

Research Methods

Correlations in SPSS

This guide will show you how to use SPSS to obtain a scatterplot and a Pearson correlation coefficient.

The data in this example are the data used in the session on correlation looking at the relationship between 'playfulness' and 'involvement' in performing a task, these being measured through the use of playfulness and involvement scales.

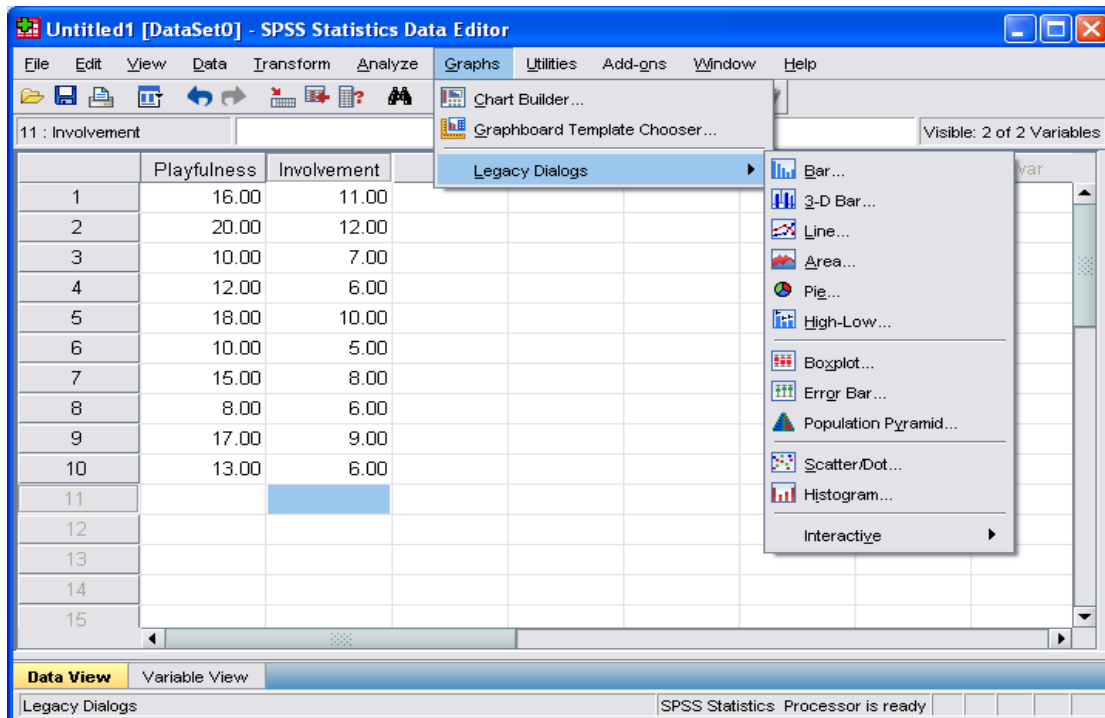
Enter the data

This is pretty straightforward - here we have two scores from each child - a *playfulness* and an *involvement* score, so these can be inputted in two columns in the usual manner:

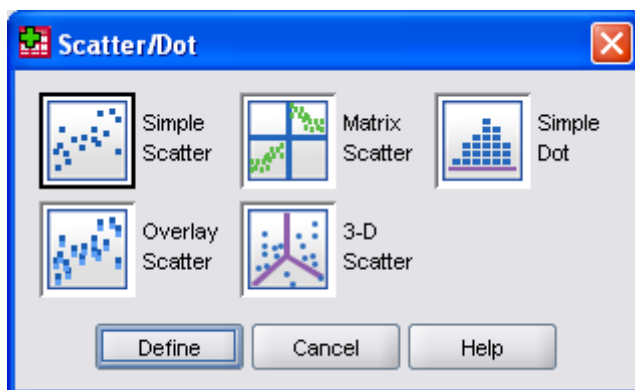
	Playfulness	Involvement	var	var	var
1	16.00	11.00			
2	20.00	12.00			
3	10.00	7.00			
4	12.00	6.00			
5	18.00	10.00			
6	10.00	5.00			
7	15.00	8.00			
8	8.00	6.00			
9	17.00	9.00			
10	13.00	6.00			
11					
12					
13					
14					
15					

Obtain a scatterplot.

