

> New York University

University instruction improves students' preparation for the workforce

Situation

Sharon Weinberg, Professor of Quantitative Methods and Psychology, teaches statistics at New York University. Rooted in mathematics, statistics is traditionally taught with an emphasis on formula manipulation and cumbersome calculations.

Critical issue

Professor Weinberg was concerned that the traditional approach prevented students from acquiring a clear, conceptual understanding of, and appreciation for, statistical methods.

Solution

Professor Weinberg integrated the user-friendly statistical software program SPSS for Windows® into her curriculum and new textbook, *Data Analysis for the Behavioral Sciences Using SPSS*, co-authored by Sarah Abramowitz and published by Cambridge University Press (2002). SPSS not only freed students from time-intensive calculations, it also allowed Professor Weinberg to analyze compelling real-life problems in the classroom in real-time.

Results

- Focused students' attention on learning concepts rather than on formula manipulation
- Enabled teaching of real-life problems, engaging students more actively in the learning process
- Increased students' self-confidence

At-a-glance

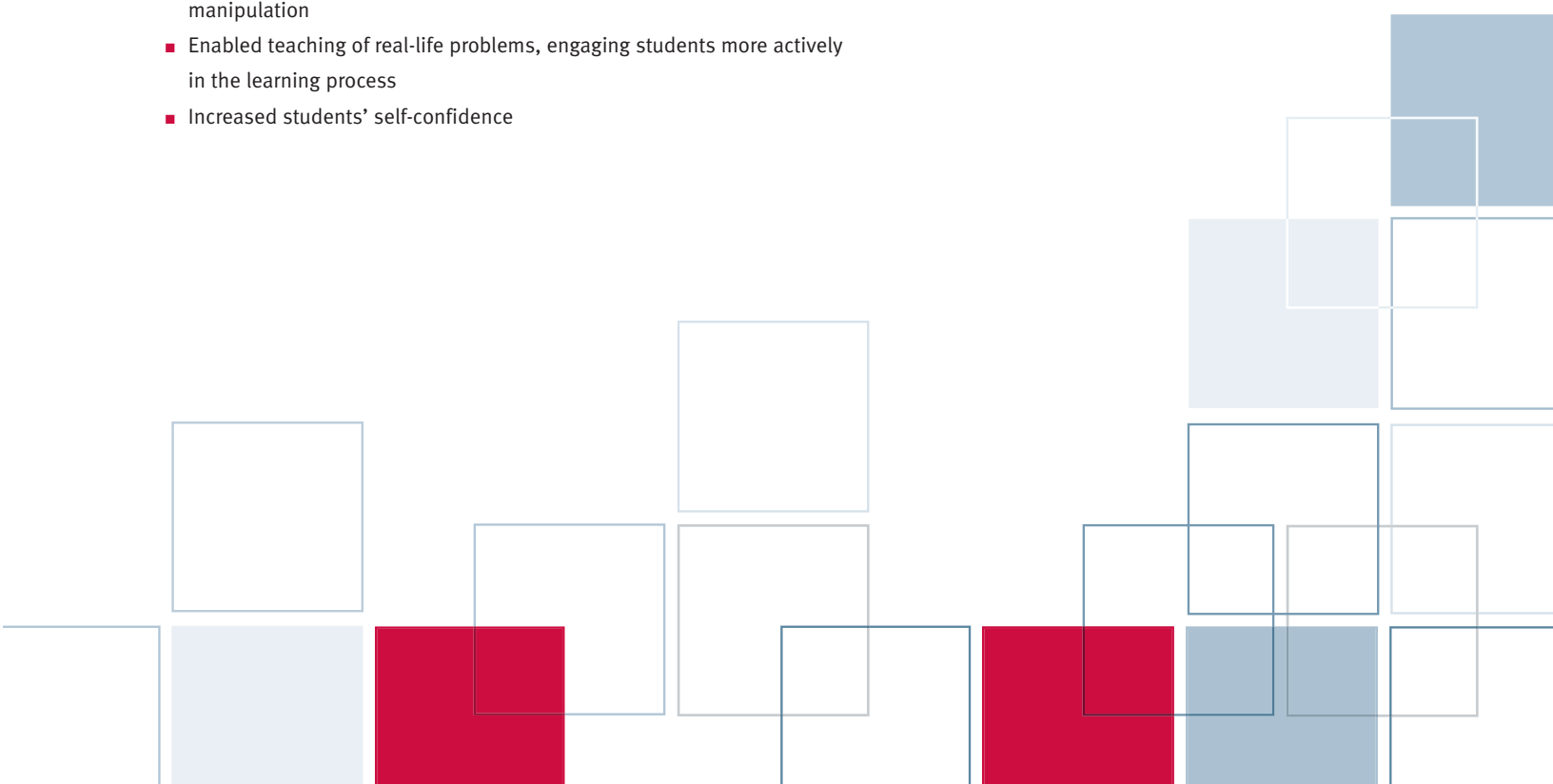
Country: United States
Industry: Higher education
Date Founded: 1831
Employees: 10,136

Application

Student education

Solutions used

SPSS



For more than 30 years, Dr. Sharon Weinberg, Professor of Quantitative Methods and Psychology, has taught statistics at New York University. She believes that the study of statistics, through its focus on the analysis of data and the interpretation of results, develops intellectual and critical thinking skills.

