Collecting Data and Drawing Conclusions

Topic 1

Data and Variables

There are no activities that require SPSS Statistics in this topic.

Topic 2

Data and Distributions

Activity 2-1: Penny Thoughts
2-1, 3-10, 16-23

Complete this activity as directed in your main textbook. Then follow the directions to use SPSS to create a dataset and draw a bar graph.

1. After starting SPSS click the **Type in Data** button in the dialog box that appears and then click **OK**. One way to enter data is to type values directly into SPSS.
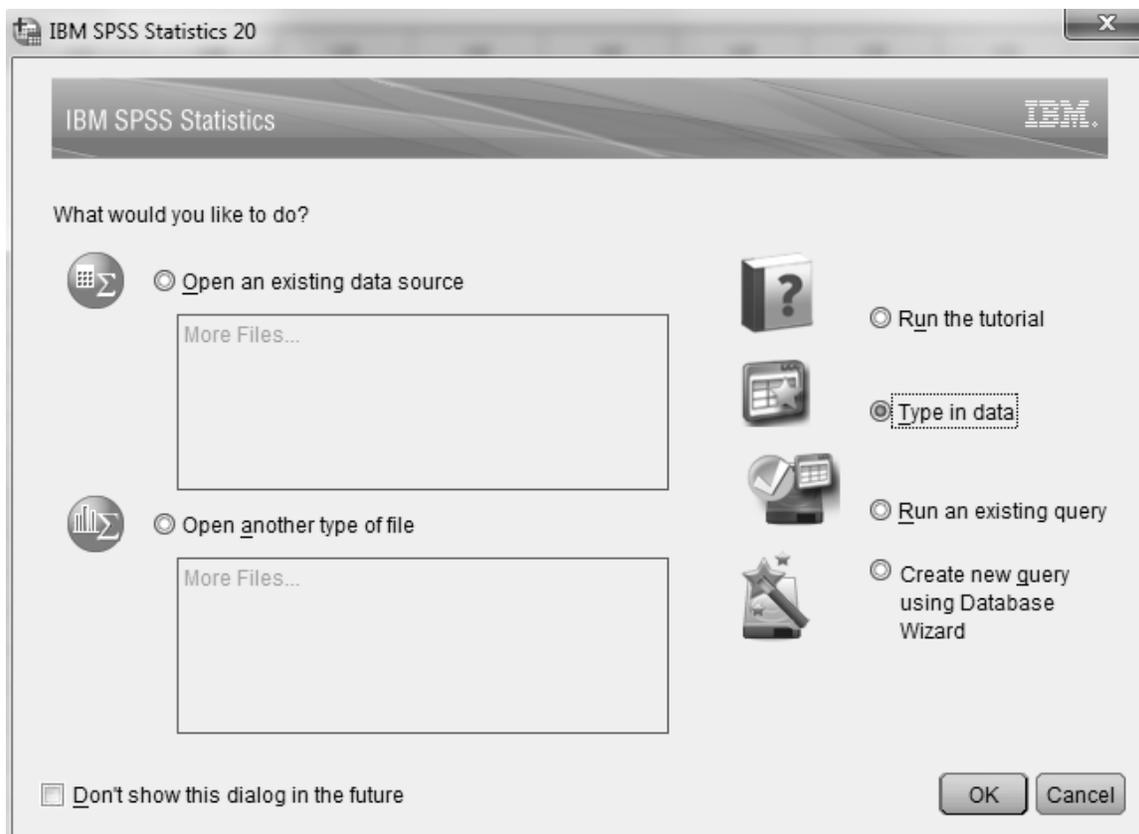
2. You will see a blank Data View. If the Data View is not visible, click the **Data View** tab at the bottom of the window. You should see the following. The numbers on the

left are case numbers. Observational units are called *cases* in SPSS. Each row represents one *case,* or observational unit. The columns represent variables.

	var	var	var
1			
2			
3			
4			
5			

3. These data are binary. For categorical data, it is the practice in SPSS to assign each category a numerical value and enter these in the data view. Let a 0 represent a response to abolish the penny and a 1 to represent a response to keep the penny. Then a partial Data View could look like the following. Enter the responses for your class in this manner. Entries will be displayed with two decimal places (this will be changed in step 6).

