

Statistical Analysis Details for the Experiments

Software Package

To analyze the data software package R studio , version 3.2.4 was used.

Packages used in R-Stuido:

- 'MASS', 'car', and 'lfe' (Linear Group Fixed Effects)
- For drawing the plots packages 'gplots', 'ggplot2', 'RColorBrewer', and 'reshape2' were used.

Functions Used in the Analysis:

- `lm(X,Y)` was used to run a linear regression of Y on X where Y is your dependent variable and X is your independent variable.
- `felm` was used to run a fixed effect linear regression to control for the individual effect. Thus, my models take the form: `model <- felm(DV ~ IV1+ IV2+G(as.factor(ind)), data=myData)`
- `plot(X,Y)` was used to produce a scatterplot of the variables X and Y with X on the x-axis and Y on the y-axis.
- `summary()` command was used to get the regression coefficients and other info needed.

Assumptions before Running the Models

IV= Independent Variable & DV=Dependant Variable

- ✓ Linearity of residuals, homoscedasticity
 - A scatter plot of residuals and fitted values (y) was used to evaluate the linearity and homoscedasticity. Y values were taken on the vertical y axis, and standardized residuals were then plotted on the horizontal x axis. Standardized residuals were between -1.5 and 1.5. The errors had constant variance, with the residuals scattered randomly around zero for all the regression models thus homoscedasticity was met as well.
- ✓ Normal distribution of residuals

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- The residuals were normally distributed. The QQ-Plot was used to compare the residuals to "ideal" normal observations. Observations lie well along the 45-degree line in the QQ-plot, so the normality held.
- ✓ Autocorrelation or Independence of residuals
 - In my model, there was no systematic relationship btw consecutive error terms (Serial correlation). Thus, the test withholds because data is individual level (not time series).
- ✓ Multi-collinearity
 - There were no high correlation btw pairs of IVs, and IVs were independent. I used correlation function or both `cor()` and Variance Inflation Factor (VIF) to test that which both showed there were not high correlation between the IVs.
- ✓ Linear relationship of IVs and DVs
 - The relationship between IVs and DVs were linear. I tested this using scatter plots.

Full "R" Results

Uploading data into R-Studio from csv files:

```
R version 3.2.4 Revised (2016-03-16 r70336) -- "Very Secure Dishes"
Copyright (C) 2016 The R Foundation for Statistical Computing
Platform: x86_64-w64-mingw32/x64 (64-bit)
> require(MASS)
> require(car)
> require(lfe)

> setwd(path.expand("C:/Users/Maryam/Desktop/0-method/analysis"))
> getwd()

> data_e =read.csv("data_e.csv",header=T ,sep="," , stringsAsFactors=FALSE)
> data_s =read.csv("data_s.csv",header=T ,sep="," , stringsAsFactors=FALSE)
> data_o =read.csv("data_o.csv",header=T ,sep="," , stringsAsFactors=FALSE)
> data_c =read.csv("data_c.csv",header=T ,sep="," , stringsAsFactors=FALSE)
> data_a =read.csv("data_a.csv",header=T ,sep="," , stringsAsFactors=FALSE)
> data_d =read.csv("data_d.csv",header=T ,sep="," , stringsAsFactors=FALSE)
> data_pr =read.csv("data_presence.csv",header=T ,sep="," , stringsAsFactors=FALSE)
> data_vl =read.csv("data_vl.csv",header=T ,sep="," , stringsAsFactors=FALSE)
> data_ar =read.csv("data_ar.csv",header=T ,sep="," , stringsAsFactors=FALSE)
```