Professor Weinberg was concerned that the time-consuming process of number crunching unnecessarily distracted her students from the intellectual exercise of acquiring a conceptual understanding of statistical methods. This troubled her, from early in her career when students used pen and paper to perform calculations, until more recently, when students had to master typing the appropriate syntax in the command line of statistics programs.

Focused students' attention on learning concepts rather than on formula manipulation

After Professor Weinberg introduced SPSS for Windows into her curriculum as an educational tool, she was impressed by how well students adapted to the new approach. She discovered that SPSS was a “wonderful platform” for students to learn what it means to be a data analyst. The user-friendly program took “no effort” to master and allowed students to focus on learning statistical concepts in the context of real data. Professor Weinberg would tell her students, “An analysis is only one click away with SPSS.”

Professor Weinberg was inspired to re-write her textbook to create a new approach to the teaching of statistics that capitalized on the ability to use a program like SPSS for Windows. Her book, titled “Data Analysis for the Behavioral Sciences Using SPSS,” (March 2002, Cambridge University Press) is co-authored with former student Sarah Abramowitz, who is currently on the faculty at Drew University in the Department of Mathematics.

Allowed teaching of real-life problems, engaging students more actively in the learning process

Not only was SPSS for Windows easy to learn, but its capabilities also allowed Professor Weinberg to approach statistics from a different perspective. According to Professor Weinberg, traditional statistics books have students analyze “small, basic data sets” that are not grounded in the real world. However, “with SPSS students can tackle important real-life problems, applying a range of analyses to achieve a solution in a short period of time.”

□ “An analysis is only one click away with SPSS.”

– Sharon Weinberg
Professor of Quantitative Methods and Psychology
New York University



SPSS' ability to handle large data sets gave Professor Weinberg the tool necessary to handle the complexities of real-life problems. A disk that comes with her new textbook contains several data sets used throughout the text. One is a large set of real data from the National Educational Longitudinal Study (NELS) collected by the National Center of Educational Statistics (NCES). It contains 48 variables and 500 cases. By posing interesting questions about variables in this data set (i.e., How does the change in girls' self-concept from 8th to 12th grades compare to that of boys?), Professor Weinberg is able to employ a more meaningful approach to the introduction of statistical methods and to engage students more actively in the learning process. The repeated use of this data set throughout the textbook creates a more cohesive presentation of statistics, one that links different methods of analysis to each other. This avoids the perception that statistics is an often-confusing array of many separate analytical methods with no bearing or relationship to one another.

The graphing capabilities of SPSS for Windows give students the ability to examine data quickly and effortlessly. For example, students' ability to use the SPSS Boxplot graphic helped them to realize quickly that what appeared to be a large difference in average expected income between boys and girls in the NELS was actually due to the presence of two extreme values in the boys' distribution and none in the girls'. By accounting for these extreme responses, students realized that the boys and girls had similar income expectations. Understanding the influence of extreme values led to a discussion of how to handle such data points in general.

The use of real data and SPSS to perform computations and create graphical summaries not only enables a greater emphasis on conceptual understanding and interpretation, but also allows students to study statistics in a way that reflects actual statistical practice.

□ “With SPSS, students can tackle important real-life problems, applying a range of analyses to achieve a solution in a short period of time.”

– Sharon Weinberg
*Professor of Quantitative Methods and Psychology
 New York University*

Increased students' self-confidence

Before Professor Weinberg introduced SPSS for Windows into her curriculum, graduate students usually turned to consultants for help with the quantitative data analyses required by their dissertations. The integration of SPSS for Windows into her course and textbook gave these students the tools and confidence to perform the analyses themselves, and provided them with a feeling of pride for having done so. Colleagues praised Professor Weinberg for giving graduate students the skills and abilities to become independent thinkers.

Professor Weinberg has valued developing an enjoyable and meaningful statistics course. Students compliment her course based on her text, *Data Analysis for the Behavioral Sciences Using SPSS*, and her real-time statistical analysis approach. Their enthusiasm for this approach prompted many to volunteer to be teaching assistants for the course. She has also learned along with her students, gaining new insights into approaching statistical problem solving.

By combining more than 30 years of teaching experience and a passion for statistics with the tools and insight of SPSS for Windows, Professor Weinberg teaches a course in which she and her students have become vested partners in learning—the true aim of higher education.

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