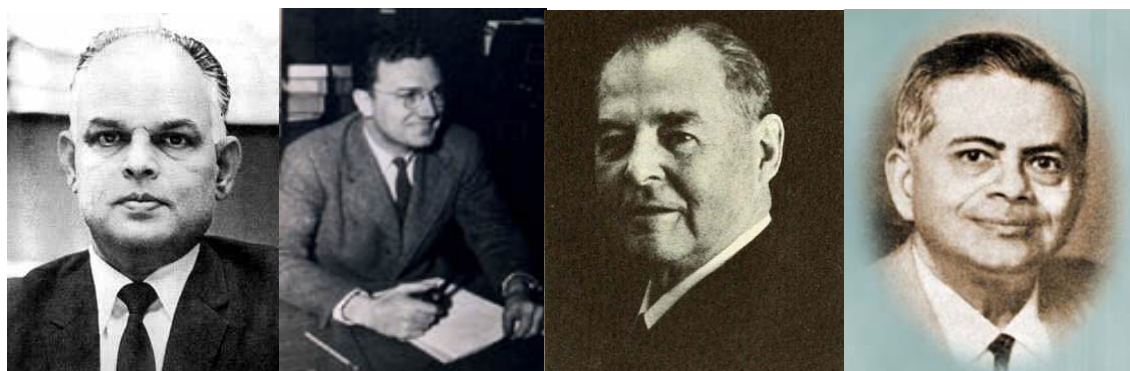
| Effect   |                           | Value       | F-Value                  | Sig.        | Observed Power |
|--|---------------------------|-------------|--------------------------|-------------|----------------|
| <b>Music Condition<br/>(main effect)</b>         | <b>Pillai's Trace</b>     | <b>.185</b> | <b>2.044</b>             | <b>.044</b> | <b>.817</b>    |
|  | <b>Wilks' Lambda</b>      | <b>.823</b> | <b>2.022<sup>a</sup></b> | <b>.047</b> | <b>.812</b>    |
|  | <b>Hotelling's Trace</b>  | <b>.205</b> | <b>1.999</b>             | <b>.050</b> | <b>.806</b>    |
|  | <b>Roy's Largest Root</b> | <b>.122</b> | <b>2.435<sup>c</sup></b> | <b>.054</b> | <b>.674</b>    |
| <b>Sex<br/>(main effect)</b>                     | <b>Pillai's Trace</b>     | <b>.032</b> | <b>.658<sup>a</sup></b>  | <b>.623</b> | <b>.206</b>    |
|  | <b>Wilks' Lambda</b>      | <b>.968</b> | <b>.658<sup>a</sup></b>  | <b>.623</b> | <b>.206</b>    |
|  | <b>Hotelling's Trace</b>  | <b>.033</b> | <b>.658<sup>a</sup></b>  | <b>.623</b> | <b>.206</b>    |
|  | <b>Roy's Largest Root</b> | <b>.033</b> | <b>.658<sup>a</sup></b>  | <b>.623</b> | <b>.206</b>    |
| <b>Music<br/>Condition*Sex(in<br/>teraction)</b> | <b>Pillai's Trace</b>     | <b>.029</b> | <b>.290</b>              | <b>.969</b> | <b>.141</b>    |
|  | <b>Wilks' Lambda</b>      | <b>.972</b> | <b>.287<sup>a</sup></b>  | <b>.970</b> | <b>.140</b>    |
|  | <b>Hotelling's Trace</b>  | <b>.029</b> | <b>.284</b>              | <b>.971</b> | <b>.139</b>    |
|  | <b>Roy's Largest Root</b> | <b>.021</b> | <b>.428<sup>c</sup></b>  | <b>.788</b> | <b>.145</b>    |

Rock Music(n=32) Classical Music(n=28) No Music(n=28)  
Male(n=45) Female(n=43)

a. Exact statistic

c. The statistic is an upper bound on F that yields a lower bound on the significance level.