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1. Linear regression for perception of **valence** (Vscore by participants) from intended **valence** (v):

```
Residuals:
    Min       1Q   Median       3Q      Max
-2.1111 -0.6194 -0.1111  0.4389  2.2972

Coefficients:
              Estimate Std. Error t value Pr(>|t|)
(Intercept)  2.14444    0.06174   34.733 < 2e-16 ***
V            0.70833    0.05347   13.248 < 2e-16 ***
A           -0.01667    0.05347   -0.312  0.75563
V:A          -0.25000    0.09261   -2.699  0.00762 **
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 0.8283 on 176 degrees of freedom
(713 observations deleted due to missingness)
Multiple R-squared:  0.5096,    Adjusted R-squared:  0.5012
F-statistic: 60.96 on 3 and 176 DF,  p-value: < 2.2e-16
```

2. Linear regression for perception of **arousal** (Ascore by participants) from intended **arousal** (A) :

```
Residuals:
    Min       1Q   Median       3Q      Max
-2.2306 -0.8191 -0.1222  0.7986  2.0653

Coefficients:
              Estimate Std. Error t value Pr(>|t|)
(Intercept)  2.12222    0.07443   28.514 < 2e-16 ***
V            0.32917    0.06446    5.107 8.46e-07 ***
A            0.55417    0.06446    8.598 4.33e-15 ***
V:A          0.03750    0.11164    0.336  0.737
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 0.9986 on 176 degrees of freedom
(90 observations deleted due to missingness)
Multiple R-squared:  0.3626,    Adjusted R-squared:  0.3517
F-statistic: 33.37 on 3 and 176 DF,  p-value: < 2.2e-16
```

3. Linear regression for perception of **extroversion** (E.score by participants) from intended **Extroversion** (E), for **experiment 1** :

```
Residuals:
    Min       1Q   Median       3Q      Max
-3.4076 -0.8161  0.0263  0.8130  3.1576

Coefficients:
```

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	Estimate	Std. Error	t value	Pr(> t)
E	1.08696	0.22563	4.817	2.53e-06 ***
S	-0.27536	0.20181	-1.364	0.1737
FA	-0.32065	0.21405	-1.498	0.1354
E:S	-0.02174	0.28540	-0.076	0.9393
E:FA	0.78261	0.30271	2.585	0.0103 *

 Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 1.183 on 249 degrees of freedom
 Multiple R-squared(full model): **0.3626** Adjusted R-squared: 0.2961
 F-statistic(full model):5.448 on 26 and 249 DF, p-value: 1.464e-13
 F-statistic(proj model): **19.74** on 5 and 248 DF, p-value: < 2.2e-16

4. Linear regression for perception of **emotional stability** (S.score by participants) from intended **emotional stability** (S), for **experiment 1** :

Residuals:

Min	1Q	Median	3Q	Max
-3.5489	-0.7101	-0.1304	0.7038	3.8297

Coefficients:

	Estimate	Std. Error	t value	Pr(> t)
S	1.332e+00	2.243e-01	5.937	9.74e-09 ***
E	-2.138e-16	2.006e-01	0.000	1.0000
FA	-2.989e-01	2.128e-01	-1.405	0.1613
S:E	6.304e-01	2.837e-01	2.222	0.0272 *
S:FA	6.359e-01	3.009e-01	2.113	0.0356 *

 Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 1.176 on 249 degrees of freedom
 Multiple R-squared(full model): **0.5282** Adjusted R-squared: 0.4789
 F-statistic(full model):10.72 on 26 and 249 DF, p-value: < 2.2e-16
 F-statistic(proj model): **37.21** on 5 and 248 DF, p-value: < 2.2e-16

5. Linear regression for perception of **extroversion** (E.score by participants) from intended **extroversion** (E), for **experiment 2** :

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Residuals:

	Min	1Q	Median	3Q	Max
	-2.4592	-0.7591	0.0435	0.7552	4.1304

Coefficients:

	Estimate	Std. Error	t value	Pr(> t)
E	1.2582	0.1516	8.302	9.62e-16 ***
S	-0.2500	0.1356	-1.844	0.0657 .
FA	-0.2147	0.1438	-1.493	0.1360
E:S	0.2174	0.1917	1.134	0.2573
E:FA	0.8234	0.2033	4.049	5.95e-05 ***