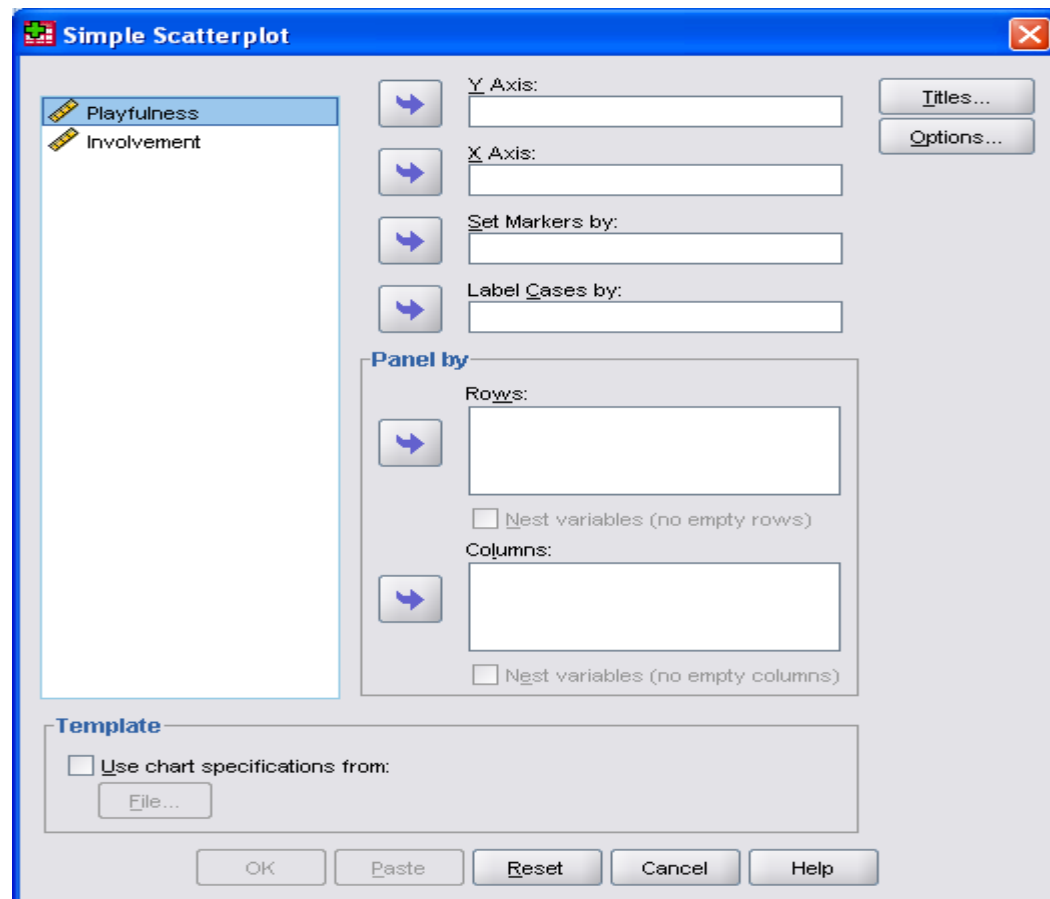
Before going on to calculate a correlation coefficient, it would be useful to get a visual representation of the relationship between the two variables. To obtain this, first go to the **Graphs** menu, and from this select **legacy dialogs...** , as below:



From the legacy dialogs options, select **Scatter/Dot...** which will lead to the following dialogue box:

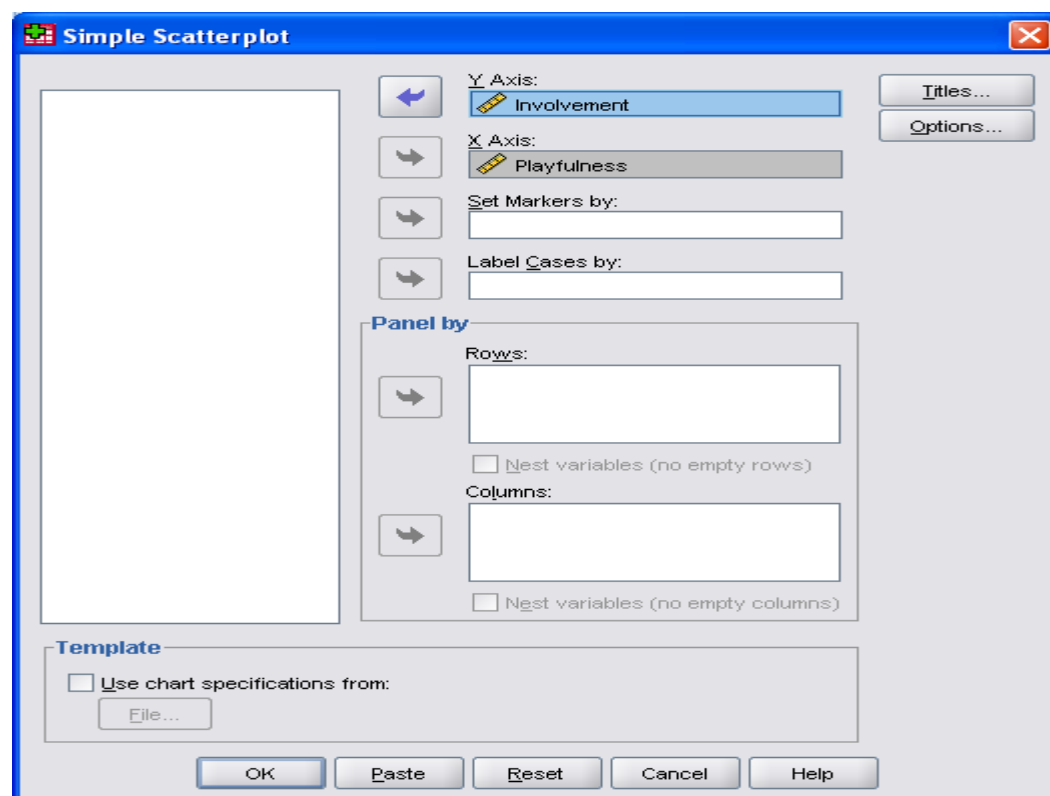


Indicate what type of scatterplot you want here. Most of the time, you will just want a basic scatterplot so click the mouse over the option **Simple Scatter**, and then click **Define** to proceed to the next step:



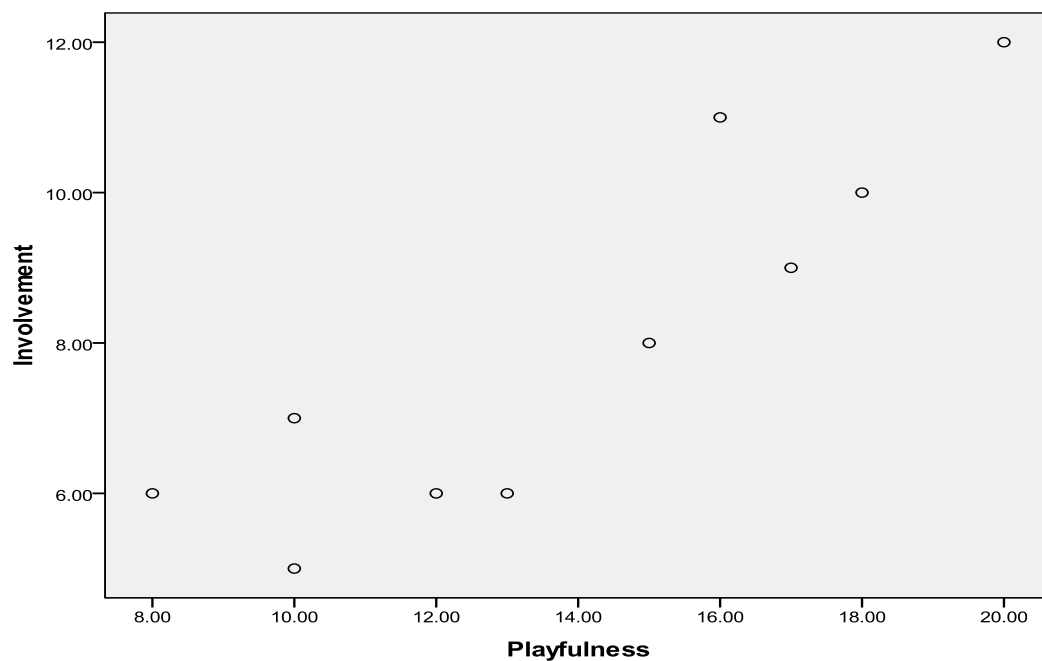
The dialog box is titled "Simple Scatterplot" and features a list of variables on the left: "Playfulness" and "Involvement". To the right of this list are four arrow buttons pointing to input fields for "Y Axis:", "X Axis:", "Set Markers by:", and "Label Cases by:". Below these is a "Panel by" section with arrow buttons pointing to "Rows:" and "Columns:" input fields, each followed by a "Nest variables (no empty rows/columns)" checkbox. At the bottom left is a "Template" section with a checkbox "Use chart specifications from:" and an "File..." button. On the right side are "Titles..." and "Options..." buttons. At the bottom are "OK", "Paste", "Reset", "Cancel", and "Help" buttons.

