Chapter 28

Correlational Research and the Internet

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Learning Objectives

1. Define “correlational research.”
2. Explain instances where percentiles or even raw data will do the job as well as a correlation.
3. Summarize the rationale for using peer assessment in Web-based educational research.
4. Describe the findings from recent applications of the Post And Vote Model applied to:
   a. Homework Web sites
   b. Verbalizations on Explorer Videos
5. Compare recent theses in Web-based teaching and learning that used correlation statistics.
6. Describe the identifying characteristics of Web-based correlational research.
7. Demonstrate the procedure for conducting Web-based correlational research.

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Abstract

This chapter will discuss correlation of online data as a statistical technique to show significance and strength of agreement, and those times when percentiles or even raw data will do the job as well.

Correlation Research: What It Is

Correlation is a statistical technique that can show how strongly pairs of variables relate to one another, or agree on some measure. The most common type of correlation is called the Pearson Product Moment Correlation, named after Karl Pearson who developed this method to conduct agricultural research. The product moment part of the name comes from the way in which it is calculated, by summing up the products of the deviations of the scores from the average. The main result of a correlation is called the correlation coefficient (or “r”), and ranges from -1.0 to +1.0. The closer r is to +1 or -1, the more closely the two variables are related. While correlation coefficients are normally reported as \( r = \) (a value between -1 and +1), squaring them makes them easier to understand. The square of the coefficient (or \( r^2 \)) is equal to the percent of the variation in one variable that is related to the variation in the other. After squaring \( r \), ignore the decimal point. An \( r \) of .5 means 25% of the variation is related (.5 squared = .25). An \( r \) value of .7 means 49% of the variance is related (.7 squared = .49).

A correlation report can also show another result of each test, namely: statistical significance. In this case, the significance level will tell you how likely it is that the correlations reported may be due to chance in the form of random sampling error. If you are working with small sample sizes, choose a report format that includes the significance level. This format also reports the sample size.

Correlation as a Test of Statistical Significance

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Reliability Coefficients

The reliability coefficient is a common form of correlation coefficient. Reliability is used to measure the extent to which an item, scale, or instrument will yield the same score when administered in different times, locations, or populations, when the two administrations do not differ in relevant variables.