

# Adopting SPSS Macros to Maximize Office Productivity

## Shimon Sarraf & Rick Shoup

### ADOPTING SPSS MACROS TO MAXIMIZE OFFICE PRODUCTIVITY

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2009 AIR Conference  
May 31, 2009

#### Why are SPSS Macros Important?

- IR shops can have large reporting burdens
  - ▣ More complex & greater numbers
- Manual-production of reports/analyses represent a significant time drain
- SPSS Macros = Automation

#### Workshop Goals

- Familiarize participants with the core concepts of SPSS macros
- Teach building blocks for developing both simple and advanced macros
- Enable participants to develop their own macro applications



### A QUICK SURVEY

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### Outline

- Hypothetical reporting scenario
- Demonstration of SPSS macros
- Building blocks and hands-on experience:
  - Basic concepts of SPSS macros reviewed
  - OMS, Scripts, Conditional Statements
- Integrative exercise
- Questions/Discussion/Feedback

### Hypothetical Reporting Scenario

- Upcoming campus-wide meeting
- Meeting will focus on results from a student feedback form
- Delivering reports, analyses, and data to departments is needed ASAP

### Sample Report & Codebook

2009 Departmental Questionnaire Frequency Distributions (Seniors Only): English

	English		A & H		University	
	Count	Column N %	Count	Column N %	Count	Column N %
My department offers a wide variety of classes each semester						
Strongly Disagree	2	1.2%	13	2.0%	97	1.5%
Disagree	33	20.2%	175	28.0%	1685	23.9%
Agree	59	36.2%	216	33.1%	2123	32.0%
Strongly Agree	69	42.3%	249	38.1%	2002	40.0%
Total	163	100.0%	653	100.0%	6907	100.0%
I have enough opportunities to develop my presentation skills within this department						
Strongly Disagree	3	1.8%	58	8.9%	321	8.0%
Disagree	23	14.1%	259	39.8%	2625	40.3%
Agree	48	29.4%	227	34.9%		
Strongly Agree	89	54.6%	107	16.4%		
Total	163	100.0%	653	100.0%		

**List of variables from the departmental evaluation dataset:**

**Section 1: Entity Identification** - Provides unique identifier for each student respondent, as department and college identifier, as well as full-time, Greek, and varsity athlete identifiers.

**Section 2: Survey Responses** - These variables indicate specific student responses to the feedback form.

**Section 3: Comparison Flags** - These "holding" variables are used to identify comparison groups for each campus entity.

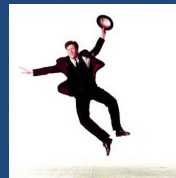
**Section 1: Entity Identification Fields:**

surveyid (1)  
Measurement Level: Nominal

Dep\_code (2) Department Code  
Measurement Level: Nominal

1 = English... 34 = Ethnic Studies

Col\_code (3) College Code  
Measurement Level: Nominal



## SPSS MACRO DEMONSTRATION

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### Macro #1 – Report Generator

- ISSUE: Individual departmental reports need to be generated using the same general template
- Different labels are needed for each report
- All reports draw from same data file
- DESIRED OUTPUT: Formatted departmental reports saved to specific locations on file server

### Macro #2 – Data File Creation

- ISSUE: Each department needs a saved copy of their final dataset
- Selecting out specific data “cuts” from a raw file for each department would be tedious
- DESIRED OUTPUT: Department-specific data files saved to folder on server for dissemination.

### Macro #3 – Merging Regressions

- ISSUE: Results for department-specific regression models predicting “satisfaction” need to be compared side-by-side
- GUI is a difficult and tiring way to generate these analyses
- What if after running and manually formatting results for 35 models you find a mistake?
- DESIRED OUTPUT: A series of regression model output, with saved coefficients, std. errors & sig. signs

### SPSS Macro Building Blocks

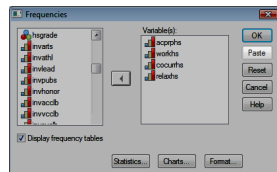


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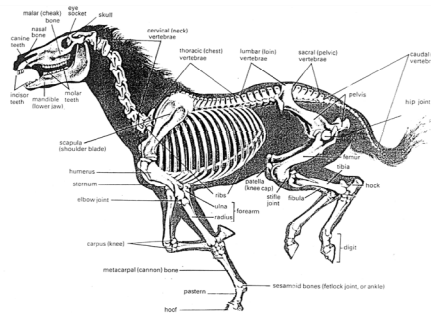
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### Command Syntax

