

A Note On Definitions And Precision

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Oftentimes, university students ask where research should begin. A student and I once were enjoying a cup of coffee together when just that question came up. Before the coffee turned cold, I felt compelled to lecture him on more than he bargained for--or needed. Here's that lecture, probably more than you need.

Research must begin with definitions. Definitions permit counting. But to go beyond the counting, one must examine the history of the terms defined. Histories permit epidemiological understanding. Invariably, a troublesome question concerns precision, whether it refers to the counting, the epidemiology, or other data analyses. Some people assume that precision is enhanced with more knowledge, fuller understanding, and the application of scientific principles and procedures. I believe the opposite occurs. The greater the knowledge the more difficult it is to attain precision. For example, the Neanderthal was more certain--had more precision--in determining man from woman than does John Money. As another example, a hundred years ago scholars in the field of mental retardation easily discriminated between the mentally retarded and the typical. Just twenty years ago, it was less difficult than today to determine who is blind and who could see; with high-powered lenses, it is more difficult to discriminate between those who do see from those who don't. With transistorized amplification tools, those who were once deaf may now hear; with the advent of fenestration surgery, a deaf person even may be cured. All of these advances, albeit marvelous for people, result in less precise and more ambiguous categorical designations than heretofore--certainly less permanent designations.

What does all of this mean? The definition of something, with only one exception of which I'm aware, is never removed from a social-psychological-clinical-political-economic milieu. Neither death nor life are exceptions, because today there is ambiguity even here. Only pregnancy, and of this I am not entirely certain, is not an ambiguous condition.

What does it all mean? Medical and psychological conditions are also metaphors and, therefore, can only be understood in terms of functional definitions and histories that bring perspectives to them. When there was no more precise measuring tool than an eyeball, greater precision was achieved by that eyeball than after the invention of the micrometer or the electronic microscope. The achievement of precision requires agreement on definition and "satisfactory" reliability of measurement, and these are social and psychological as much as they are scientific components. Explicitly, the more one learns about a condition the more ambiguous he may be; and conversely, the less he knows (and the less that can be known) the more certain and reliable he will be.

It is this confusion that has led to the search for better, more accurate, more precise definitions, and that objective has promoted the need for more precise instrumentation and scientific application to the solution of problems confronting human beings. I am not seeking a return to Neanderthal times but, rather, a better understanding of what we are searching for and why. Furthermore, as we achieve agreement on definition, and as we document the history of a condition, or setting, the next step in a research program might well be to determine whether a micrometer or the mind's eye is needed to measure the mass.

Although it may make us uncomfortable, one way to recognize when something has been conceived and understood is to note the degree to which there is certainty--precision--concerning that thing's properties. The more simplistic, the grosser the analysis, the less that's known about "it", the more we can expect that "it" will be understood in clear and unambiguous terms. Binet did not bring precision to mental measurement, and scientists do not now offer a more certain way to comprehend the universe than did ancient theologians. There are times when we should rely on science and, possibly, times to rely on faith, times to use the mind and times the heart, times to seek precision (and thus pay the "knowledge" price) and times to live with ambiguity (just because wisdom is required). The price we pay sometimes to achieve precision is understanding. Conversely, the price for comprehending something is usually paid in terms of certainty and, therefore, reliability. Either way, payment will be due.

My student didn't ask for a second cup of coffee. Smart fella.