b. Computed using alpha = .05



**ANOVA Tables that help interpret MANOVA results**

**Table 2**

**DV1:E3-7 Tender**

|                             | <b>Means</b> | <b>Sum of Squares</b> | <b>Df</b> | <b>Mean Square</b> | <b>F</b>     | <b>Sig.</b> | <b>Power</b> |
|-----------------------------|--------------|-----------------------|-----------|--------------------|--------------|-------------|--------------|
| <b>Music Condition</b>      |              | <b>41.267</b>         | <b>2</b>  | <b>20.633</b>      | <b>2.361</b> | <b>.101</b> | <b>.465</b>  |
| <b>1=Rock Music</b>         | <b>1.94</b>  |                       |           |                    |              |             |              |
| <b>2=Classical Music</b>    | <b>3.25</b>  |                       |           |                    |              |             |              |
| <b>3=No Music</b>           | <b>3.46</b>  |                       |           |                    |              |             |              |
| <b>Sex</b>                  |              | <b>2.126</b>          | <b>1</b>  | <b>2.126</b>       | <b>.243</b>  | <b>.623</b> | <b>.078</b>  |
| <b>1=Male</b>               | <b>3.02</b>  |                       |           |                    |              |             |              |
| <b>2=Female</b>             | <b>2.65</b>  |                       |           |                    |              |             |              |
| <b>Music Condition* Sex</b> | <b>-</b>     | <b>6.902</b>          | <b>2</b>  | <b>3.451</b>       | <b>.395</b>  | <b>.675</b> | <b>.112</b>  |
| <b>Error</b>                | <b>-</b>     | <b>716.601</b>        | <b>82</b> | <b>8.739</b>       | <b>-</b>     | <b>-</b>    | <b>-</b>     |
| <b>Corrected Total</b>      | <b>-</b>     | <b>767.773</b>        | <b>87</b> | <b>-</b>           | <b>-</b>     | <b>-</b>    | <b>-</b>     |

**Table 3****DV2:E3-14 Awestruck**

|                             | <b>Means</b> | <b>Sum of Squares</b> | <b>Df</b> | <b>Mean Square</b> | <b>F</b>     | <b>Sig.</b> | <b>Power</b> |
|-----------------------------|--------------|-----------------------|-----------|--------------------|--------------|-------------|--------------|
| <b>Music Condition</b>      |              | <b>62.063</b>         | <b>2</b>  | <b>31.032</b>      | <b>3.441</b> | <b>.037</b> | <b>.630</b>  |
| <b>1=Rock Music</b>         | <b>1.53</b>  |                       |           |                    |              |             |              |
| <b>2=Classical Music</b>    | <b>3.21</b>  |                       |           |                    |              |             |              |
| <b>3=No Music</b>           | <b>3.32</b>  |                       |           |                    |              |             |              |
| <b>Sex</b>                  |              | <b>.660</b>           | <b>1</b>  | <b>.660</b>        | <b>.073</b>  | <b>.787</b> | <b>.058</b>  |
| <b>1=Male</b>               | <b>2.58</b>  |                       |           |                    |              |             |              |
| <b>2=Female</b>             | <b>2.70</b>  |                       |           |                    |              |             |              |
| <b>Music Condition* Sex</b> | <b>-</b>     | <b>2.708</b>          | <b>2</b>  | <b>1.354</b>       | <b>.150</b>  | <b>.861</b> | <b>.072</b>  |
| <b>Error</b>                | <b>-</b>     | <b>739.580</b>        | <b>82</b> | <b>9.019</b>       | <b>-</b>     | <b>-</b>    | <b>-</b>     |
| <b>Corrected Total</b>      | <b>-</b>     | <b>804.364</b>        | <b>87</b> | <b>-</b>           | <b>-</b>     | <b>-</b>    | <b>-</b>     |

**Table 4****DV3:E3-15 Disappointed**

|                             | <b>Means</b> | <b>Sum of Squares</b> | <b>Df</b> | <b>Mean Square</b> | <b>F</b>     | <b>Sig.</b> | <b>Power</b> |
|-----------------------------|--------------|-----------------------|-----------|--------------------|--------------|-------------|--------------|
| <b>Music Condition</b>      |              | <b>58.911</b>         | <b>2</b>  | <b>29.455</b>      | <b>3.047</b> | <b>.053</b> | <b>.574</b>  |
| <b>1=Rock Music</b>         | <b>5.09</b>  |                       |           |                    |              |             |              |
| <b>2=Classical Music</b>    | <b>7.04</b>  |                       |           |                    |              |             |              |
| <b>3=No Music</b>           | <b>6.36</b>  |                       |           |                    |              |             |              |
| <b>Sex</b>                  |              | <b>5.659</b>          | <b>1</b>  | <b>5.659</b>       | <b>.585</b>  | <b>.446</b> | <b>.118</b>  |
| <b>1=Male</b>               | <b>5.89</b>  |                       |           |                    |              |             |              |
| <b>2=Female</b>             | <b>6.35</b>  |                       |           |                    |              |             |              |
| <b>Music Condition* Sex</b> | <b>-</b>     | <b>12.445</b>         | <b>2</b>  | <b>6.223</b>       | <b>.644</b>  | <b>.528</b> | <b>.154</b>  |
| <b>Error</b>                | <b>-</b>     | <b>792.783</b>        | <b>82</b> | <b>9.668</b>       | <b>-</b>     | <b>-</b>    | <b>-</b>     |
| <b>Corrected Total</b>      | <b>-</b>     | <b>868.864</b>        | <b>87</b> | <b>-</b>           | <b>-</b>     | <b>-</b>    | <b>-</b>     |