- Powerful command language provided by SPSS
- Runs “behinds the scenes” of GUI
- Rendered in the third major SPSS window – the Syntax Editor



### SPSS Syntax Skeleton



#### KEY

Red = SPSS commands  
 Green = Variables from data file  
 Purple = Values vary depending upon department (eventually replaced by Macro keyword arguments)

\*Part I: “Get file” retrieves SPSS data file.

```
GET FILE = 'C:\AIR_SPSS_Demo_09.sav'.
```

\*Part II: Flaggng of survey respondents for inclusion in appropriate report column: department, college, university.

```
if (dep_code eq 1) peer1 = 1.  
if (col_code eq 1 and dep_code ne 1) peer2 = 1.  
if (dep_code ne 1) peer3 = 1.
```

\*Part III: Setting labels for variables in order to have column headings defined correctly.

```
VARIABLE LABEL depart 'English'/ college 'Arts & Humanities'/univers 'University'.
```

\*Part IV: Ctables command syntax puts all the report pieces together (see syntax manual for details).

```
CTABLES  
/ table (Q1 + Q2 + Q3 + Q4 + Q5 + Q6 + Q7 + Q8) [count colpct] by (depart + college + univers)  
/ categories variables = Q1 Q2 Q3 Q4 Q5 Q6 Q7 Q8 Total = yes  
/ Title Title = 2008 Departmental Questionnaire Frequency Distributions: English Department (Senior Class).
```

### SPSS Macros

- Allow users to create a basic syntax skeleton which is populated with specified user-created fields (similar to mail merge)
- Constructed with command syntax and executed in the syntax window
- Macros run until all “Macro Calls” have been exhausted—one needed for each department

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```
KEY
Red = SPSS non-macro commands
Blue = Macro commands
Green = Macro Keyword Arguments & Call

*Three Parts to a Macro: Definition, Body, Keyword Arguments & Call.

DEFINE !FREQ1 (M_depart_name = !charend (%)
 / M_college_name = !charend (%)
 / M_depart_code = !charend (%)
 / M_college_code = !charend (%)
 / M_depart_name2 = !charend (%)).

GET FILE=C:\AIR_SPSS_Demo_09.sav'.

if (dep_code eq !M_depart_code) peer1 = 1.
if (col_code eq !M_college_code and dep_code ne !M_depart_code) peer2 = 1.
if (dep_code ne !M_depart_code) peer3 = 1.

VARIABLE LABEL depart !M_depart_name/ college !M_college_name/univers 'University'.

CTABLES
 /table (Q1 + Q2 + Q3 + Q4 + Q5 + Q6 + Q7 + Q8) [count colpct] by (depart + college + univers)
 /categories variables = Q1 Q2 Q3 Q4 Q5 Q6 Q7 Q8 Total = yes
 /Title Title = '2008 Departmental Questionnaire Frequency Distributions (Seniors Only):' !M_depart_name2.

!ENDDFINTE.

*Macro Call--To feed the macro, start with the macro name ("!FREQ1") and then specify values for each keyword argument:
!FREQ1 M_depart_name = English % M_college_name = Arts & Humanities % M_depart_code = 1 %
M_college_code = 1 % M_depart_name2 = English Dept %.
```

### Building Block Exercises

- Exercise 1 – Command Syntax
- Exercise 2 – Macro Syntax
- Exercise 3 – Conditional statements

### Building Block Exercises (cont.)

- Exercise 4 – Output Management System (OMS)
- Exercise 5 – “!quote” & “!concat” statements
- Exercise 6 – Integrating Scripts Within Macros

*Many other interesting things to learn, but this will do for now...*



### INTEGRATIVE EXERCISES

22

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### Summary

- ♦ IR offices are increasingly asked to find ways to “work smarter”
- ♦ SPSS macros can standardize most institutional research demands and alleviate drudgery
- ♦ Use your imagination—macros can be used in many different ways

### References

- Levesque, R. (2003). *SPSS Programming and Data Management. A Guide for SPSS and SAS Users*. Chicago, IL: SPSS Inc.
- [www.spsstools.net](http://www.spsstools.net)
- Programming with SPSS Scripts – SPSS Training Manual
- SPSS User Manuals & Command Syntax Reference



QUESTIONS,  
ANSWERS  
& FEEDBACK

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