Just decide which of the two variables will be plotted along the horizontal (X) axis, select it with the mouse and use the arrow button to move it to the relevant box. Do the same with the second variable which will be plotted along the vertical (Y) axis. I will select the playfulness score to go along the *x-axis* and the involvement score to go along the *y-axis*, so my dialogue box will look as follows:



This version of the dialog box shows the result of the previous steps. The "Y Axis:" field now contains "Involvement" and the "X Axis:" field contains "Playfulness". The "Set Markers by:" and "Label Cases by:" fields remain empty. The "Panel by" section is also empty. The "Template" section and the bottom buttons remain the same as in the previous image.

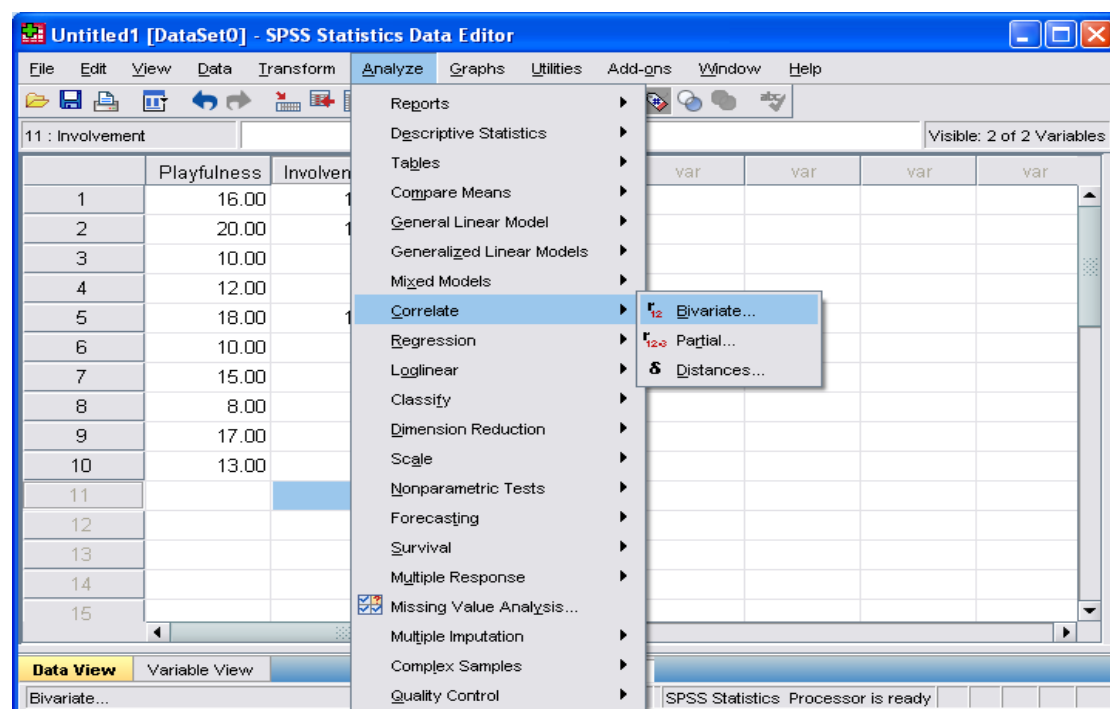
When you have done this, simply click **OK**, and SPSS will produce the scatterplot for you:



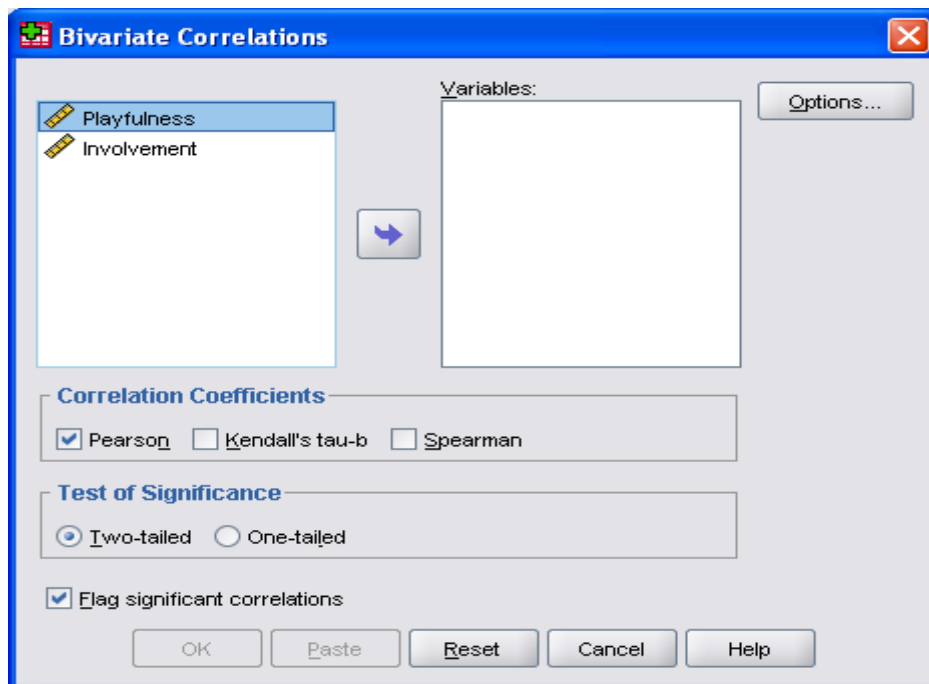
The above example clearly indicates a positive correlation between the two sets of scores - high playfulness scores are associated with high involvement scores.

Obtain Pearson correlation.

From the **Analyze** menu select correlate, and from the sub-menu, select **Bivariate...**



This will produce the following dialogue box:



Simply transfer the variables in your data file into the **variables** box by selecting them and using the arrow button (or you can 'drag and drop' to the variables box). By default SPSS has chosen the **Pearson** correlation for you (you can also use this programme to request a **Spearman** correlation). As the prediction is **one-tailed** (we are predicting a positive correlation between playfulness and involvement scores, you need to select this option. Once you have done this, the **OK** button will become active, and click this to get SPSS to calculate the correlation coefficient:

Correlations		Playfulness	Involvement
Playfulness	Pearson Correlation	1	.882**
	Sig. (1-tailed)		.000
	N	10	10
Involvement	Pearson Correlation	.882**	1
	Sig. (1-tailed)	.000	
	N	10	10

**. Correlation is significant at the 0.01 level (1-tailed).

SPSS will produce the correlation coefficient, which in this case is .882, indicating a strong positive correlation. Below this is the Sig. (1-tailed) value which is the exact probability of obtaining your result by chance alone. As the value here is much less than .05, we can conclude that there is a significant correlation between the two variables.

Reporting the correlation

A Pearson Product Moment indicated a significant correlation between playfulness and involvement scores ($r = .882$, $p < .05$, one-tailed).