



KORELASI

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RULES



1. PJ mata kuliah wajib mempersiapkan perlengkapan sebelum proses pembelajaran
2. Membawa Laptop (optional)
3. Terpasang Software SPSS
4. Terkoneksi Internet
5. Mengumpulkan *hasil praktik* selesai perkuliahan di SIP

Correlation is primarily concerned with investigating whether a relationship exists and with determining its magnitude and direction. When two variables vary together, such as loneliness and depression, they are said to be correlated



In order to show quantitatively the extent to which two variables are related, it is necessary to calculate a correlation coefficient. There are many types of correlation coefficients, and the decision of which one to employ with a specific set of data depends on the following factors:

- The level of measurement on which each variable is measured
 - The nature of the underlying distribution (continuous or discrete)
 - The characteristics of the distribution of the scores (linear or nonlinear)
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correlational technique the researcher uses, they have the following characteristics in common:

1. Two sets of measurements are obtained on the same individuals or on pairs of individuals who are matched on some basis.
 2. The values of the correlation coefficients vary between +1.00 and -1.00. Both of these extremes represent perfect relationships between the variables, and 0.00 represents the absence of a relationship.
 3. A *positive relationship* means that individuals obtaining high scores on one variable tend to obtain high scores on a second variable. The converse is also true, that is, individuals scoring low on one variable tend to score low on a second variable.
 4. A *negative relationship* means that individuals scoring low on one variable tend to score high on a second variable. Conversely, individuals scoring high on one variable tend to score low on a second variable.
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Requirements

- For each subject in the study, there must be *related pairs of scores*. That is, if a subject has a score on variable X, then the same subject must also receive a score on variable Y.
 - The variables should be measured at least at the *ordinal level*.
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Assumptions

- **Linearity**—The relationship between the two variables must be *linear*, that is, the relationship can be most accurately represented by a straight line.
 - **Homoscedasticity**—The variability of scores along the Y variable should remain constant at all values of the X variable.
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Example 1: Pearson Product Moment Correlation Coefficient

Assume that a researcher wishes to ascertain whether there is a relationship between grade point average (GPA) and the scores on a reading-comprehension (READ) test of 15 first-year students. The researcher recorded the pair of scores below, together with their rankings.


| Student | Read | Read_Rank | GPA | GPA_Rank |
|---------|------|-----------|-----|----------|
| s1 | 38 | 13 | 2.1 | 13 |
| s2 | 54 | 3 | 2.9 | 6 |
| s3 | 43 | 10 | 3.0 | 5 |
| s4 | 45 | 8 | 2.3 | 12 |
| s5 | 50 | 4 | 2.6 | 7.5 |
| s6 | 61 | 1 | 3.7 | 1 |
| s7 | 57 | 2 | 3.2 | 4 |
| s8 | 25 | 15 | 1.3 | 15 |
| s9 | 36 | 14 | 1.8 | 14 |
| s10 | 39 | 11.5 | 2.5 | 9.5 |
| s11 | 48 | 5.5 | 3.4 | 2 |
| s12 | 46 | 7 | 2.6 | 7.5 |
| s13 | 44 | 9 | 2.4 | 11 |
| s14 | 39 | 11.5 | 2.5 | 9.5 |
| s15 | 48 | 5.5 | 3.3 | 3 |

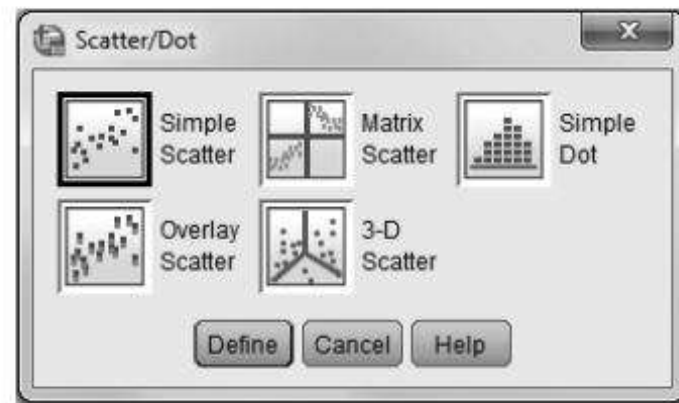
Data Entry Format

The data set has been saved under the name **CORR.SAV**.

