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Volume 8, Number 2 (July 2000)

Joel R. Levin and Ronald C. Serlin, "Changing Students' Perspectives of McNemar's Test of Change" (37K)

An alternative perspective is presented for teaching students the logic and details underlying McNemar's test of the equality of correlated proportions. The new perspective enables straightforward extension to other correlated proportions situations.

Key Words: Correlated proportions; Multinomial proportions; Teaching statistics.

Sharon Lawner Weinberg and Sarah Knapp Abramowitz, "Making General Principles Come Alive in the Classroom Using an Active Case Studies Approach" (52K)

Five case studies based on real situations and real data are presented for use in courses on research methodology and data analysis. Departing from the typical case study approach, students are asked to act as consultants to resolve the issues placed before them, prior to being given a solution. In generic terms, students are given a description of a real problem and a real dataset relevant to solving that problem and are asked for their advice on how the problem may be solved. This approach motivates students to take ownership of the problem at hand and provides them with the opportunities and experiences to use the tools of their education actively, rather than to merely acquire them.

Key Words: Statistical education; Teaching statistics; Using real datasets and real situations.

S. A. Paranjpe and Anita Shah, "How Many Words in a Dictionary? Innovative Laboratory Teaching of Sampling Techniques" (69K)

In Indian Universities, courses titled 'Statistics Practical' usually involve only numerical evaluation. There is very little scope for independent thinking and decision making on the part of the students. We report here our experience of teaching a practical course on sampling techniques in a different way. On the whole, it was an encouraging exercise.

Key Words: Active learning; Practicals; Sample surveys; Statistics.

W. John Braun, "Replacing a 'Striped-Box' with the Normal Approximation" (81K)

A simple procedure is presented for obtaining the sample size and acceptance number for a single sample acceptance sampling plan, given the probability of lot acceptance for lots having proportion defective equal to p_1, and the probability of lot rejection for lots having proportion defective equal to p_2. The procedure gives a practical illustration of the use of the normal approximation to the binomial distribution that is appropriate for courses on statistical quality control as well as on introductory statistics.

Key Words: Acceptance sampling; Binomial nomograph; Single-sampling plan.

Yasar Yesilcay, "*Research Project in Statistics:* Implications of a Case Study for the Undergraduate Statistics Curriculum" (51K)

A *Research Project in Statistics* is proposed as a major requirement of undergraduate statistics curricula to provide hands-on experience to students and equip them with the tools they will need after graduation. Such a requirement will train students to solve real-life problems by choosing a statistical model suitable to a problem, learning the details of that model, collecting and analyzing appropriate data, and interpreting the results obtained. After completing the project, students will have the ability to learn new techniques on their own, to do a literature review, and to carry out sample and survey design, and they will have enhanced their oral and written reporting skills. The case study reported in this paper suggests that students tend to learn more by doing such a project than in any regular coursework. The project is motivating and gives students a feeling of working in an almost real-life environment on a real problem. Such a project incorporates many aspects of the nonmathematical courses suggested by Higgins (1999a) and is expected to better prepare students to meet the needs of potential employers.

Key Words: Data analysis; Data specialist; Graduation project; Undergraduate curriculum; Undergraduate research.

Madhuri Mulekar, "Internet Resources for AP Statistics Teachers" (33K)

Both teaching and learning are increasingly becoming technology-oriented processes, and teachers are struggling to keep up with rapid technological advances. The Internet, one of the most popular media of communication, provides fast access to vast amounts of information. There are many web sites that contain information useful for Advanced Placement Statistics teachers. This paper provides information about Internet resources available for project ideas, datasets, conferences, technical support, class notes, and much more.

Key Words: Advanced Placement; Introductory statistics; Web sites.

"Teaching Bits: A Resource for Teachers of Statistics" (48K)

This column features "bits" of information sampled from a variety of sources that may be of interest to teachers of statistics. Bob delMas abstracts information from the literature on teaching and learning statistics, while Bill Peterson summarizes articles from the news and other media that may be used with students to provoke discussions or serve as a basis for classroom activities or student projects.

James J. Cochran, "Career Records for All Modern Position Players Eligible for the Major League Baseball Hall of Fame" (60K)

The dataset "Career Records For All Modern Position Players Eligible For The Major League Baseball Hall of Fame" contains information for the 1340 major league baseball players who had retired prior to the 1993 season and who were eligible for the Major League Baseball Hall of Fame (had played in at least ten seasons). Traditional performance measures included are number of seasons played, games played, official at-bats (AB), runs scored, hits (H), doubles (2B), triples (3B), home runs (HR), runs batted in (RBI), walks (BB), strikeouts (SO), batting average (BA), on base percentage (OBP), slugging percentage (SLG), stolen bases (SB), times caught stealing (CS), fielding average (FA), and primary position played (POS). In addition, the following composite measures are included: adjusted production (AP), batting runs (BR), adjusted batting runs (ABR), runs created (RC), stolen base runs (SBR), fielding runs (FR), and total player rating (TPR). Finally, the dataset includes an indication of whether or not each player has been admitted into the Major League Baseball Hall of Fame and, if so, under what set of rules he was admitted.

Key Words: Classification; Classroom data; Descriptive statistics; Discrimination; Multivariate statistics.

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