

Multidimensional Scaling Presentation

Spring 2009

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Social Networking

Facebook

MySpace

Instant Messaging

Email

Youtube

Text Messaging

Twitter

Go to Data → Split File

This will give you separate analyses by a groups variable (e.g., gender)

Select “Compare Groups” and “Sort the file by grouping variables”

Click “OK”

The screenshot shows the SPSS Data Editor window with a data table and the Split File dialog box open. The data table has 16 columns and 12 rows of data. The Split File dialog box is configured to compare groups based on the variable 'Gender' and to sort the file by grouping variables.

	txt_fbook	fbook_youtube	youtube_email	email_mspace	mspace_tweet	tweet_im	txt_youtube	fbook_email	youtube_mspace	email_tweet	mspace_im	txt_email	fbook_mspace	youtube_tweet	email_im
1	69.00	75.00	75.00	35.00	50.00	10.00	75.00	15.00	74.00	49.00	75.00	15.00	10.00	95.00	20.00
2	99.00	99.00	100.00	88.00	20.00	1.00	100.00	30.00	88.00	40.00	40.00	10.00	.00	30.00	15.00
3	20.00	30.00	50.00	80.00	40.00	40.00	80.00	80.00	30.00	40.00	50.00	.00	20.00	60.00	.00
4	20.00	60.00	70.00	30.00	40.00	60.00	80.00	10.00	80.00	80.00	20.00	10.00	.00	90.00	.00
5	50.00	95.00	100.00	75.00	10.00	.00	100.00	40.00	100.00	10.00	20.00	20.00	.00	100.00	20.00
6	30.00	80.00	90.00	50.00	50.00	10.00	80.00	60.00	70.00	40.00	60.00	20.00	.00	60.00	30.00
7	100.00	50.00	100.00	100.00	100.00	.00	100.00	100.00	.00	50.00	50.00	.00	20.00	.00	.00
8	80.00	30.00	80.00	20.00	70.00	20.00	10.00	20.00	80.00	40.00	20.00	80.00	10.00	80.00	10.00
9	50.00	20.00	80.00	20.00	10.00	60.00	80.00	40.00	20.00	60.00	80.00	20.00	5.00	60.00	20.00
10	90.00	95.00	100.00	100.00	85.00	100.00	100.00	70.00	100.00	100.00	70.00	40.00	.00	100.00	90.00
11	80.00	90.00	100.00	60.00	20.00	30.00	100.00	35.00	85.00	50.00	50.00	20.00	20.00	100.00	20.00
12															
29															
30															
31															
32															
33															
34															
35															

Split File dialog box configuration:

- Analyze all cases, do not create groups
- Compare groups
- Organize output by groups
- Groups Based on: Gender
- Sort the file by grouping variables
- File is already sorted

Current Status: Analysis by groups is off.

Analyze → Descriptive Statistics → Descriptive

Select all comparison variables

Select Mean, Standard Deviation, and Min & Max

Click “OK”

The screenshot shows the SPSS Data Editor window with a data table and two dialog boxes. The data table has 15 columns and 35 rows. The columns are: txt_fbook, fbook_youtube, youtube_email, email_mspce, mspce_twit, twit_im, txt_youtube, fbook_email, youtube_mspce, email_twit, mspc_im, txt_email, fbook_mspce, youtube_twit, and email_im. The dialog boxes are 'Descriptives' and 'Descriptives: Options'.

	txt_fbook	fbook_youtube	youtube_email	email_mspce	mspce_twit	twit_im	txt_youtube	fbook_email	youtube_mspce	email_twit	mspc_im	txt_email	fbook_mspce	youtube_twit	email_im
1	20.00	30.00	50.00	80.00	40.00	40.00	80.00	80.00	30.00	40.00	50.00	.00	20.00	60.00	.00
2	80.00	30.00	80.00	20.00	70.00	20.00	10.00	20.00	80.00	40.00	20.00	80.00	10.00	80.00	10.00
3	50.00	20.00	80.00	20.00	10.00	60.00	80.00	40.00	20.00	60.00	80.00	20.00	5.00	60.00	20.00
4	90.00	95.00	100.00	100.00	85.00	100.00	100.00	70.00	100.00	100.00	70.00	40.00	.00	100.00	90.00
5	80.00	90.00	100.00	60.00	20.00	30.00	100.00	35.00	85.00	50.00	50.00	20.00	20.00	100.00	20.00
6	69.00	75.00	75.00	35.00	50.00	10.00	75.00	15.00	74.00	49.00	75.00	15.00	10.00	95.00	20.00
7	99.00	99.00	100.00	88.00	20.00	1.00	100.00	30.00	88.00	40.00	40.00	10.00	.00	30.00	15.00
8	20.00	60.00	70.00	30.00	40.00	60.00	80.00	10.00	80.00	80.00	20.00	10.00	.00	90.00	.00
9	50.00	95.00	100.00	75.00	10.00	.00	100.00	40.00	100.00	10.00	20.00	20.00	.00	100.00	20.00
10	30.00	80.00	90.00	50.00	50.00	10.00	80.00	60.00	70.00	40.00	60.00	20.00	.00	60.00	30.00
11	100.00	50.00	100.00	100.00	100.00	.00	100.00	100.00	.00	50.00	50.00	.00	20.00	.00	.00
12															
13															
14															
15															
16															
17															
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33															
34															
35															

Descriptives dialog box:

- Variables: txt_fbook, fbook_youtube, youtube_email, email_mspce, mspce_twit, twit_im, txt_youtube
- Save standardized values as variables:

Descriptives: Options dialog box:

- Mean: Sum:
- Dispersion: Std. deviation, Variance, Range
- Minimum: Maximum: S.E. mean:
- Distribution: Kurtosis, Skewness
- Display Order: Variable list, Alphabetic, Ascending means, Descending means

