The Matrix

Dr. T's Professional Pointers

No. 129

All dissertations can be broken down into a 2 x 2 matrix. Well, maybe not all, but saying "almost all" is not much of an exaggeration. Understanding the matrix, drawing one out when you begin your research, and even using it explicitly in your dissertation can be a worthwhile endeavor. The 2 x 2 matrix (or grid) basically allows you to think about the relationship between your dependent variable and primary independent variable. Alternatively, you could think about how it might affect the interplay of two independent variables. The matrix takes you one step further by forcing you to think about what cases to choose, where you expect the cases you choose will fall in this matrix (if you are making empirical predictions) or evaluate how your cases actually do play out (if you are in the data analysis phase). The 2 x 2 nature of the grid assumes that you basically have two values on your dependent and independent variables – high and low.* Here is what such a matrix looks like.

		Dependent Variable	
		Low	High
Independent Variable	Low	A	B
	High	C	D

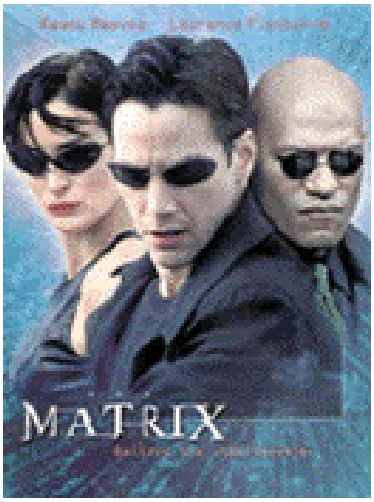
If you are doing a multiple case study, your ideal strategy would be to find cases that fall into each of the cells. If you posit a direct (positive) relationship between your two variables, you would hope to find that most of your cases fall in cells A and B. If the posited relationship is negative (inverse), then most of your cases should fall in cells C and B. Be careful, though. Remember what Barbara Geddes says – don't select on the dependent variable. In other words, if you find a couple of cases that fall into the predicted categories (A and D, or B and C) don't stop the search there. Try to find cases that fall into the other cells. If after a valiant effort you cannot find too many cases that fall into these cells, then you probably have a good hypothesis (though good hypotheses also need to spell out causal mechanisms). If all the cases fall equally across all cells that probably indicates that you don't have a relationship. You may need to rethink your hypothesis or find other variables of importance.

This is not a trivial exercise. During a job talk, someone in the audience will undoubtedly draw up this grid and ask you about possible cases in the cells your theory doesn't predict there will be any cases. You need to prepare yourself to deal with such a question.

* Note that this crude measure – high and low – is a very simple way to "quantify" qualitative studies. No matter how qualitative your data collection techniques are, you can always do a rudimentary quantification of this nature so long as you have variation on your variables. If you don't have any variation on your variables, what the hell are you studying?!

If you think that a 2 x 2 matrix is too simple, then do a 3 x 3 matrix (high, medium, low values) or a 3 x 2, 4 x 4, etc. (For you statisticians in the audience, this is the basic logic behind correlation analysis.)

Another strategy is to use the matrix to analyze the relative explanatory power of two independent variables. Label these independent variables on the grid. For each of your cases, write down the appropriate value of the dependent variable for each case according to how that case is categorized on the two independent variables. For instance, say that your observation (case) has a high value for ("horizontal") independent variable P and a low value for ("vertical") independent variable Q. The dependent variable's value for this case would then be recorded in cell B. Do this for all of your observations. (It will take several observations, at least four, for this exercise to be of any worth.) Note how the dependent variable's values "line up" in the grid. Ask yourself do the values tend to line up vertically (implying the "horizontal" independent variable has the greater explanatory power), horizontally (implying the "vertical" independent variable has the greater explanatory power), or diagonally (implying some "interactive" relationship).



And to think…Keanu Reeves thought the "matrix" was something horrible and needed to be vanquished! That is so not excellent, dude!!