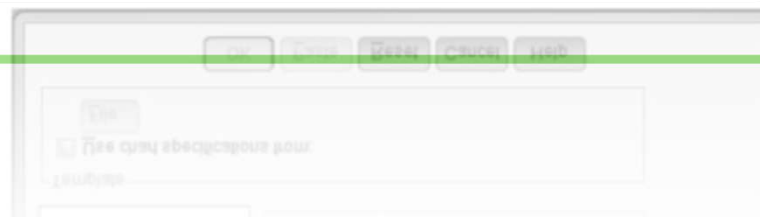
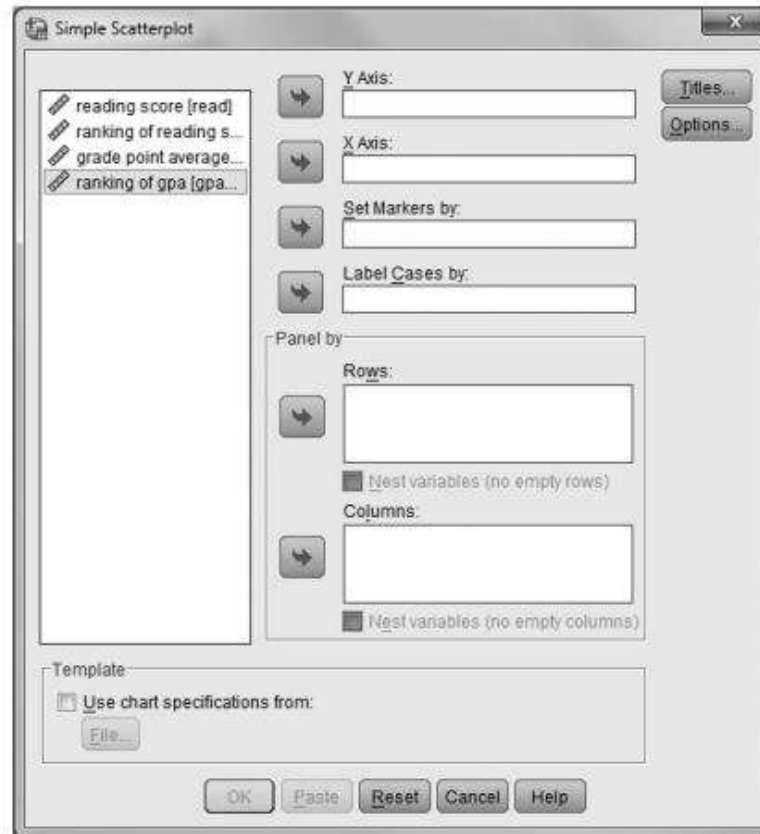
| Variables | Column(s) | Code |
|-----------|-----------|---------------------|
| READ | 1 | Reading score |
| READ_RANK | 2 | Ranking |
| GPA | 3 | Grade point average |
| GPA_RANK | 4 | Ranking |