Descriptives

[DataSet1] D:\My Documents\Palisin\newmds.sav

Descriptive Statistics

Gender		N	Minimum	Maximum	Mean	Std. Deviation
Male	txt_fbook	5	20.00	90.00	64.0000	28.80972
	fbook_youtube	5	20.00	95.00	53.0000	36.33180
	youtube_email	5	50.00	100.00	82.0000	20.49390
	email_mspce	5	20.00	100.00	56.0000	35.77709
	mspce_twit	5	10.00	85.00	45.0000	32.01562
	twit_im	5	20.00	100.00	50.0000	31.62278
	txt_youtube	5	10.00	100.00	74.0000	37.14835
	fbook_email	5	20.00	80.00	49.0000	25.09980
	youtube_mspce	5	20.00	100.00	63.0000	35.63706
	email_twit	5	40.00	100.00	58.0000	24.89980
	mspc_im	5	20.00	80.00	54.0000	23.02173
	txt_email	5	.00	80.00	32.0000	30.33150
	fbook_mspce	5	.00	20.00	11.0000	8.94427
	youtube_twit	5	60.00	100.00	80.0000	20.00000
	email_im	5	.00	90.00	28.0000	35.63706
	txt_mspce	5	30.00	80.00	53.0000	22.80351
	fbook_twit	5	10.00	90.00	34.0000	32.09361
	ytube_im	5	40.00	100.00	78.0000	24.89980
	txt_twit	5	5.00	90.00	45.0000	36.40055
	fbook_im	5	25.00	90.00	61.0000	27.47726
txt_im	5	.00	30.00	15.0000	14.14214	
TxtFreq	5	.00	5.00	2.4000	2.50998	
FbookFreq	5	.00	4.00	2.8000	1.78885	
YouTubeFreq	5	.00	3.00	1.8000	1.30384	
EmailFreq	5	5.00	5.00	5.0000	.00000	
MySpaceFreq	5	.00	3.00	1.0000	1.22474	
TwitterFreq	5	.00	4.00	1.4000	1.94936	
IMFreq	5	1.00	5.00	3.8000	1.64317	
Valid N (listwise)		5				

Descriptive Statistics

Gender		N	Minimum	Maximum	Mean	Std. Deviation
Female	txt_fbook	6	20.00	100.00	61.3333	34.03332
	fbook_youtube	6	50.00	99.00	76.5000	19.17029
	youtube_email	6	70.00	100.00	89.1667	13.57080
	email_mspce	6	30.00	100.00	63.0000	28.91366
	mspce_twit	6	10.00	100.00	45.0000	31.46427
	twit_im	6	.00	60.00	13.5000	23.27015
	txt_youtube	6	75.00	100.00	89.1667	12.00694
	fbook_email	6	10.00	100.00	42.5000	33.42903
	youtube_mspce	6	.00	100.00	68.6667	35.29684
	email_twit	6	10.00	80.00	44.8333	22.54255
	mspc_im	6	20.00	75.00	44.1667	22.00379
	txt_email	6	.00	20.00	12.5000	7.58288
	fbook_mspce	6	.00	20.00	5.0000	8.36660
	youtube_twit	6	.00	100.00	62.5000	40.46604
	email_im	6	.00	30.00	14.1667	12.00694
	txt_mspce	6	.00	60.00	27.5000	25.24876
	fbook_twit	6	20.00	50.00	35.0000	13.78405
	ytube_im	6	.00	100.00	72.1667	36.88044
	txt_twit	6	.00	10.00	4.0000	4.69042
	fbook_im	6	5.00	80.00	36.6667	27.86874
	txt_im	6	.00	50.00	15.0000	20.73644
	TxtFreq	6	.00	5.00	2.6667	2.58199
	FbookFreq	6	.00	5.00	2.5000	2.16795
	YouTubeFreq	6	2.00	3.00	2.5000	.54772
	EmailFreq	6	4.00	5.00	4.8333	.40825
MySpaceFreq	6	.00	1.00	.3333	.51640	
TwitterFreq	6	.00	2.00	.3333	.81650	
IMFreq	6	.00	4.00	2.0000	2.19089	
Valid N (listwise)		6				

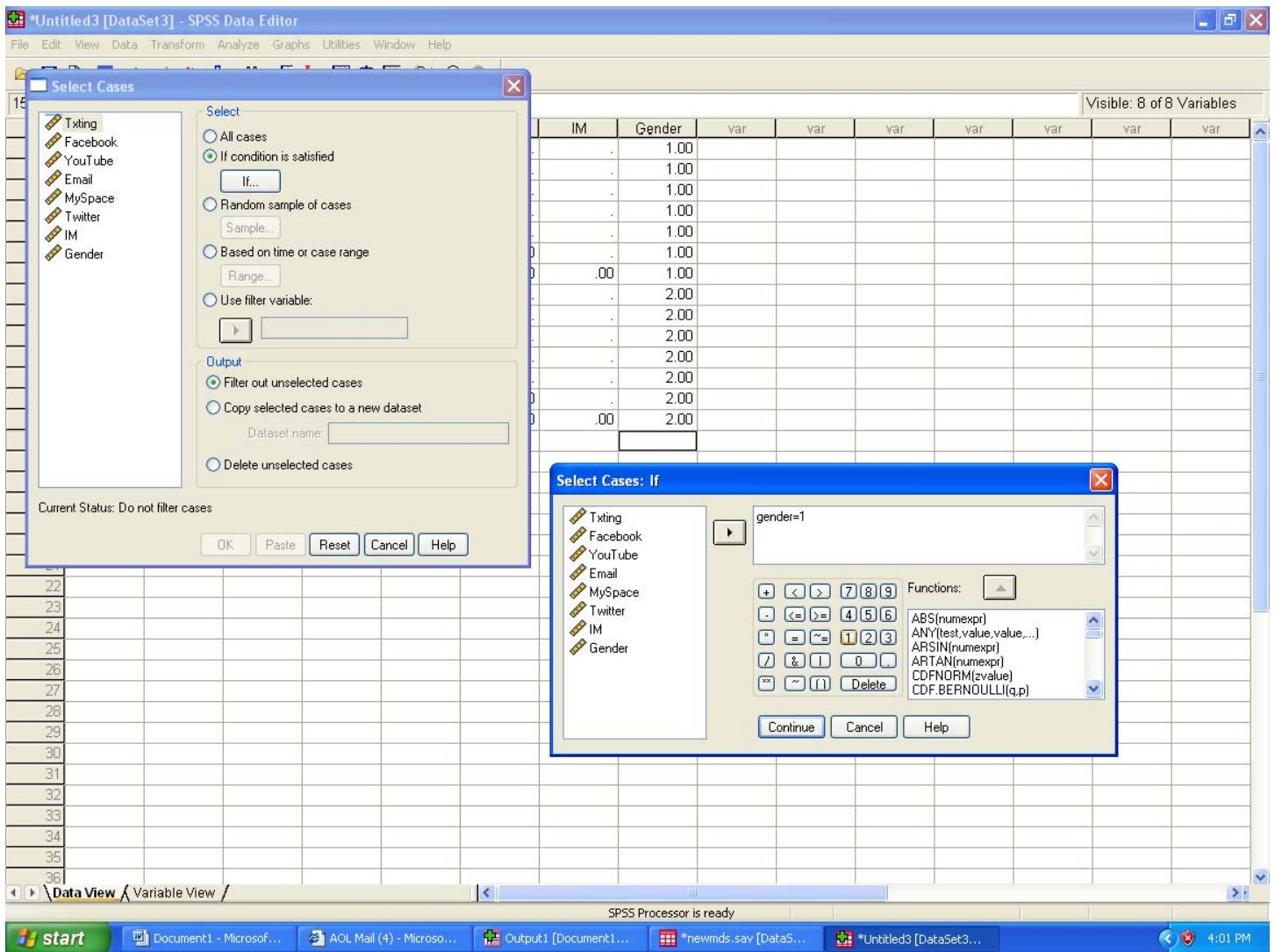
By hand, enter values for the grouping variable (gender) for each matrix