	VAR00001	var	var
1	.00		
2	1.00		
3	1.00		
4	.00		
5	1.00		

4. Notice that the grayed-out *var* has been replaced by *VAR00001*. Click the **Variable View** tab at the bottom of the window and give the new variable a more descriptive name. Also explain what a value of 0 and a value of 1 stand for:

	Name	Type	Width	Decimals	Label	Values	Missing	Columns	Align	Measure	Role
1	VAR00001	Numeric	8	2		None	None	8	Right	Unknown	Input
2											
3											
4											

5. Replace VAR0001 with *pennyview* by clicking in the *Name* cell and typing *pennyview*. Variables names must begin with a letter and contain no spaces. In addition, the only nonalphanumeric character allowed is the underscore (_).
6. Because the values are whole numbers, change the number of places after the decimal to zero. To do this, click in the *Decimals* cell and click the arrows on the right-hand side to make the entry equal to 0. Furthermore, it is always good practice to give an English description of what the variable is. You do this by entering text in the *Label* cell. For this new variable, enter the sentence *Should we keep or abolish the penny?* The Variable View should now look like the following:

	Name	Type	Width	Decimals	Label	Values	Missing	Columns	Align	Measure	Role
1	pennyview	Numeric	8	0	Should we keep or abolish the penny?	None	None	8	Right	Unknown	Input
2											
3											

7. To descriabe the 0 and 1 values of this variable using plain English, click in the *Values* cell and the box with the ellipsis (…) on the right side to bring up the following dialog box. To assign labels to each possible value of the variable, enter each value in the **Value** box, enter a descriptive label in the **Label** box, and then click the **Add** button. Assign the label "Abolish" to the value 0 and the label "Keep" to the value 1. When you are done the dialog box should look like the following. Click **OK**.
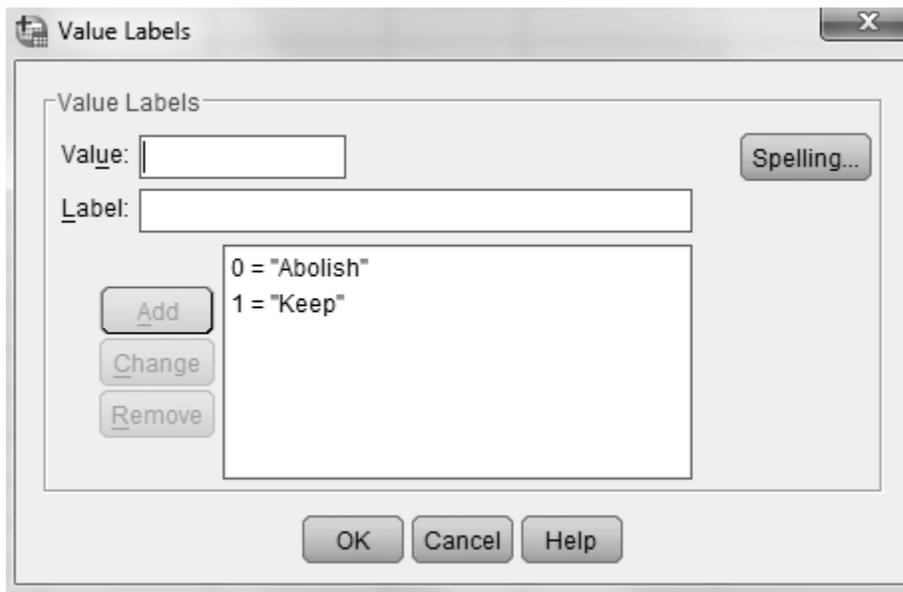
8. Finally, you need to tell SPSS whether the variable is quantitative or categorical. SPSS recognizes three different types of data: quantitative (called *scale* in SPSS), ordinal, and nominal. *Ordinal* and *nominal* refer to two different types of categorical data. If the categories have no natural order to them (*male, female,* for example), then we have *nominal* data. If the categories do have a natural order (*liberal, moderate, conservative,* for example), then we have *ordinal* data. This is set in the *Measure* cell. Click in the cell and then click the arrow on the right side to bring up the following menu. Select the correct data type. Our new variable is a nominal one.
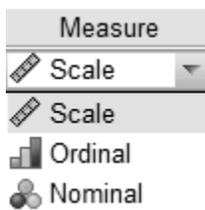
9. The final Variable View should look like the following.

	Name	Type	Width	Decimals	Label	Values	Missing	Columns	Align	Measure	Role
1	pennyview	Numeric	8	0	Should we keep or abolish the penny?	{0, Abolish}...	None	8	Right	Nominal	Input
2											
3											

SPSS Tip: When creating an SPSS dataset, remember the following

- Give each variable a descriptive name.
- Enter a verbal description of the variable in the *Label* call.
- If the variable is categorical, enter numerical values for each separate category and give each distinct value a verbal label.
- Make sure you assign each variable the appropriate data type in the *Measure* cell. Some SPSS procedures, particularly graphing, will not work correctly if this is not done.

To draw a bar graph, select **Graph > Chart Builder** from the menus to bring up the dialog box shown below.