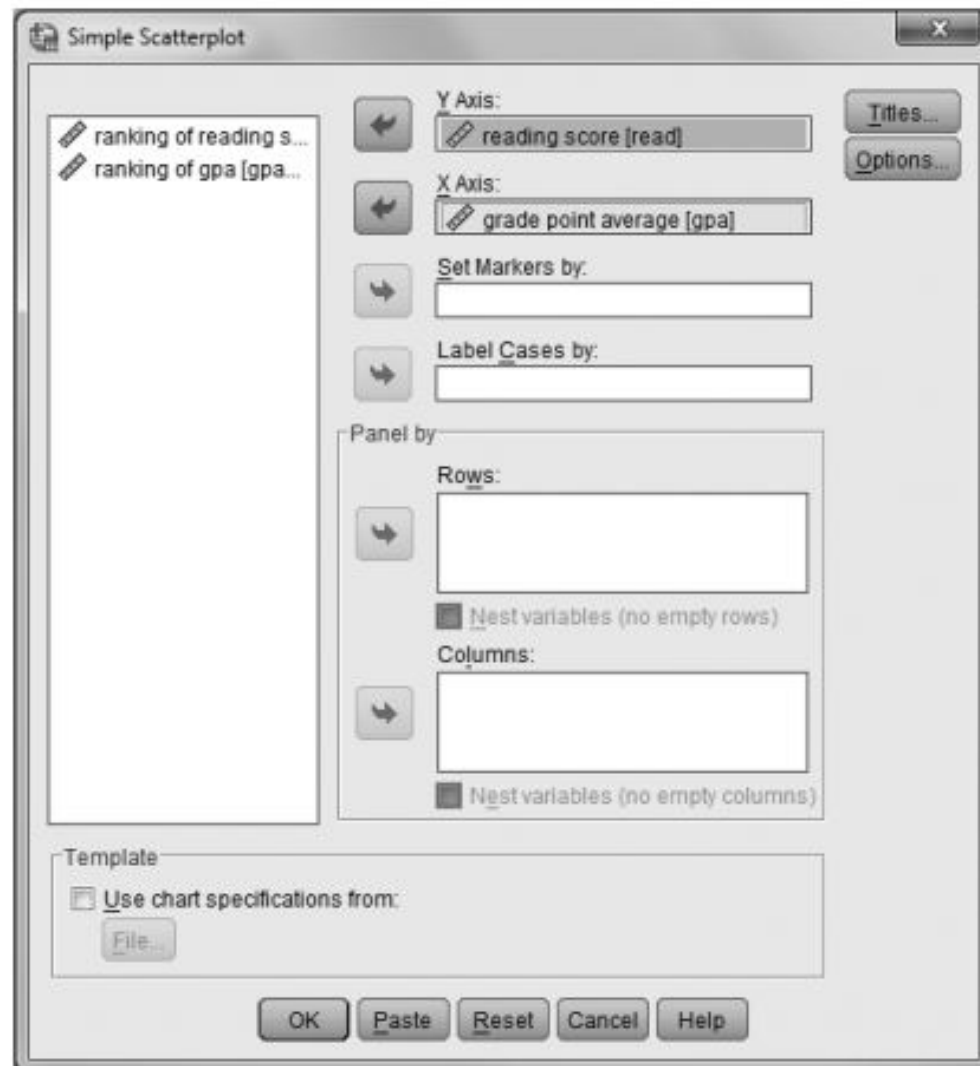
Testing Assumptions

1. From the menu bar, click **Graphs**, then **Legacy Dialogs**, and then **Scatter/Dot....** The following **Scatter/Dot** window will open. Click (highlight) the  Simple Scatter icon.



2. Click **Define** to open the **Simple Scatterplot** window below.





Options

Missing Values

☒ Exclude cases listwise

☐ Exclude cases variable by variable

☐ Display groups defined by missing values

☐ Display chart with case labels

☐ Display error bars

Error Bars Represent

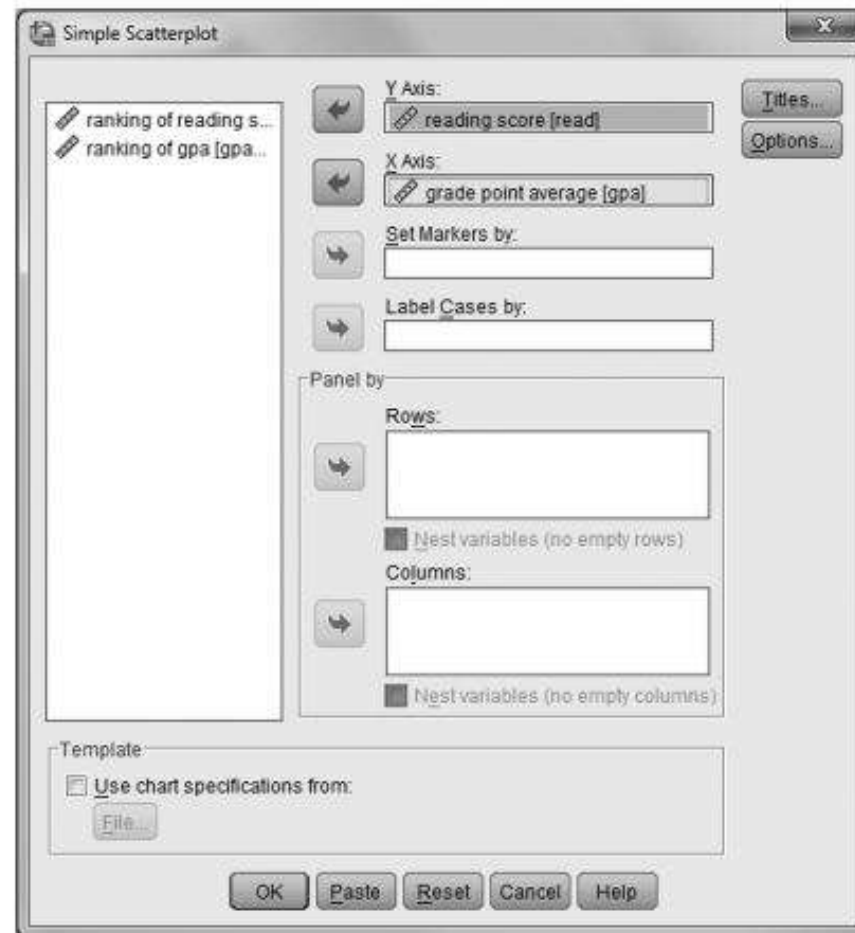
☒ Confidence intervals
Level (%):