Analyze → Select Cases

“If condition is satisfied”

In our case, we selected cases in which gender=1 (males)

YOU WILL NEED TO RUN MDS FOR EACH MATRIX



Analyze → Scales → Multidimensional Scaling (ALSCAL)

Click “Shape” and select “Square Symmetric”

Click “Continue”

The screenshot shows the SPSS Data Editor interface with a dataset containing 14 rows and 9 visible variables. The variables are Txting, Facebook, YouTube, Email, MySpace, Twitter, IM, Gender, and filter_\$. The data values are as follows:

Row	Txting	Facebook	YouTube	Email	MySpace	Twitter	IM	Gender	filter_ \$
1	.00	.	.	.	.	.	.	1.00	1
2	64.00	.00	.	.	.	.	.	1.00	1
3	74.00	53.00	.00	.	.	.	.	1.00	1
4	32.00	49.00	82.00	.00	.	.	.	1.00	1
5	53.00	11.00	63.00	56.00	.00	.	.	1.00	1
6	45.00	34.00	80.00	58.00	45.00	.00	.	1.00	1
7	15.00	61.00	78.00	28.00	54.00	50.00	.00	1.00	1
8	.00	.	.	.	.	.	.	2.00	0
9	61.33	.00	.	.	.	.	.	2.00	0
10	89.17	76.50	.00	.	.	.	.	2.00	0
11	12.50	42.50	89.17	.00	.	.	.	2.00	0
12	27.50	5.00	68.67	63.00	.00	.	.	2.00	0
13	4.00	35.00	62.50	44.83	45.00	.00	.	2.00	0
14	15.00	36.67	72.17	14.17	44.17	13.50	.00	2.00	0

The 'Multidimensional Scaling' dialog box shows 'Gender' and 'gender=1 (FILTER) (fil)' selected in the Variables list. The 'Distances' section has 'Data are distances' selected, and 'Shape...' is set to 'Square symmetric'. The 'Multidimensional Scaling: Shape...' dialog box is open, showing 'Square symmetric' selected with the 'Continue' button highlighted.

Select "Model" within the MDS box

Check "ordinal" for level of measurement, "Euclidian Distance" for scaling model, and "matrix" for conditionality.

The screenshot shows the SPSS Data Editor window with a data table and two dialog boxes for Multidimensional Scaling (MDS).

Data Table:

	txt_fbook	fbook_youtube	youtube_email	email_mspace	mSPACE_twit	twit_im	txt_youtube	fbook_email	youtube_mspace	email_twit	mSPACE_im	txt_email	fbook_mspace	youtube_twit	email_im
1	20.00	30.00	50.00	80.00	40.00	40.00	80.00	80.00	30.00	40.00	50.00	.00	20.00	60.00	.00
2	80.00	30.00	80.00	20.00	70.00	20.00	10.00	20.00	80.00	40.00	20.00	80.00	10.00	80.00	10.00
3	50.00	20.00	80.00	20.00	10.00	60.00	80.00	40.00	20.00	60.00	80.00	20.00	5.00	60.00	20.00
4	90.00	95.00	100.00	100.00	85.00	100.00	100.00	70.00	100.00	100.00	70.00	40.00	.00	100.00	90.00
5	80.00	90.00	100.00	60.00	20.00	30.00	100.00	35.00	85.00	50.00	50.00	20.00	20.00	100.00	20.00
6	69.00	75.00	75.00	35.00	50.00	10.00	75.00	15.00	74.00	49.00	75.00	15.00	10.00	95.00	20.00
7	99.00	99.00	100.00	88.00	20.00	1.00	100.00	30.00	88.00	40.00	40.00	10.00	.00	30.00	15.00
8	20.00	60.00	70.00	30.00	40.00	60.00	80.00	10.00	80.00	80.00	20.00	10.00	.00	90.00	.00
9	50.00	95.00	100.00	75.00	10.00	.00	100.00	40.00	100.00	10.00	20.00	20.00	.00	100.00	20.00
10	30.00	80.00	90.00	50.00	50.00	10.00	80.00	60.00	70.00	40.00	60.00	20.00	.00	60.00	30.00
11	100.00	50.00	100.00	100.00	100.00	.00	100.00	100.00	.00	50.00	50.00	.00	20.00	.00	.00

Multidimensional Scaling Dialog:

- Variables: txt_fbook, fbook_youtube, youtube_email, email_mspace, mSPACE_twit
- Distances: Data are distances, Create distances from data
- Shape: Square symmetric
- Measure: Euclidean distance

Multidimensional Scaling: Model Dialog:

- Level of Measurement: Ordinal, Interval, Ratio
- Conditionality: Matrix, Row, Unconditional
- Scaling Model: Euclidean distance, Individual differences Euclidean distance
- Dimensions: Minimum: 3, Maximum: 3

Alscal Males

[DataSet3]

Alscal Procedure Options

Data Options-

Number of Rows (Observations/Matrix).	7
Number of Columns (Variables) . . .	7
Number of Matrices	1
Measurement Level	Ratio
Data Matrix Shape	Symmetric
Type	Dissimilarity
Approach to Ties	Leave Tied
Conditionality	Matrix
Data Cutoff at . . . . .	.000000

Model Options-

Model	Euclid
Maximum Dimensionality	3
Minimum Dimensionality	3
Negative Weights	Not Permitted

Output Options-

Job Option Header	Printed
Data Matrices	Printed
Configurations and Transformations .	Plotted
Output Dataset	Not Created
Initial Stimulus Coordinates . . .	Computed

Algorithmic Options-

Maximum Iterations	30
Convergence Criterion . . . . .	.00100
Minimum S-stress . . . . .	.00500
Missing Data Estimated by	Ulbounds

Raw (unscaled) Data for Subject 1

	1	2	3	4	5
1	.000				
2	64.000	.000			
3	74.000	53.000	.000		
4	32.000	49.000	82.000	.000	
5	53.000	11.000	63.000	56.000	.000
6	45.000	34.000	80.000	58.000	45.000
7	15.000	61.000	78.000	28.000	54.000
	6	7			
6	.000				
7	50.000	.000			

Iteration history for the 3 dimensional solution (in squared distances)

Young's S-stress formula 1 is used.

Iteration	S-stress	Improvement
1	.10508	
2	.08980	.01527
3	.08928	.00053

Iterations stopped because
S-stress improvement is less than .001000

Stress and squared correlation (RSQ) in distances

RSQ values are the proportion of variance of the scaled data (disparities)
in the partition (row, matrix, or entire data) which
is accounted for by their corresponding distances.