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 1.125 on 502 degrees of freedom

Multiple **R-squared(full model): 0.4497** Adjusted R-squared: 0.396

F-statistic(full model):8.371 on 49 and 502 DF, p-value: < 2.2e-16

F-statistic(proj model): 63.36 on 5 and 501 DF, p-value: < 2.2e-16

6. Linear regression for perception of **emotional stability** (S.score by participants) from **intended emotional stability (S)**, for experiment 2:

Residuals:

	Min	1Q	Median	3Q	Max
	-3.7319	-0.8478	0.0005	0.7903	4.8406

Coefficients:

	Estimate	Std. Error	t value	Pr(> t)
S	1.4846	0.1718	8.641	< 2e-16 ***
E	0.2355	0.1537	1.533	0.12600
FA	0.6603	0.1630	4.051	5.9e-05 ***
S:E	0.3623	0.2173	1.667	0.09609 .
S:FA	0.6984	0.2305	3.030	0.00257 **

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 1.275 on 502 degrees of freedom

Multiple **R-squared(full model): 0.4516** Adjusted R-squared: 0.3981

F-statistic(full model):8.437 on 49 and 502 DF, p-value: < 2.2e-16

F-statistic(proj model): 67.85 on 5 and 501 DF, p-value: < 2.2e-16

7. Linear regression for perception of **extroversion** (E.score by participants) from **intended extroversion(E)**, for experiment 3:

Residuals:

	Min	1Q	Median	3Q	Max
	-1.98171	-0.48780	-0.05183	0.52134	2.88720

Coefficients:

	Estimate	Std. Error	t value	Pr(> t)
E	2.92683	0.20838	14.046	<2e-16 ***
S	0.06098	0.20838	0.293	0.770
E:S	-0.18293	0.29470	-0.621	0.536

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Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 0.9396 on 121 degrees of freedom

Multiple R-squared(full model): **0.7781** Adjusted R-squared: 0.701

F-statistic(full model): 10.1 on 42 and 121 DF, p-value: < 2.2e-16

F-statistic(proj model): **123.6** on 3 and 120 DF, p-value: < 2.2e-16

8. Linear regression for perception of **emotional stability** (S.score by participants) from intended **emotional stability** (S), for **experiment 3** :

Residuals:

	Min	1Q	Median	3Q	Max
	-3.3933	-0.6867	0.0427	0.6951	2.6555

Coefficients:

	Estimate	Std. Error	t value	Pr(> t)
S	2.56098	0.24569	10.42	<2e-16 ***
E	0.01220	0.24569	0.05	0.960
S:E	0.02439	0.34746	0.07	0.944

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 1.108 on 121 degrees of freedom

Multiple R-squared(full model): **0.7014** Adjusted R-squared: 0.5977

F-statistic(full model): 6.766 on 42 and 121 DF, p-value: < 2.2e-16

F-statistic(proj model): **73.13** on 3 and 120 DF, p-value: < 2.2e-16

9. Linear regression for perception of **agreeableness** (A.score by participants) from intended **emotional stability** (S), for **experiment 3** :

Residuals:

	Min	1Q	Median	3Q	Max
	-2.7439	-1.0244	0.1158	0.8201	2.6006

Coefficients:

	Estimate	Std. Error	t value	Pr(> t)
S	0.71951	0.30302	2.374	0.0192 *
E	-0.06098	0.30302	-0.201	0.8409
S:E	0.46341	0.42854	1.081	0.2817

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 1.366 on 121 degrees of freedom

Multiple R-squared(full model): **0.2997** Adjusted R-squared: 0.05664

F-statistic(full model): 1.233 on 42 and 121 DF, p-value: 0.1898

F-statistic(proj model): **7.171** on 3 and 120 DF, p-value: **0.0001807**