☐ Standard error
Multiplier:

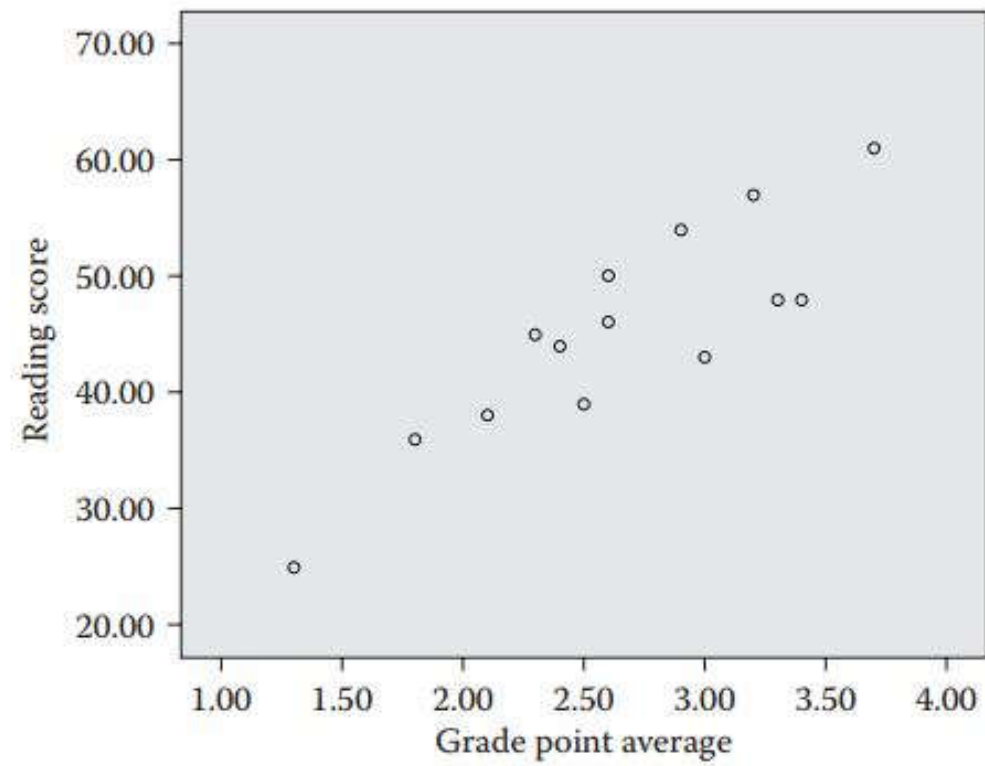
☐ Standard deviation
Multiplier:

Continue Cancel Help

Click **Continue** to return to the **Simple Scatterplot** window.