Stress values are Kruskal's stress formula 1.

For matrix
Stress = .06605 RSQ = .96780

Configuration derived in 3 dimensions

Stimulus Coordinates

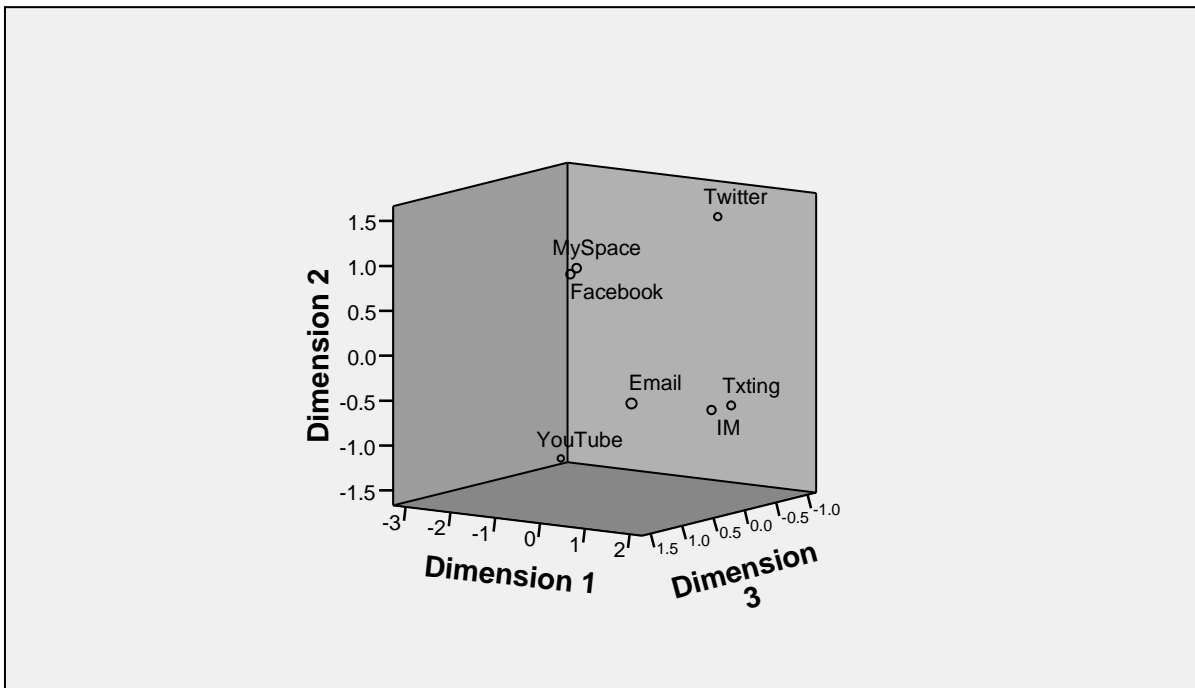
Stimulus Number	Stimulus Name	Dimension		
		1	2	3
1	Txting	1.2144	-.6592	-.5405
2	Facebook	-1.0370	.8314	.4144
3	YouTube	-2.2936	-1.4264	-.3322
4	Email	1.2184	-.3611	1.0502
5	MySpace	-.7519	.9347	.5185
6	Twitter	.2915	1.3095	-.9866
7	IM	1.3583	-.6288	-.1238

Optimally scaled data (disparities) for subject 1

	1	2	3	4	5
1	.000				
2	3.064	.000			
3	3.543	2.537	.000		
4	1.532	2.346	3.926	.000	
5	2.537	.527	3.016	2.681	.000
6	2.154	1.628	3.830	2.777	2.154
7	.718	2.920	3.734	1.341	2.585
	6	7			
6	.000				
7	2.394	.000			

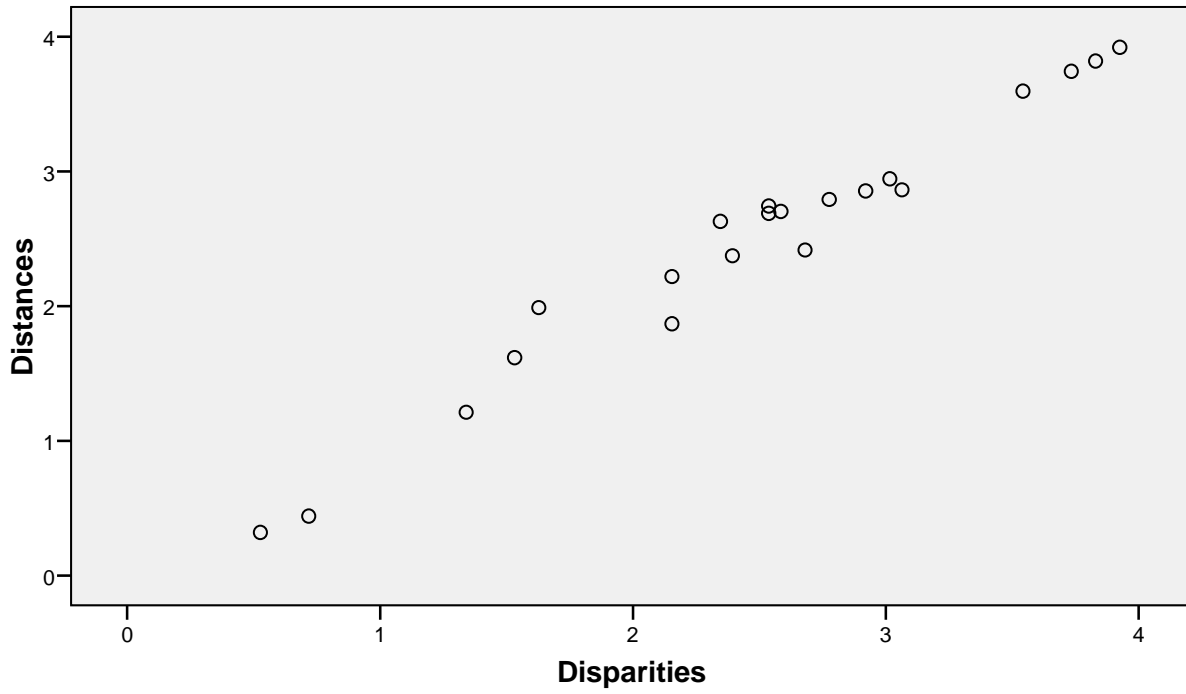
Derived Stimulus Configuration

Euclidean distance model



Scatterplot of Linear Fit

Euclidean distance model



Aiscal Females

[DataSet3]

