Researchers who take the study of institutions seriously would do well to learn more about the common features and significant differences among colleges and universities, their diverse programs and services, and their pluralistic faculties, staffs, and students (Fincher, 1983, 1987). The complexity of institutions of higher education and their multiple constituencies imply strongly that more sophisticated methods of inquiry and analysis are needed. Implied also is the probability that institutional studies are influenced greatly by the ways in which we “visualize” and “verbalize” complex and interesting phenomena in sociocultural contexts (Neisser, 1976; Somer, 1978).

The differences in scholarly perspectives can be illustrated by contrasting matrices, as the imposing of linear relations on complex objects of study, and mosaics, as the emergence of forms, shapes, and patterns in objects and events that are often in states of transition (See Clark, 1984, as one example). The concept of a matrix, of course, is derived from the same term as “mother” and originally pertained to the womb. Mosaics, in contrast, are ways of inlaying stones, glass, tiles, or other objects to make patterns or pictures. More recently, mathematicians have taught us to think of a matrix as any set of numbers arranged in rows and columns. Mosaics suggest a series of aerial photographs pieced together to form a continuous composite.

In analyses of institutional characteristics, many of us make good use of matrices, imagined or actual. The simplest form of a matrix, that quickly comes to mind, is a four-fold diagram or double-classification scheme that permits us to compute chi square tests of association, phi coefficients of correlations, and where the assumptions of neither hold, contingency coefficients. Users of all four-fold tables are indebted to Cartesian geometry and its delineation of four quadrants on a horizontal axis (the abscissa) and a vertical axis (the ordinate). Most of us, at one time in our schooling, were introduced to upper-right (I) quadrants in which both scales were positive, upper-left (II) quadrants in which the horizontal scale was negative, and lower-right quadrants (IV) in which the horizontal scale was positive and the vertical scale negative.
The convenience of Cartesian coordinates is the placement of observations with specific reference. Once we "got the picture" we knew exactly where in the first quadrant a \(+3, +4\) location was, as opposed to a \(-3, -4\) location in the third quadrant. It may have bothered some of us because the quadrants run counterclockwise and conflict with our mental uses of the face of a clock. As a result, perhaps, there is a decided preference in many forms of research to restrict analyses to the first quadrant in which scales are positive and distance on one coordinate is easily seen in relation to distance on the other.

Cartesian coordinates permit us to plot curves and to derive equations. In particular, they are the basis of slopes and intercepts (for a straight line) to depict the relationship between two variables. The ratio of vertical rise to horizontal run for a best-fitting straight line, of course, is the basis for correlation and regression analysis. Given the Y-intercept and the degree of relationship, as indicated by the slope of a straight line "fitting" the plotted data, we wind up with a linear model of the effect of one variable on another within a correlational matrix.

Within the first quadrant we often organize matrices of our own devise. We slice the X-axis into columns and the Y-axis into rows, as analytical preferences dictate, or divide the major dimensions conveniently at their mean or median and establish our own four-fold table in which the categories are high-high, low-high, low-low, and high-low. Who has not seen a four-fold table in which leadership is classified according to its emphases on people and results? Leaders in the upper-right cell are "strong" while those in the lower-left are "weak." Leaders high on a concern-for-people and low on a concern-for-results are "supportive," and those high on results and low on people are "directive." The descriptive labels will vary, but the classification is essentially the same.

The categories we can establish by slicing rows and columns are limited only by imagination and rationality. To be useful to others, our categories should be: (1) internally consistent, (2) mutually exclusive, and (3) exhaustive. It will also help if they are not too numerous. In higher education we often violate the first three canons with simplistic categories such as "administrators" and "faculty members." The faults of such categorical reasoning are clearly evident, but they seldom bother faculty members defending faculty privileges or graduate students in pursuit of doctoral research.

Far too many researchers are fond of dichotomous categories that oversimplify research findings in higher education. After-dinner speakers often indulge this fondness in dealing with faculty or administrative stereotypes, teaching styles, student tactics, and other excesses of academic life. Researchers, however, should be careful that whimsical categories are not reified, as "organized anarchy" has been.

Those who construct categories for descriptive or analytical purposes should