Scatterplot



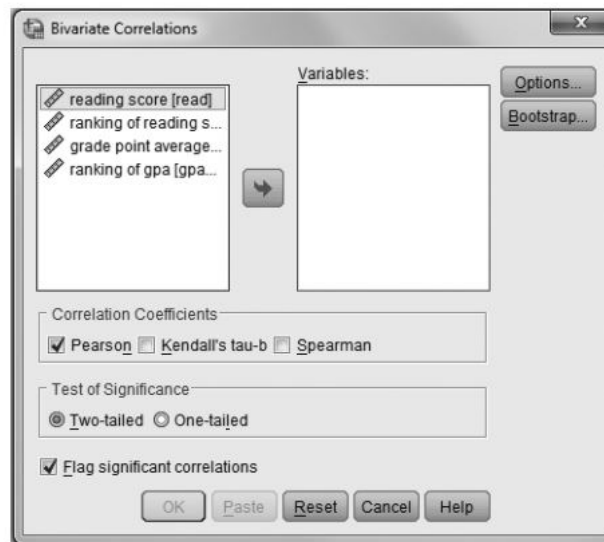
Interpretation

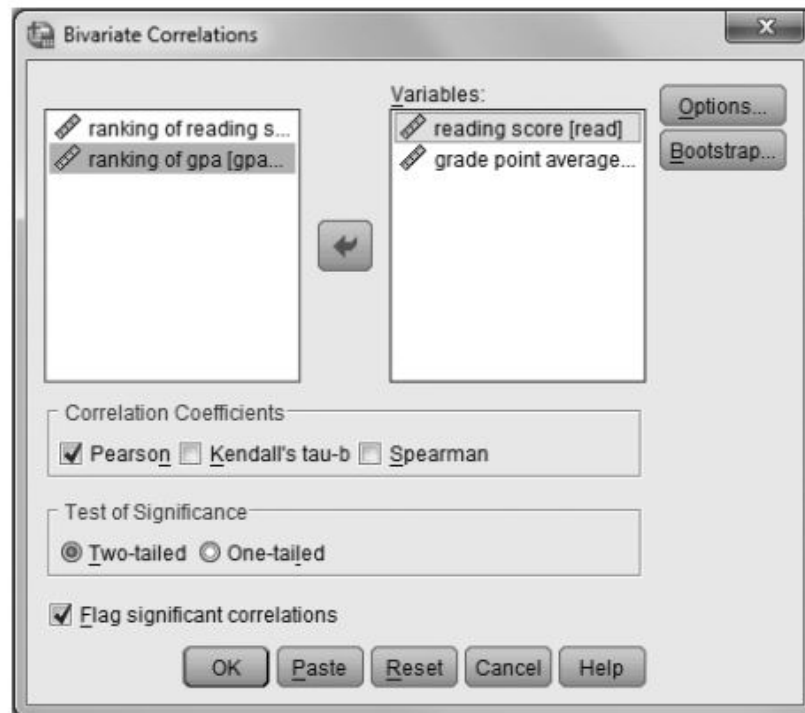
As can be seen from Figure 10.1, there is a linear relationship between the variables of reading score and grade point average, such that as reading score increases, so does grade point average.

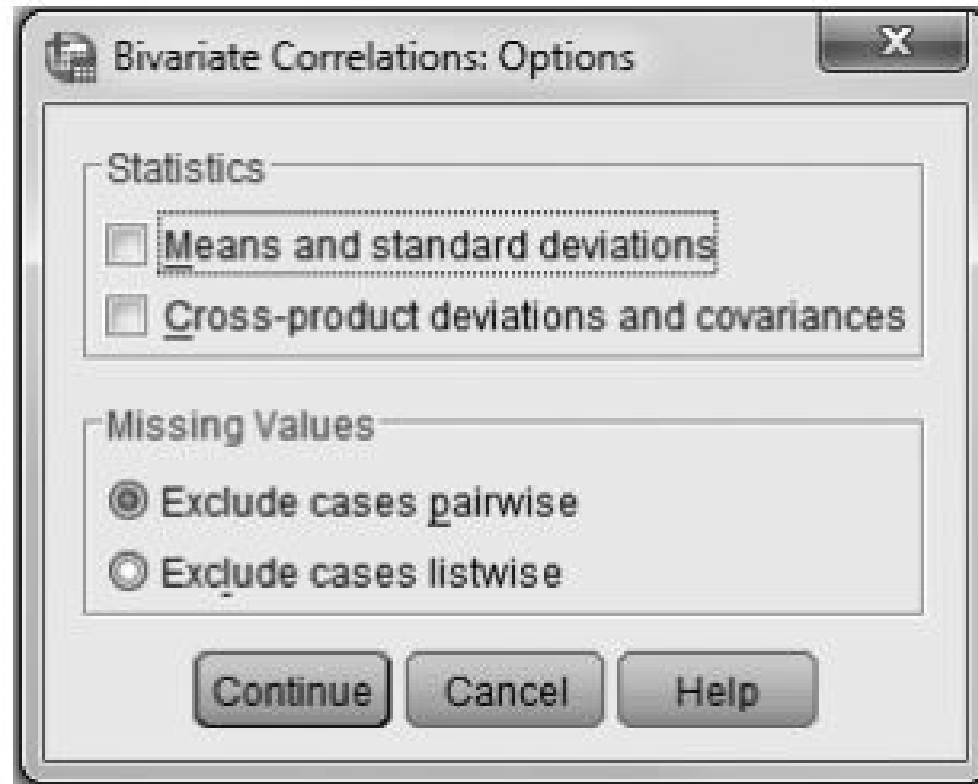
The figure also shows that the homoscedasticity assumption is met, because the variability of the READ score remains relatively constant from one GPA score to the next. Heteroscedasticity is usually shown by a cluster of points that is wider as the values for the Y variable (READ) get larger.