Alscal Procedure Options

Data Options-

Number of Rows (Observations/Matrix).	7
Number of Columns (Variables) . . .	7
Number of Matrices	1
Measurement Level	Ratio
Data Matrix Shape	Symmetric
Type	Dissimilarity
Approach to Ties	Leave Tied
Conditionality	Matrix
Data Cutoff at . . . . .	.000000

Model Options-

Model	Euclid
Maximum Dimensionality	3
Minimum Dimensionality	3
Negative Weights	Not Permitted

Output Options-

Job Option Header	Printed
Data Matrices	Printed
Configurations and Transformations .	Plotted
Output Dataset	Not Created
Initial Stimulus Coordinates	Computed

Algorithmic Options-

Maximum Iterations	30
Convergence Criterion . . . . .	.00100
Minimum S-stress . . . . .	.00500
Missing Data Estimated by	Ulbounds

Raw (unscaled) Data for Subject 1

	1	2	3	4	5
1	.000				
2	61.333	.000			
3	89.170	76.500	.000		
4	12.500	42.500	89.167	.000	
5	27.500	5.000	68.670	63.000	.000
6	4.000	35.000	62.500	44.830	45.000
7	15.000	36.670	72.170	14.170	44.170
	6	7			
6	.000				
7	13.500	.000			

Iteration history for the 3 dimensional solution (in squared distances)

Young's S-stress formula 1 is used.

Iteration	S-stress	Improvement
1	.31209	
2	.16250	.14959
3	.15793	.00457
4	.15777	.00016

Iterations stopped because
S-stress improvement is less than .001000

Stress and squared correlation (RSQ) in distances

RSQ values are the proportion of variance of the scaled data (disparities)
in the partition (row, matrix, or entire data) which
is accounted for by their corresponding distances.
Stress values are Kruskal's stress formula 1.

For matrix
Stress = .19682 RSQ = .89713

Configuration derived in 3 dimensions

Stimulus Coordinates

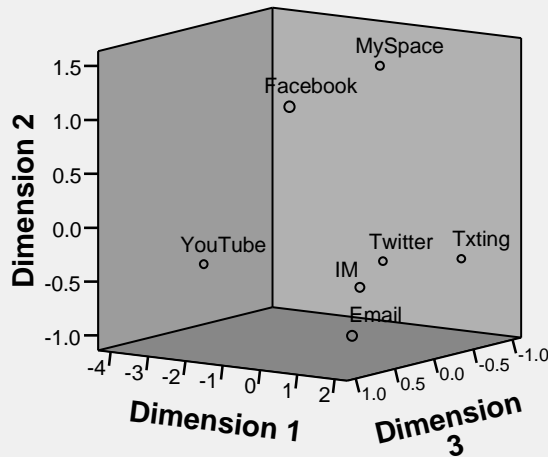
Stimulus Number	Stimulus Name	Dimension		
		1	2	3
1	Txting	1.1408	-.4249	-.9144
2	Facebook	.2465	1.2677	.8519
3	YouTube	-3.1189	-.4263	.3413
4	Email	1.4023	-.8536	.6045
5	MySpace	-.1592	1.3877	-.4956
6	Twitter	-.0580	-.4192	-.4852
7	IM	.5466	-.5314	.0975

Optimally scaled data (disparities) for subject 1

	1	2	3	4	5
1	.000				
2	3.064	.000			
3	4.454	3.821	.000		
4	.624	2.123	4.454	.000	
5	1.374	.250	3.430	3.147	.000
6	.200	1.748	3.122	2.239	2.248
7	.749	1.832	3.605	.708	2.206
	6	7			
6	.000				
7	.674	.000			

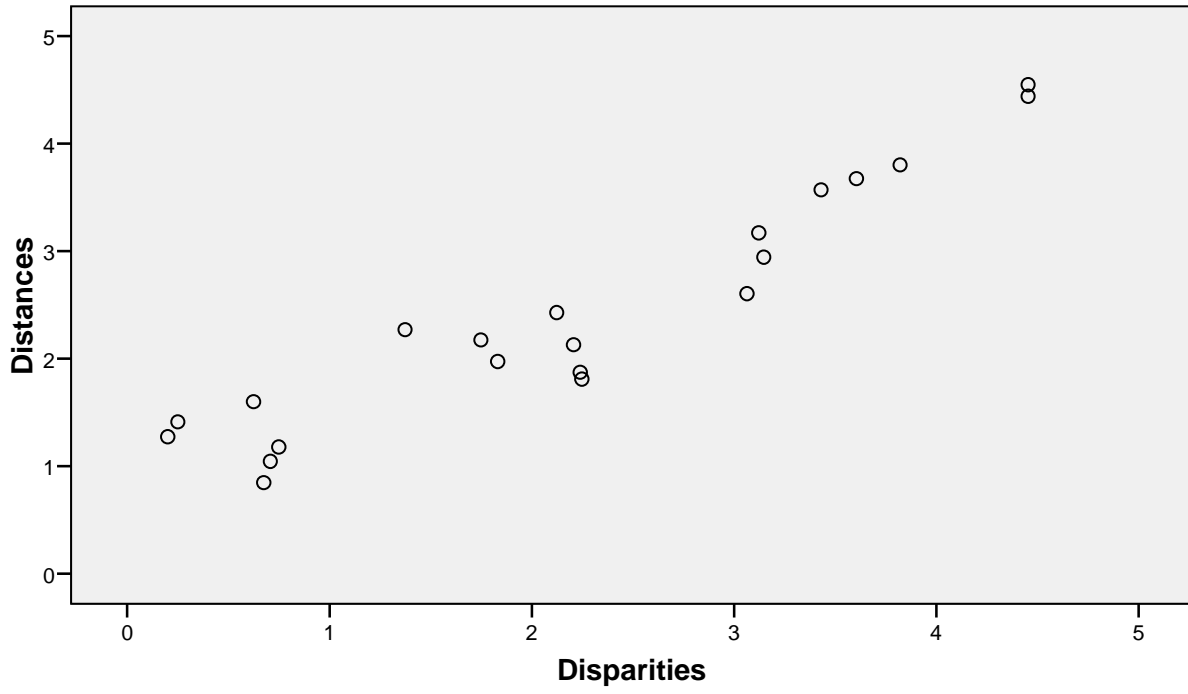
Derived Stimulus Configuration

Euclidean distance model



Scatterplot of Linear Fit

Euclidean distance model



Graph → Interactive → Scatterplot

Click the box that says “2-D Coordinate” and Change it to “3-D Coordinate”

Place the dimensions in the appropriate boxes

The screenshot shows the SPSS Data Editor window with a dataset containing MDS coordinates for seven stimuli. A 'Create Scatterplot' dialog box is open, showing the '3-D Coordinate' option selected. The 'Assign Variables' tab is active, with 'Case [\$case]', 'Count [\$count]', and 'Percent [\$pct]' listed. The 'Legend Variables' section has 'Color', 'Style', and 'Size' fields. The 'Panel Variables' section is empty. The 'Label Cases By' field is set to 'SN_Type'.

