


Adopting SPSS Macros to Maximize Office Productivity

Shimon Sarraf & Rick Shoup

ADOPTING SPSS MACROS TO MAXIMIZE OFFICE PRODUCTIVITY



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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.B.B.			University		
	Count	Column %	Row %	Count	Column %	Row %	Count	Column %	Row %
My department offers a wide variety of classes	2	1.2%	13	2.0%	87	1.3%	33	28.2%	12.2%
Disagree	33	28.2%	175	28.8%	1885	23.8%	2123	32.8%	40.8%
Agree	39	36.2%	218	33.1%	2082	40.8%	6007	100.0%	75.0%
Strongly Agree	49	42.8%	249	38.1%	2082	40.8%	6007	100.0%	75.0%
Total	163	100.0%	613	100.0%	8854	100.0%	18123	100.0%	100.0%
I have enough experience to develop my presentation skills within the department	3	1.8%	18	2.9%	323	3.9%	1623	40.8%	16.2%
Disagree	23	14.1%	219	35.7%	1623	40.8%	6007	100.0%	75.0%
Agree	48	29.4%	237	38.7%	1623	40.8%	6007	100.0%	75.0%
Strongly Agree	89	54.8%	437	71.4%	1623	40.8%	6007	100.0%	75.0%
Total	163	100.0%	613	100.0%	8854	100.0%	18123	100.0%	100.0%

List of variables from the departmental evaluation dataset:

Section 1: Entity Identification - Provides unique identifiers for each student respondent, by 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 full-scale items.

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

Section 1: Entity Identification Fields:

surveyM(1)

Measurement Level: Nominal

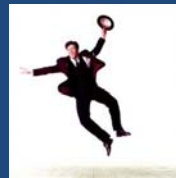
Dep_code(2) Department Code

Measurement Level: Nominal

1 = English... 34 = Ethnic Studies

Col_code(3) College Code

Measurement Level: Nominal



SPSS MACRO DEMONSTRATIONS

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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

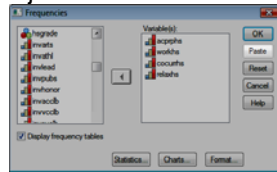


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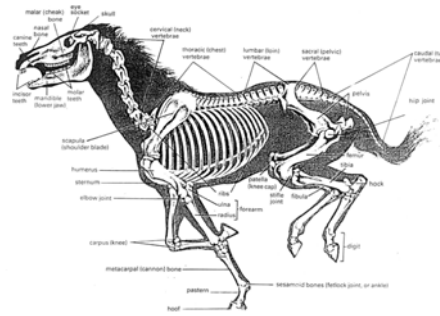
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Command Syntax

- 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) depart = 1.`
`if (col_code eq 1 and dep_code ne 1) college = 1.`
`if (dep_code ne 1) univers = 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) [sum 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) depart = 1.
if (col_code eq !M_college_code and dep_code ne !M_depart_code) college = 1.
if (dep_code ne !M_depart_code) univers = 1.

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

CTABLES
/ table (Q1 + Q2 + Q3 + Q4 + Q5 + Q6 + Q7 + Q8) [count collect] 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.


!ENDDDEFINE.

*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%.

1
```

Building Block Exercises

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



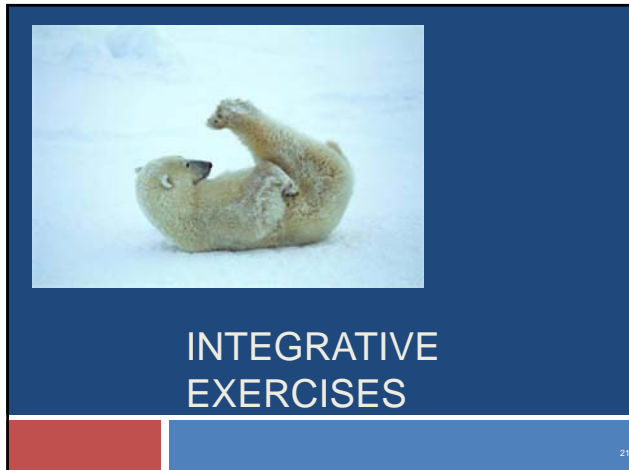
10 MINUTE BREAK

19

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...



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
- Programming with SPSS Scripts – SPSS Training Manual
- SPSS User Manuals & Command Syntax Reference

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