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## Research and Statistical Support University of North Texas

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#### Using Report in SPSS 11.5, Part 1 of 2

By [Patrick McLeod](#), Research and Statistical Support Services Consultant

With the [decommissioning](#) of the academic mainframe now a reality after many months of diligent planning, certain processes that used to run on the academic mainframe are now being transitioned to desktop processing. One of these processes is the running of faculty evaluations, a process that is being transitioned from a proprietary mainframe program to desktop processing using SPSS 11.5 for Windows. In the first part of a two-part article on using the functionality of the Report tool in SPSS 11.5 for processing faculty evaluations, we will discuss the basics of Report and how to set up a simple report using both the drop-down menu and syntax.

Since faculty evaluations are sensitive affairs, I will not be discussing this new SPSS-generated report in step-by-step detail. However, we will go through the report-generation process with a similar report using some similar methods. Since the faculty evaluations also contain sensitive data, all data used in these two articles is generic data found in the SPSS home directory, from a file called Employee Data.

From the Help menu, Syntax Guide, Base Syntax, in SPSS 11.5, a description of the Report tool:

REPORT produces case listings and summary statistics and gives you considerable control over the appearance of the output. REPORT calculates all the univariate statistics available in DESCRIPTIVES and the statistics and subpopulation means available in MEANS. In addition, REPORT calculates statistics not directly available in any other procedure, such as computations involving aggregated statistics. REPORT provides complete report format defaults but also lets you customize a variety of table elements, including column widths, titles, footnotes, and spacing. Because REPORT is so flexible and the output has so many components, it is often efficient to preview report output using a small number of cases until you find the format that best suits your needs.

Report is a very extensible, quite powerful tool in SPSS 11.5 that is often overlooked by many in the university research community who are more focused on the other specific statistical analyses offered in SPSS. However, for the university administrative community, Report offers nearly unlimited potential for customized reports by administrative groups from their desktops instead of relying on the mainframe for such report generation.

#### Drop-Down Menus and Syntax

To begin utilizing the power of the Report tool in SPSS 11.5, we should begin the discussion with a brief digression about merits of drop-down menus (also known as the GUI, or Graphical User Interface) versus syntax. The widespread advent of drop-down menu functionality in statistical packages allows the user to point-and-click his or her way through the basic levels of most statistical functions in the most recent versions of SPSS, S-Plus, and Stata. While ease of use is a crucial function of any statistical package, most researchers will find that the “canned” nature of drop-down implemented models and tests are not sufficient for their research needs. Where the functionality of drop-down menus ends, the functionality of syntax begins. Syntax, or the programmable language of a

statistical package, allows the user to customize most or all of the functions of that statistical package to fit the needs of their research.

Happily SPSS 11.5 allows the user who isn't comfortable with syntax but needs the extensibility it offers a way out. In nearly every dialog box that opens up whenever a particular analysis is run in SPSS, there will be an option for "PASTE" located on the right-hand side of the dialog box. Here's an example (screenshot 1):

The screenshot shows the SPSS Data Editor window titled "Employee data - SPSS Data Editor". The main window displays a data table with columns: id, g, bdate, educ, jobcat, salary, salbegin, jobtime, prevexp, minority, var, var, var. The data rows are numbered 1 through 29. A "Summarize Cases" dialog box is open in the foreground, partially obscuring the data table. The dialog box contains the following elements:

- Variables:** A list of variables including Employee Code [id], Date of Birth [bdate], Employment Category [g], Beginning Salary [salbe], Previous Experience [prevexp], and Minority Classification [minority]. Selected variables are Gender [gender], Educational Level [educ], Current Salary [salary], and Months since Hire [jobtime].
- Grouping Variable(s):** An empty field.
- Display cases:** A checked checkbox.
- Limit cases to first:** A text box containing the value "100".
- Show only valid cases:** A checked checkbox.
- Show case numbers:** An unchecked checkbox.
- Buttons:** OK, Paste, Reset, Cancel, Help, Statistics..., and Options....

The "Paste" button is located immediately below the "OK" button. The taskbar at the bottom shows the Start button, several open applications (Novell Gro..., benchmark..., Employee..., Adobe Acr..., CNN.com...), and the system clock showing 3:33 PM.

The button for "PASTE" is located immediately below the "OK" button. By clicking on "PASTE," SPSS will paste the appropriate syntax into a syntax editor window! The syntax will reflect all customizations that have been selected in the particular dialog box for a particular type of analysis. For example, in the

picture above, any customizations the user requested from SPSS under the “STATISTICS” and “OPTIONS” selections would be reflected in the syntax that SPSS will paste into the syntax editor. If you utilize this option, you will need to run your analysis from within the syntax editor.