SN_Type	Dimension1	Dimension2	Dimension3	var	var	var	var
1 Texting	1.14	-.42	-.91				
2 Facebook	.25	1.27	.85				
3 Youtube	-3.12	-.43	.34				
4 Email	1.40	-.85	.60				
5 MySpace	-.16	1.39	-.50				
6 Twitter	-.06	-.42	-.49				
7 IM	.55	-.53	.10				

Configuration derived in 3 dimensions

Stimulus Coordinates

Stimulus Number	Stimulus Name	1	2	3
1	Txtng	1.1408	-.4249	-.9144
2	Facebook	.2465	1.2677	.8519
3	YouTube	-3.1189	-.4263	.3413
4	Email	1.4023	-.8536	.6045
5	MySpace	-.1592	1.3877	-.4956
6	Twitter	-.0580	-.4192	-.4852
7	IM	.5466	-.5314	.0975

Optimally scaled data (disparities) for subjects

	1	2	3	4
1	.000			
2	3.064	.000		
3	4.454	3.821	.000	
4	.624	2.123	4.454	.000
5	1.374	.250	3.430	3.147
6	.200	1.748	3.122	2.239
7	.749	1.832	3.605	.706

Select the “Spikes” tab and click “floor”

Click “OK”

The screenshot shows the SPSS Data Editor window with a dataset containing 7 rows of stimulus data. The 'Create Scatterplot' dialog box is open, with the 'Spikes' tab selected. The 'Spike to:' list includes 'Origin', 'Corner', 'Total Centroid', 'Subgroup Centroid', 'X1 Axis', 'X2 Axis', 'Y Axis', and 'Floor'. The 'Floor' option is checked. The 'Color spikes by color legend' and 'Style spikes by style legend' options are unchecked. The 'OK' button is highlighted.

SPSS Text Output in MDSOutputMales.spo [Document1] - SPSS ...

Configuration derived in 3 dimensions

Stimulus Coordinates

Stimulus Number	Stimulus Name	1	2	3
1	Txting	1.1408	-.4249	-.9144
2	Facebook	.2465	1.2677	.8519
3	YouTube	-3.1189	-.4263	.3413
4	Email	1.4023	-.8536	.6045
5	MySpace	-.1592	1.3877	-.4956
6	Twitter	-.0580	-.4192	-.4852
7	IM	.5466	-.5314	.0975

Optimally scaled data (disparities) for subjects

	1	2	3	4
1	.000			
2	3.064	.000		
3	4.454	3.821	.000	
4	.624	2.123	4.454	.000
5	1.374	.250	3.430	3.147
6	.200	1.748	3.122	2.239
7	.749	1.832	3.605	.706
	6	7		
6	.000			
7	.674	.000		

***Untitled4 [DataSet4] - SPSS Data Editor**

	SN_Type	Dimension1	Dimension2	Dimension3	var	var	var	var
1	Texting	1.14	-.42	-.91				
2	Facebook	.25	1.27	.85				
3	Youtube	-3.12	-.43	.34				
4	Email	1.40	-.85	.60				
5	MySpace	-.16	1.39	-.50				
6	Twitter	-.06	-.42	-.49				
7	IM	.55	-.53	.10				
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
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29								
30								
31								
32								
33								
34								
35								

Create Scatterplot

Assign Variables | Fit | Spikes | Titles | Options

Spike to:

- Origin
- Corner
- Total Centroid
- Subgroup Centroid
- X1 Axis
- X2 Axis
- Y Axis
- Floor

Color spikes by color legend

Style spikes by style legend

OK Paste Reset Cancel Help

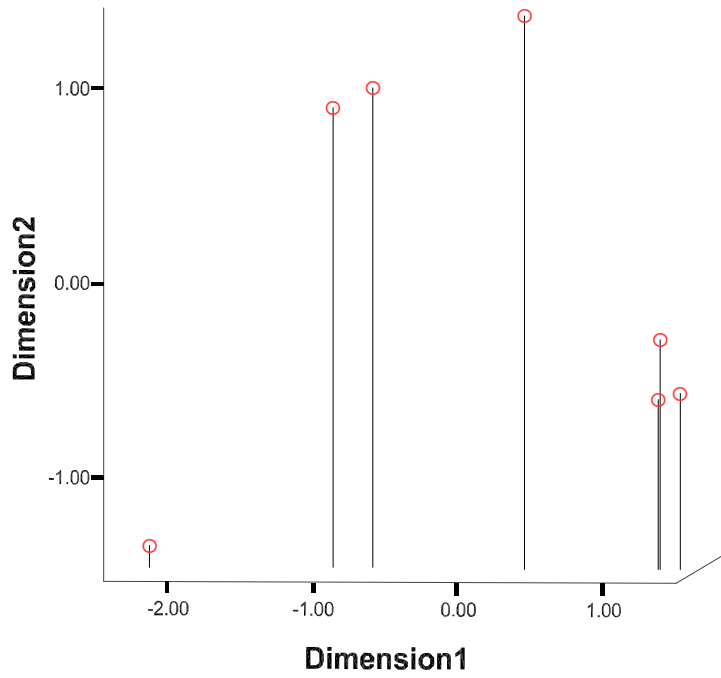
Ln 114 Col 41

SPSS Processor is ready

start | Document1 ... | AOL Mail (4) ... | MDSOutput... | *newmds.sa... | *Untitled3 [... | *Untitled4 [... | SPSS Text O... | Microsoft Ex... | 5:12 PM