**Table 5****DV4:E3-21 Anticipation**

|                             | <b>Means</b> | <b>Sum of Squares</b> | <b>Df</b> | <b>Mean Square</b> | <b>F</b>     | <b>Sig.</b> | <b>Power</b> |
|-----------------------------|--------------|-----------------------|-----------|--------------------|--------------|-------------|--------------|
| <b>Music Condition</b>      |              | <b>75.416</b>         | <b>2</b>  | <b>37.708</b>      | <b>3.267</b> | <b>.043</b> | <b>.606</b>  |
| <b>1=Rock Music</b>         | <b>2.94</b>  |                       |           |                    |              |             |              |
| <b>2=Classical Music</b>    | <b>2.86</b>  |                       |           |                    |              |             |              |
| <b>3=No Music</b>           | <b>4.89</b>  |                       |           |                    |              |             |              |
| <b>Sex</b>                  |              | <b>12.674</b>         | <b>1</b>  | <b>12.674</b>      | <b>1.098</b> | <b>.298</b> | <b>.179</b>  |
| <b>1=Male</b>               | <b>3.96</b>  |                       |           |                    |              |             |              |
| <b>2=Female</b>             | <b>3.09</b>  |                       |           |                    |              |             |              |
| <b>Music Condition* Sex</b> | <b>-</b>     | <b>9.349</b>          | <b>2</b>  | <b>4.675</b>       | <b>.405</b>  | <b>.668</b> | <b>.113</b>  |
| <b>Error</b>                | <b>-</b>     | <b>946.518</b>        | <b>82</b> | <b>11.543</b>      | <b>-</b>     | <b>-</b>    | <b>-</b>     |
| <b>Corrected Total</b>      | <b>-</b>     | <b>1045.898</b>       | <b>87</b> | <b>-</b>           | <b>-</b>     | <b>-</b>    | <b>-</b>     |

## V. WRITE-UP OF RESULTS

Four dependent variables were chosen from Music and Film Experiment 2011 (Neuendorf et al.) data set that all had significant intercorrelations at  $p < .05$ , and a significant Bartlett's test at  $p < .001$ .

Feeling Tender (E3\_7\_SG\_Extent You Felt Tender)

Feeling Awesome (E3\_14\_SG\_Extent You Felt Awestruck)

Feeling Disappointed (E3\_15\_SG\_Extent You Felt Disappointed)

Feeling Anticipation (E3\_21\_SG\_Extent You Felt Anticipation)

Box's M tests for homoscedasticity, M should be nonsignificant. For these variables, Box's M test had a significance of .825. This indicates its nonsignificance (greater than  $>0.05$ ), confirming the homogeneity of the variance/covariances matrices across groups.

The multivariate tests in Table 1 showed that Music Condition had a significant effect on the set of dependent variables (Pillai's Trace  $p=.044$ , Wilks' Lambda  $p=.047$ , Hotelling's Trace  $p=.050$ , Roy's Largest Root  $p=.054$ ). Sex had a non-significant effect (Pillai's Trace, Wilks' Lambda, Hotelling's Trace, and Roy's Largest Root all  $p=.623$ ). The interaction effect was shown have a non-significant effect. Because of this significance, near significance and non-significance from the multivariate tests, we further examined the individual ANOVA tests.

Music Condition significantly affected two DVs, E3-14 Extent You Felt Awestruck ( $p=.037$ ). The Rock Music group had the lowest mean on the extent you felt awestruck ( $M=1.53$ ), followed by Classical Music ( $M=3.21$ ), and finally No Music ( $M=3.32$ ). Music Condition with regard to E3-21 Extent You Felt Anticipation ( $p=.043$ ). Classical Music had the lowest mean ( $M=2.86$ ), followed by Rock Music ( $M=2.94$ ), and finally No Music ( $M=4.89$ ). Music Condition had a near significant impact on E3-15 Extent You Felt Disappointed ( $p=.053$ ). The lowest mean was for Rock Music ( $M=5.09$ ), followed by No

Music (M=6.36), and finally Classical Music (M=7.04).

It should be noted, that in post hoc tests (using both Tukey's-b and Scheffe's), found no significant pairwise differences for Music Condition.

Thus, we find that when controlling for Sex, Music Condition (Rock vs. Classical vs. No Music) has an impact on people's emotions when they watch a short film. The No Music condition seemed to experience higher levels of emotion, except for disappointed, in which case the Classical Music condition had the highest level. The Rock Music condition had the lowest levels of emotion, except for anticipation.