1. From the **Gallery** select **Bar**.
2. Drag the bar chart picture in the upper left hand corner to the *Chart preview uses example data* box.
3. Drag the variable you wish to plot to the **X-Axis?** box. What you see should look like the dialog box shown below.
4. Now click **OK** to draw the graph. The resulting graph will appear in an Output window.
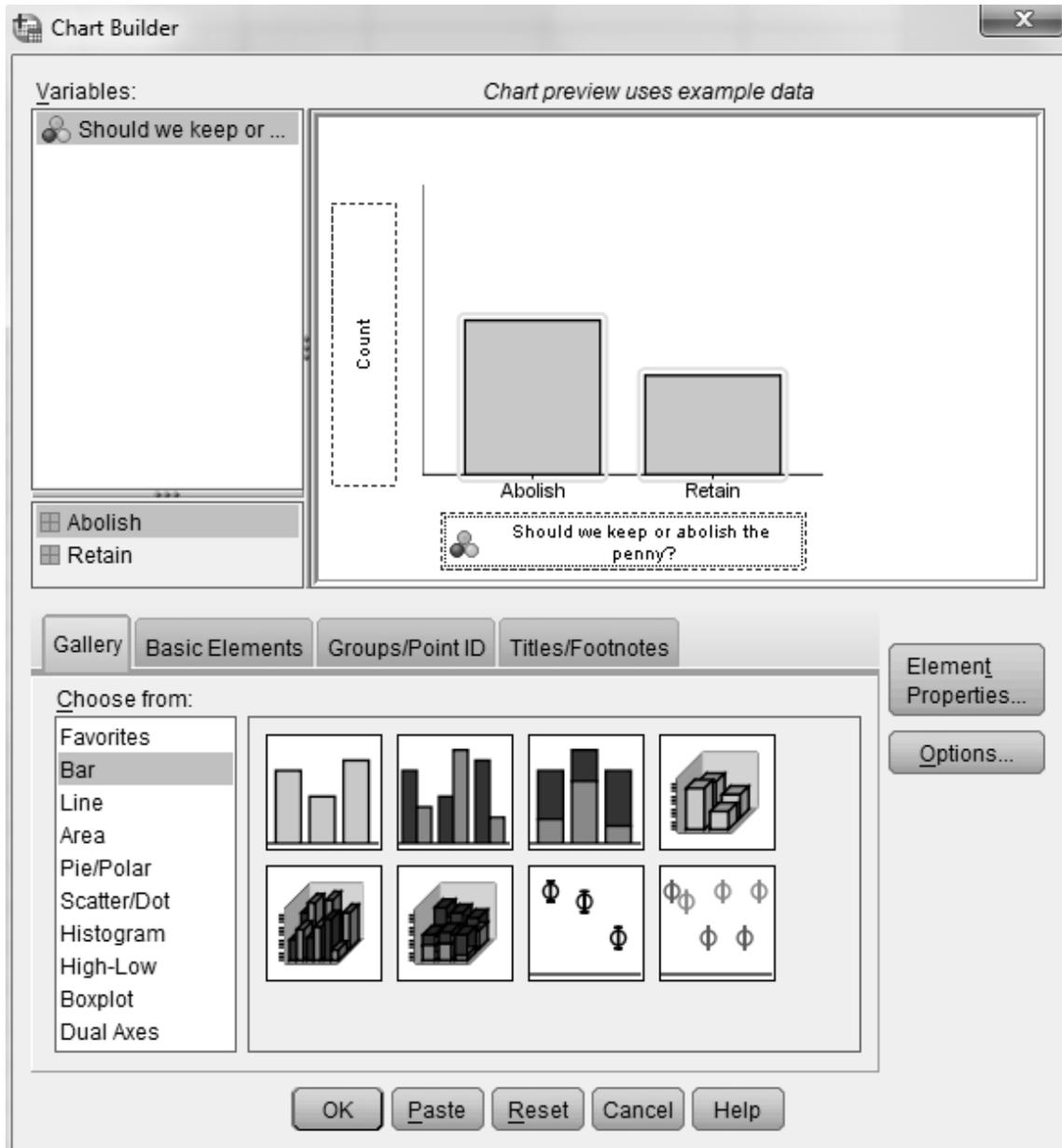
Activity 2-3: Student Travels

Complete parta a of this activity as directed in your main textbook. After part a, follow the directions below for using SPSS to create a dotplot to complete parts d through e of this activity.

1. Create a new variable, *statevis*, and enter the data collected in your class. Give it a label of *How many states have you visited?* Set its data type to scale. See Activity 2-1 if you need help setting the data type.
2. Select **Graphs > Chart Builder** to bring up the dialog box shown below.

3. Select **Scatter/Dot** from the **Gallery**.
4. Drag the dotplot picture shown below to the *Chart preview uses example data* box.
   You should see the label *Simple Dot Plot* if you hover your cursor over it.
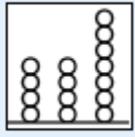
5. Drag the variable to be plotted to the **X-Axis?** box.
6. Click **OK** to create the dotplot.

Drawing Conclusions from Data

There are no activities that require SPSS Statistics in this topic.

Random Sampling

There are no activities that require SPSS Statistics in this topic.

Topic 5

Designing Experiments

There are no activities that require SPSS Statistics in this topic.