
NEW NORMAL?

Larry Lesser

One of my statistics education interests is the role of language and I recently published a feature (Lesser, 2015) using a syndicated comic strip to serve as a vehicle to contrast everyday and statistical uses of the word “normal.” As a major math for liberal arts textbook (COMAP, 2013, p. 190) elaborates: “The everyday meaning of ‘normal’ is being typical or natural, and there are certainly some natural phenomena [e.g., heights of adults of a given gender] that are approximated well by the normal distribution. The specific form of a normal distribution and the major role it plays in statistical theory, however, are very special, not ordinary.”

These latter special traits were lauded by Australian-American chemist and statistician William John ("Jack") Youden (1900-1971) in a three-sentence bell-shaped graphic poem “The Normal Law” he published in the April-May 1950 issue of *The American Statistician*, 4(2), p. 11. The poem appears in the bottom couple of inches of the page (as a “filler item” not listed in the issue’s table of contents) below the end of another author’s article describing a recent military application of acceptance sampling and quality control. The poem has been reprinted in many subsequent books (including Youden’s *Experimentation and Measurement*), and can also be readily found online (e.g., <https://www.causeweb.org/cause/resources/fun/poems/normal-law>).

Kruskal and Stigler (1997, p. 93), who share history of how the word “normal” came to be used in statistics, note that Youden had a typography hobby (including having a small printing press) and after typesetting his poem, had the graphic poem “printed on his calling card and elsewhere.” According to the author biography in Youden’s aforementioned book, “he worked with the Boyce-Thompson Institute for Plant Research, where his first interest in statistical design of experiments began. An operations analyst in bombing accuracy for the Air Force overseas in World War II, he was a statistical consultant with the National Bureau of Standards...”

After major (social, military, financial, etc.) events, the phrase “the new normal” is often used in everyday discourse to refer to a new baseline to expect. Serious challenges to healthy, peaceful existence have recently arisen and most show no sign of being readily resolved, and so we are expected to somehow accept their impact on our lives as the

“new normal”. This inspired me to repurpose Youden’s poem to enumerate many of these challenges as a way to affirm that just because something may become common or expected, given antecedent events or culture, does not mean it must or should be viewed as acceptable. Perhaps one particular challenge (racial profiling) has additional salience in light of the controversial assumptions about race made in the book by Herrnstein and Murray (1994) titled *The Bell Curve*.

On a final note, one of my papers (Lesser, 2007) exploring intersections of statistics and social justice was selected as a February 2017 reading for a multi-organization international 2016-2017 webinar readings series on equity and social justice in mathematics education: <http://www.nctm.org/equityandsocialjustice/> .

References:

COMAP (2013). *For All Practical Purposes: Mathematical Literacy in Today’s World* (9th ed). New York: Freeman.

Herrnstein, R. J., & Murray, C. (1994). *The Bell Curve: Intelligence and Class Structure in American Life*. New York: Simon & Schuster.

Kruskal, W. H., & Stigler, S. M. (1997). Normative Terminology: ‘Normal’ in Statistics and Elsewhere. In Bruce D. Spencer (Ed.), *Statistics and Public Policy* (pp. 85-112). Oxford: Clarendon Press.

Lesser, L. (2015). Normally Speaking. *Mathematics Teacher*, 108(6), 408-411.

Lesser, L. (2007). Critical Values and Transforming Data: Teaching Statistics with Social Justice. *Journal of Statistics Education*, 15(1), 1-21. <http://ww2.amstat.org/publications/jse/v15n1/lesser.pdf>

YOU DEN'S ORIGINAL EULOGY TO THE NORMAL DISRIBUTION

THE
NORMAL
LAW OF ERROR
STANDS OUT IN THE
EXPERIENCE OF MANKIND
AS ONE OF THE BROADEST
GENERALISATIONS OF NATURAL
PHILOSOPHY • IT SERVES AS THE
GUIDING INSTRUMENT IN RESEARCHES
IN THE PHYSICAL AND SOCIAL SCIENCES AND
IN MEDICINE, AGRICULTURE AND ENGINEERING •
IT IS AN INDISPENSABLE TOOL FOR THE ANALYSIS AND THE INTER-
PRETATION OF BASIC DATA OBTAINED BY OBSERVATION AND EXPERIMENT