## **A Simple Report**

In this section we will look at a simple report generated from our example data. We will generate simple case summaries with mean and range statistics by using the combined power of the drop-down menu system and syntax.

First, we click on Analyze, then Report, then across to Case Summaries (screenshot 2):

The screenshot shows the SPSS Data Editor interface. The 'Reports' menu is open, and 'Case Summaries...' is selected. The data table contains the following information:

	id	g	b	jobcat	salary	salbegin	jobtime	prevexp	minority	var	var	var	var
1	1	m		3	\$57,000	\$27,000	98	144	0				
2	2	m		1	\$40,200	\$18,750	98	36	0				
3	3	f		1	\$21,450	\$12,000	98	381	0				
4	4	f		1	\$21,900	\$13,200	98	190	0				
5	5	m		1	\$45,000	\$21,000	98	138	0				
6	6	m		1	\$32,100	\$13,500	98	67	0				
7	7	m		1	\$36,000	\$18,750	98	114	0				
8	8	f		1	\$21,900	\$9,750	98	0	0				
9	9	f		1	\$27,900	\$12,750	98	115	0				
10	10	f	02/13/1946	12	1	\$24,000	\$13,500	98	244	0			
11	11	f	02/07/1950	16	1	\$30,300	\$16,500	98	143	0			
12	12	m	01/11/1966	8	1	\$28,350	\$12,000	98	26	1			
13	13	m	07/17/1960	15	1	\$27,750	\$14,250	98	34	1			
14	14	f	02/26/1949	15	1	\$35,100	\$16,800	98	137	1			
15	15	m	08/29/1962	12	1	\$27,300	\$13,500	97	66	0			
16	16	m	11/17/1964	12	1	\$40,800	\$15,000	97	24	0			
17	17	m	07/18/1962	15	1	\$46,000	\$14,250	97	48	0			
18	18	m	03/20/1956	16	3	\$103,750	\$27,510	97	70	0			
19	19	m	08/19/1962	12	1	\$42,300	\$14,250	97	103	0			
20	20	f	01/23/1940	12	1	\$26,250	\$11,550	97	48	0			
21	21	f	02/19/1963	16	1	\$38,850	\$15,000	97	17	0			
22	22	m	09/24/1940	12	1	\$21,750	\$12,750	97	315	1			
23	23	f	03/15/1965	15	1	\$24,000	\$11,100	97	75	1			
24	24	f	03/27/1933	12	1	\$16,950	\$9,000	97	124	1			
25	25	f	07/01/1942	15	1	\$21,150	\$9,000	97	171	1			
26	26	m	11/08/1966	15	1	\$31,050	\$12,600	96	14	0			
27	27	m	03/19/1954	19	3	\$60,375	\$27,480	96	96	0			
28	28	m	04/11/1963	15	1	\$32,550	\$14,250	96	43	0			
29	29	m	01/28/1944	19	3	\$135,000	\$79,980	96	199	0			

Next, we select our variables to be reported in our case summaries (screenshot 3) and the statistics (screenshot 4):

Employee data - SPSS Data Editor

File Edit View Data Transform Analyze Graphs Utilities S-PLUS Window Help

Summarize Cases

Variables:

- Gender [gender]
- Educational Level [year]
- Current Salary [salary]
- Beginning Salary [salbe

Grouping Variable(s):

Display cases

Limit cases to first 100

Show only valid cases

Show case numbers

Statistics... Options...

id	gender	educational	current_salary	beginning_salary	jobtime	prevexp	minority	var	var	var
16	m	12	\$40,800	\$15,000	97	24	0			
17	m	15	\$46,000	\$14,250	97	48	0			
18	m	16	\$103,750	\$27,510	97	70	0			
19	m	12	\$42,300	\$14,250	97	103	0			
20	f	12	\$26,250	\$11,550	97	48	0			
21	f	16	\$38,850	\$15,000	97	17	0			
22	m	12	\$21,750	\$12,750	97	315	1			
23	f	15	\$24,000	\$11,100	97	75	1			
24	f	12	\$16,950	\$9,000	97	124	1			
25	f	15	\$21,150	\$9,000	97	171	1			
26	m	15	\$31,050	\$12,600	96	14	0			
27	m	19	\$60,375	\$27,480	96	96	0			
28	m	15	\$32,550	\$14,250	96	43	0			
29	m	19	\$135,000	\$79,980	96	199	0			

Data View Variable View

SPSS Processor is ready

Start Novell GroupWise - Mailbox benchmarks92003 - Micro... Employee data - SPSS ... 3:50 PM

The screenshot displays the SPSS Data Editor interface. The main window shows a data table with columns: salary, salbegin, jobtime, prevexp, minority, var, var, var, var. The 'Summarize Cases' dialog box is open, with 'Display cases' checked and 'Limit cases to first' set to 100. The 'Variables' list includes Gender, Educational Level, Current Salary, and Beginning Salary. The 'Summary Report: Statistics' dialog box is also open, showing a list of statistics including Median, Grouped Median, Std. Error of Mean, Sum, Minimum, Maximum, First, Last, Standard Deviation, Variance, Kurtosis, Std. Error of Kurtosis, Skewness, Std. Error of Skewness, and Harmonic Mean. The 'Cell Statistics' list includes Mean and Range.