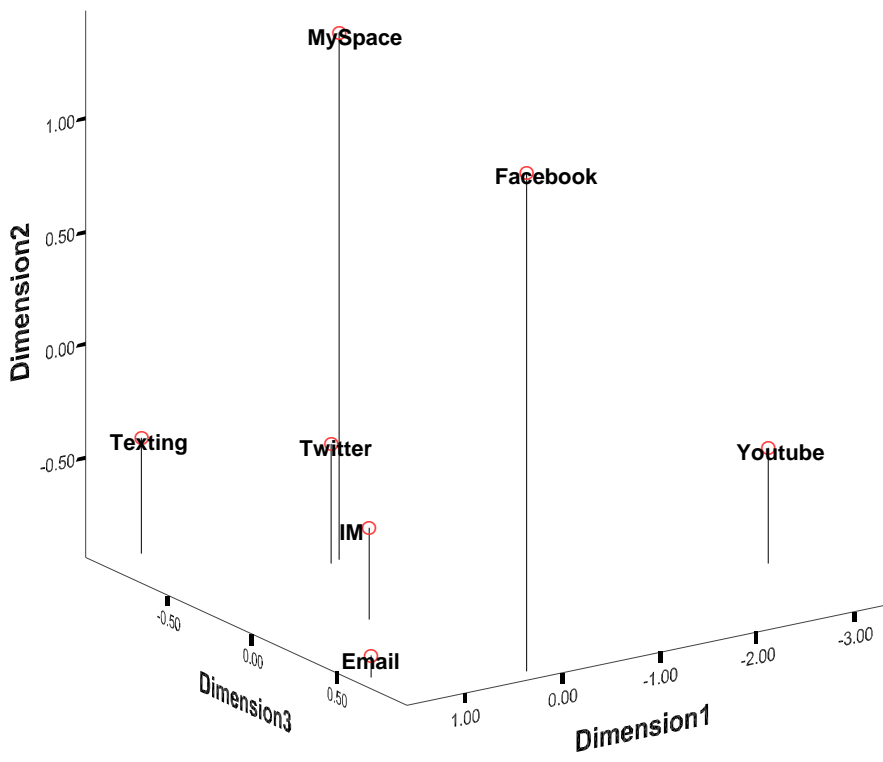
Interactive Graph

[DataSet1] D:\My Documents\Palisin\Dimenstions2.sav



Interactive Graph

[DataSet4]



Also, we can see if other variables relate to the dimensions that have emerged from the MDS analysis. (e.g., In our case, “frequency of use” of the various social networking methods)

Go back to the original datafile.

Select cases for the Males

Select “Analyze”, “Descriptive Statistics”, then “Descriptives”

Select the Frequency of use variables

Click “Options” and select only “Mean”

Click “Continue” and then “OK”

The screenshot shows the SPSS Data Editor window with a data table containing 42 variables and 45 rows. Two dialog boxes are open over the data table:

- Descriptives:** This dialog box has a list of variables on the left. The 'Variable(s)' list on the right includes: TxtFreq, FbookFreq, YouTubeFreq, EmailFreq, MySpaceFreq, TwitterFreq, and IMFreq. The 'Save standardized values as variables' checkbox is unchecked.
- Descriptives: Options:** This dialog box has several sections:
 - Summary Statistics:** Mean, Sum, Dispersion, Std. deviation, Minimum, Maximum, Variance, Range, S.E. mean.
 - Distribution:** Kurtosis, Skewness.
 - Display Order:** Variable list, Alphanumeric, Ascending means, Descending means.The 'Continue' button is highlighted.

Place the mean frequency of use for the each of social networking methods in the data file containing the dimensions (as a new variable).

Select cases based on Gender

Click “Analyze”, “Correlate” and then “Bivariate”

Select the Dimension and Frequency of use variables and click “OK”

The screenshot displays the SPSS Data Editor interface for a file named "DimensionFemales.sav [DataSet2]". The main data grid shows 44 rows of data with columns: Gender, SN_Type, Dimension 1, Dimension 2, Dimension 3, Freq, and filter_S. A dialog box titled "Bivariate Correlations" is open in the center. In the "Variables:" list, "Gender [Gender]" and "gender = 1 (FILTER) [f]" are selected. Under "Correlation Coefficients", the "Pearson" checkbox is checked. Under "Test of Significance", the "Two-tailed" radio button is selected. The "Flag significant correlations" checkbox at the bottom is also checked. The dialog box includes "OK", "Paste", "Reset", "Cancel", and "Help" buttons, as well as an "Options..." button.

	Gender	SN_Type	Dimension 1	Dimension 2	Dimension 3	Freq	filter_S
1	1.00	Texting	1.14	-.42	-.91	2.40	1
2	1.00	Facebook	.25	1.27	.85	2.80	1
3	1.00	Youtube	-3.12	-.43	.34	1.80	1
4	1.00	Email	1.40	-.85	.60	5.00	1
5	1.00	MySpace	-.16	1.39	-.50	1.00	1
6	1.00	Twitter	-.06	-.42	-.49	1.40	1
7	1.00	IM	.55	-.53	.10	3.80	1
8	2.00	Texting	1.21	-.66	-.54	2.67	0
9	2.00	Facebook	-1.04	.83	.41	2.50	0
10	2.00	Youtube	-2.29	-1.43	-.33	2.50	0
11	2.00	Email	1.22	-.36	1.05	4.83	0
12	2.00	MySpace	-.75	.93	.52	.33	0
13	2.00	Twitter	.29	1.31	-.99	.33	0
14	2.00	IM	1.36	-.63	-.12	2.00	0
15	-	-	-	-	-	-	-
16	-	-	-	-	-	-	-
17	-	-	-	-	-	-	-
18	-	-	-	-	-	-	-
19	-	-	-	-	-	-	-
20	-	-	-	-	-	-	-
21	-	-	-	-	-	-	-
22	-	-	-	-	-	-	-
23	-	-	-	-	-	-	-
24	-	-	-	-	-	-	-
25	-	-	-	-	-	-	-
26	-	-	-	-	-	-	-
27	-	-	-	-	-	-	-
28	-	-	-	-	-	-	-
29	-	-	-	-	-	-	-
30	-	-	-	-	-	-	-
31	-	-	-	-	-	-	-
32	-	-	-	-	-	-	-
33	-	-	-	-	-	-	-
34	-	-	-	-	-	-	-
35	-	-	-	-	-	-	-
36	-	-	-	-	-	-	-
37	-	-	-	-	-	-	-
38	-	-	-	-	-	-	-
39	-	-	-	-	-	-	-
40	-	-	-	-	-	-	-
41	-	-	-	-	-	-	-
42	-	-	-	-	-	-	-
43	-	-	-	-	-	-	-
44	-	-	-	-	-	-	-

```

DATASET ACTIVATE DataSet1.
DESCRIPTIVES
  VARIABLES=TxtFreq FbookFreq YouTubeFreq EmailFreq MySpaceFreq TwitterFreq
  IMFreq
  /STATISTICS=MEAN .

```

Descriptives (Males)

[DataSet1] C:\Documents\School\2005-2009 - Cleveland State University\Grad\2009 - 04 - Spring Semester\COM531 - Multivariate Statistics\MDS Presentation\newmds.sav

Descriptive Statistics

	N	Mean
TxtFreq	5	2.4000
FbookFreq	5	2.8000
YouTubeFreq	5	1.8000
EmailFreq	5	5.0000
MySpaceFreq	5	1.0000
TwitterFreq	5	1.4000
IMFreq	5	3.8000
Valid N (listwise)	5	

```

DATASET ACTIVATE DataSet2.
USE ALL.
COMPUTE filter_$=(gender = 2).
VARIABLE LABEL filter_$ 'gender = 2 (FILTER)'.
VALUE LABELS filter_$ 0 'Not Selected' 1 'Selected'.
FORMAT filter_$ (f1.0).
FILTER BY filter_$.
EXECUTE .
DATASET ACTIVATE DataSet1.
USE ALL.
COMPUTE filter_$=(gender =2
).
VARIABLE LABEL filter_$ 'gender =2'+
' (FILTER)'.
VALUE LABELS filter_$ 0 'Not Selected' 1 'Selected'.
FORMAT filter_$ (f1.0).
FILTER BY filter_$.
EXECUTE .
DESCRIPTIVES
  VARIABLES=TxtFreq FbookFreq YouTubeFreq EmailFreq MySpaceFreq TwitterFreq
  IMFreq
  /STATISTICS=MEAN .