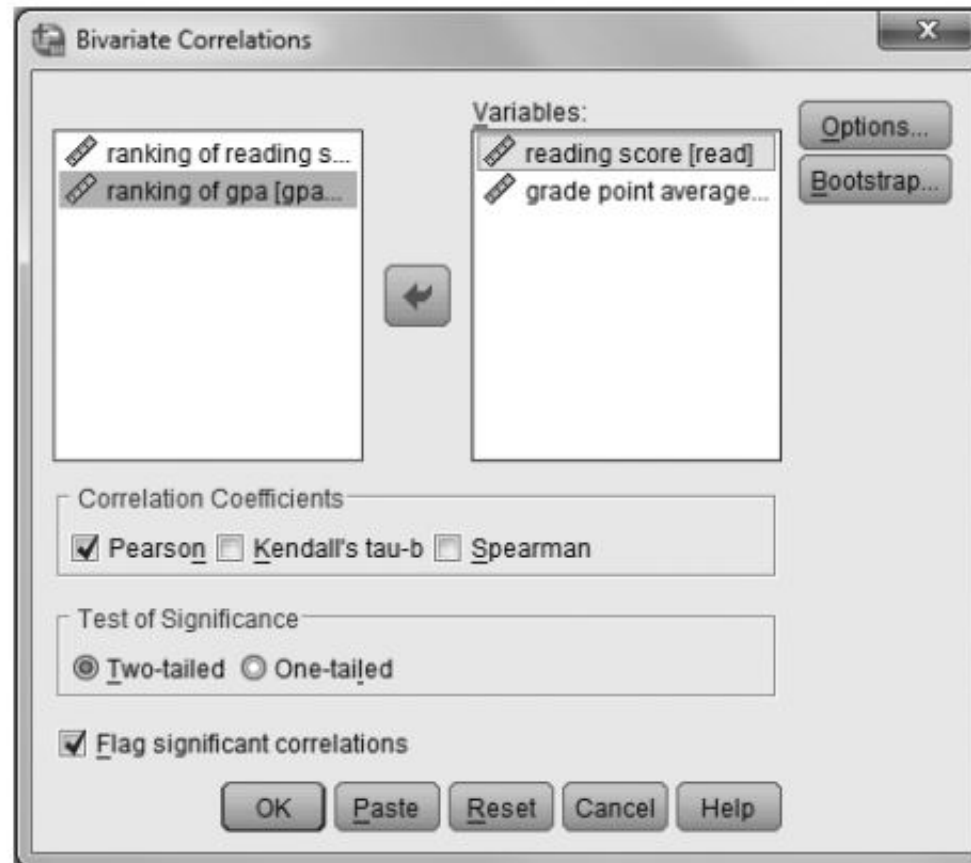
Windows Method: Pearson Product Moment Correlation

From the menu bar, click Analyze, then Correlate, and then Bivariate....The following Bivariate Correlations window will open.









SPSS Output

Pearson Product Moment Correlation

Correlations

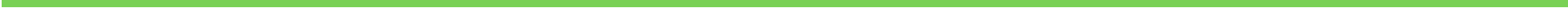
| | | Reading Score | Grade Point Average |
|---------------------|---------------------|---------------|---------------------|
| reading score | Pearson Correlation | 1 | .867** |
| | Sig. (2-tailed) | | .000 |
| | N | 15 | 15 |
| grade point average | Pearson Correlation | .867** | 1 |
| | Sig. (2-tailed) | .000 | |
| | N | 15 | 15 |

** Correlation is significant at the 0.01 level (2-tailed).

Results and Interpretation

The correlation between reading scores and grade point average is positive and statistically significant ($r = 0.867$, $p < .001$). This means that as the students' reading scores increase, so do their grade point averages. Please note that this interpretation in no way implies *causality*—that increases in reading scores caused increases in GPA scores. The significant relationship merely indicates that the two variables *covary*.

The



REFLEKSI

1. Informasi penting hari ini
2. Manfaat penting dari informasi penting hari ini
3. Tindak lanjut yang dapat saudara lakukan





Thank You