Case	Salary	Salbegin	Jobtime	Prevexp	Minority
17	\$7,000	\$27,000	98	144	0
18	\$0,200	\$18,750	98	36	0
19	\$1,450	\$12,000	98	381	0
20	\$1,900	\$13,200	98	190	0
21	\$5,000	\$21,000	98	138	0
22	\$2,100	\$13,500	98	67	0
23	\$5,000	\$18,750	98	114	0
24	\$1,900	\$9,750	98	0	0
25	\$16,950	\$9,000	97	124	1
26	\$21,150	\$9,000	97	171	1
27	\$31,050	\$12,600	96	14	0
28	\$60,375	\$27,480	96	96	0
29	\$32,550	\$14,250	96	43	0
30	\$135,000	\$79,980	96	199	0

After we have selected the variables to be reported in the case summaries and the statistics, when then paste the syntax as discussed above:

The screenshot shows the SPSS Data Editor window with a data table and a Syntax Editor window open. The data table has columns for 'id', 'g', 'bdate', and several unlabeled columns. The Syntax Editor window contains the following code:

```
SUMMARIZE
/TABLES=gender educ salary salbegin
/FORMAT=VALIDLIST NOCASENUM TOTAL LIMIT=100
/TITLE='Case Summaries'
/MISSING=VARIABLE
/CELLS=MEAN RANGE .
```

The data table contains the following rows (from row 1 to 29):

id	g	bdate	var	var	var	var	var	var	var
1	m	02/03/1							
2	m	05/23/1							
3	f	07/26/1							
4	f	04/15/1							
5	m	02/09/1							
6	m	08/22/1							
7	m	04/26/1							
8	f	05/06/1							
9	f	01/23/1							
10	f	02/13/1							
11	f	02/07/1							
12	m	01/11/1							
13	m	07/17/1							
14	f	02/26/1							
15	m	08/29/1							
16	m	11/17/1							
17	m	07/18/1							
18	m	03/20/1							
19	m	08/19/1							
20	f	01/23/1940	12	1	\$28,250	\$11,000	97	40	0
21	f	02/19/1963	16	1	\$38,850	\$15,000	97	17	0
22	m	09/24/1940	12	1	\$21,750	\$12,750	97	315	1
23	f	03/15/1965	15	1	\$24,000	\$11,100	97	75	1
24	f	03/27/1933	12	1	\$16,950	\$9,000	97	124	1
25	f	07/01/1942	15	1	\$21,150	\$9,000	97	171	1
26	m	11/08/1966	15	1	\$31,050	\$12,600	96	14	0
27	m	03/19/1954	19	3	\$60,375	\$27,480	96	96	0
28	m	04/11/1963	15	1	\$32,550	\$14,250	96	43	0
29	m	01/28/1944	19	3	\$135,000	\$79,980	96	199	0

After pasting, we highlight the syntax and run the routine, producing the following output:

**Summarize**

**Case Processing Summary<sup>a</sup>**

	Cases					
	Included		Excluded		Total	
	N	Percent	N	Percent	N	Percent
Gender	100	100.0%	0	.0%	100	100.0%
Educational Level (years)	100	100.0%	0	.0%	100	100.0%
Current Salary	100	100.0%	0	.0%	100	100.0%
Beginning Salary	100	100.0%	0	.0%	100	100.0%

a. Limited to first 100 cases.

**Case Summaries<sup>a</sup>**

	Gender	Educational Level (years)	Current Salary	Beginning Salary
1	Male	15	\$57,000	\$27,000
2	Male	16	\$40,200	\$18,750
3	Female	12	\$21,450	\$12,000
4	Female	8	\$21,900	\$13,200
5	Male	15	\$45,000	\$21,000
6	Male	15	\$32,100	\$13,500
7	Male	15	\$36,000	\$18,750
8	Female	12	\$21,900	\$9,750
9	Female	15	\$27,900	\$12,750
10	Female	12	\$24,000	\$13,500

In Part 2 of this article appearing next month in *Benchmarks* we will customize this report's layout and reported statistics using the syntax output from Part 1. Happy computing!



