In what ways has the use of statistics in psychology helped to sustain notions of...

In what ways has the use of statistics in psychology helped to sustain notions of objectivity and determinism. The rise of behaviorism promoted the view that psychology is a science. (Cowles, p. 22) Here, formulae are devised that allowed behavior to be predicted, and that technology could be achieved that would enable environmental conditions to be so manipulated that behavior can be controlled. As the variability in living things was brought under experimental control, analysis and evaluation, statistics then became fundamental in psychology especially in drawing conclusions. Statistics are employed in most research as a method in testing differences and investigating similarities, for instance. That is why would-be psychologists, wrote Jock Abra, lacking mathematical skills has a tough row to hoe, holding that the clinicians should be trained as scientists particularly demonstrating abilities in statistics, in order to be able to comprehend, evaluate, and, if occasion warrants, conduct research. (p. 102)

While it is acknowledged that psychology is a science it is not considered as an exact one. (Cowles 2000, p. 21) Determinism – an ideal connected with the struggle for certain knowledge - upholds the propositions of the natural sciences as it more demonstrate the order of the universe better than psychology as a social science. B. F. Skinner (1953), underscores the necessity of assuming order in nature:

We cannot apply the methods of science to a subject matter which is assumed to move about capriciously. Science not only describes, it predicts. It deals not only with the past but with the future… If we are to use the methods of science in the field of human affairs, we must assume that behavior is lawful and determined. (p. 6)

Fortunately, determinism could coexist with probabilistic thinking.

Probabilistic thinking was used as a means toward objectivity in the classical sense of separating the experimenter from his knowledge. Such was the role of inferential statistics as a mechanization of the experimenter's inference from data to hypothesis. (Gigerenzer 1987, p. 12) According to Raymond Nickerson (2004), the appearance of objectivity was promoted by eliminating the need for an experimenter's judgment through the application of mechanical statistical procedures to the interpretation of data, hence, statistics became a means for the mechanization of inductive inference. (p. 271) The significance of all these is that statistics maintains the objectivity of psychology as an experimental science.

In light of all these, one can say that statistics is more than just a tool in psychology. It validates the field as a science by offering a distinction from that other type of probability – the one that is judgmental, subjective, intuitive, epistemological, inductive, or epistemic – to the one that is objective, physical, or aleatory. (Nickerson, p. 34) Furthermore, inferential statistics became almost synonymous to scientific method. It provided a large part of new concepts for mental processes such as the computing probabilities, calculating analyses of variance (ANOVA), setting decision criteria, performance utility analyses and so forth.

References

Abra, J. (1998). Should Psychology be a Science? Greenwood Publishing Group.

Cowles, M. (2000). Statistics in Psychology. Lawrence Erlbaum Associates.

Gigerenzer, G. (1987). " Probabilistic thinking and the fight against subjectivity." In L. Kruger, G. Gigerenzer, & M. S. Morgan (Eds.), The probabilistic revolution: Vol. 2. Ideas in the sciences (p. 11-33). Cambridge,

MA: MIT Press.

Nickerson, R. (2004). Cognition and Chance: The Psychology of Probabilistic Reasoning. London: Routledge.

Skinner, B. F. (1953). Science and Human Behavior. New York: Macmillan.