```

Descriptives (Females)

[DataSet1] C:\Documents\School\2005-2009 - Cleveland State University\Grad\2009 - 04 - Spring Semester\COM531 - Multivariate Statistics\MDS Presentation\newmds.sav

Descriptive Statistics

	N	Mean
TxtFreq	6	2.6667
FbookFreq	6	2.5000
YouTubeFreq	6	2.5000
EmailFreq	6	4.8333
MySpaceFreq	6	.3333
TwitterFreq	6	.3333
IMFreq	6	2.0000
Valid N (listwise)	6	

CORRELATIONS

```

/VARIABLES=Dimension1 Dimension2 Dimension3 Freq
/PRINT=TWOTAIL NOSIG
/MISSING=PAIRWISE .

```

Correlations (Males)

[DataSet2] C:\Documents\School\2005-2009 - Cleveland State University\Grad\2009 - 04 - Spring Semester\COM531 - Multivariate Statistics\MDS Presentation\DimensionsFemales.sav

Correlations

		Dimension1	Dimension2	Dimension3	Frequency of Use
Dimension1	Pearson Correlation	1	-.064	-.153	.527
	Sig. (2-tailed)		.892	.744	.224
	N	7	7	7	7
Dimension2	Pearson Correlation	-.064	1	.075	-.478
	Sig. (2-tailed)	.892		.872	.277
	N	7	7	7	7
Dimension3	Pearson Correlation	-.153	.075	1	.550
	Sig. (2-tailed)	.744	.872		.201
	N	7	7	7	7
Frequency of Use	Pearson Correlation	.527	-.478	.550	1
	Sig. (2-tailed)	.224	.277	.201	
	N	7	7	7	7

USE ALL.

```

COMPUTE filter_$=(gender = 2).
VARIABLE LABEL filter_$ 'gender = 2 (FILTER)'.
VALUE LABELS filter_$ 0 'Not Selected' 1 'Selected'.
FORMAT filter_$ (f1.0).
FILTER BY filter_$.
EXECUTE .

```

CORRELATIONS

```

/VARIABLES=Dimension1 Dimension2 Dimension3 Freq
/PRINT=TWOTAIL NOSIG
/MISSING=PAIRWISE .

```

Correlations (Females)

[DataSet2] C:\Documents\School\2005-2009 - Cleveland State University\Grad\2009 - 04 - Spring Semester\COM531 - Multivariate Statistics\MDS Presentation\DimensionsFemales.sav

Correlations

		Dimension1	Dimension2	Dimension3	Frequency of Use
Dimension1	Pearson Correlation	1	-.001	.019	.259
	Sig. (2-tailed)		.999	.968	.575
	N	7	7	7	7
Dimension2	Pearson Correlation	-.001	1	.015	-.580
	Sig. (2-tailed)	.999		.974	.172
	N	7	7	7	7
Dimension3	Pearson Correlation	.019	.015	1	.530
	Sig. (2-tailed)	.968	.974		.221
	N	7	7	7	7
Frequency of Use	Pearson Correlation	.259	-.580	.530	1
	Sig. (2-tailed)	.575	.172	.221	
	N	7	7	7	7

Our primary focus was to explore whether social networking techniques were perceived differently by males and females. To accomplish this we collected data to assess differences in the way each of our classmates perceived several widely used social networking methods (SNM). Using a 0 – 100 scale, each student rated how similar each specific SNM was to all others, yielding a total of twenty-one similarity (distance) ratings. Additionally, we gathered information on gender and how frequently students used each SNM. To prepare the data for a Multidimensional Scaling analysis we computed mean similarity ratings for each gender and placed them into separate data matrices. Next, we derived a perceptual map for each gender using ALSCAL.

The test generated 3-dimensional solutions for both genders. These three dimensions captured a substantial proportion of the variance for males ($R^2 = .897$) and females ($R^2 = .986$). Given that an acceptable index of fit (R^2) should be .6 or higher, the MDS models fit the raw data very well. Conversely, the stress levels for both models were quite low. The solution for males left 19.7% of the variance unexplained ($stress = .197$), while the solution for females only left 4.3% unexplained ($stress = .043$). Turning to the perceptual map, females appeared to report greater differences between the SNMs than males did.

Much like labeling factors or clusters, determining the meaning of the dimensions on a perceptual map is quite subjective. The first dimension might represent the type of relationships a service is used to maintain (i.e., YouTube is used to communicate with people you don't know very well, while email and texting are mostly used to maintain close personal relationships). This seems to hold for both males and females. For females, dimension two might represent distinct patterns of communication. In other words, the methods which primarily focus on text (IM, texting, email) are all clustered together, while the flagship social networking websites form another cluster. For males, this pattern seems more dichotomous—MySpace and FaceBook form a cluster, while everything else forms a separate cluster. The third dimensions are completely distinct between males and females and beyond our ability to discern.

An alternative way to interpret the perceptual maps is to assess other variables that the dimensions might be related with. For example, we collected data on how frequently each of our classmates used the given SNMs. Means for each frequency variable were independently computed for males and females and placed in the dataset. A bivariate correlation matrix was run for each gender to assess whether the frequency the SNM was related to any of the dimensions. None of the dimensions for females or males were significantly correlated with frequency of use. However, a clear pattern

emerges when comparing the gender matrices. Dimension 2 was negatively associated with frequency of use for males ($r = -.48, p = .28$) and females ($r = -.58, p = .17$). Additionally, frequency of use was positively associated with dimension 3 for males ($r = .55, p = .20$) and females ($r = .53, p = .22$).

Multidimensional scaling is a powerful tool one can use to assess the trends in how people think about and discriminate between arrays of objects. While the test yields some familiar values, such as R^2 , the overall meaning of the analyses is very subjective, much like factor analysis or cluster analyses. The perceptual maps can become very difficult to interpret, especially when the number of dimensions increases. For this reason, one should determine and collect data for variables that might affect how people conceptualize about the objects being analyzed. The relationships between these variables and the dimensions on the perceptual map can serve as an important guide to interpretation.