

Session B8

Training Students for Statistical Consulting

- Organiser:* Richard Scheaffer (Gainesville, Florida, USA)
- Invited Speakers:* Donald Bentley (Claremont, California, USA)
Wang Jinglong (Shanghai, China)
John Schuenemeyer (Newark, Delaware, USA)
Gordon Smyth (Brisbane, Australia)
- Contributed Papers:* Stephen Haslett and Ross Renner (Wellington, New Zealand)
Ken Russell (Wollongong, Australia)
Terry Smith and Malcolm Griffin (Ontario, Canada)

Introduction

Observational evidence suggests that statistical consulting activities are on the increase within universities, and that such activities are playing a key role in the recruitment and training of future statisticians. The reasons for this increase are many and varied, but include the job opportunities for statisticians with practical skills, the many possible clients (both internal and external) who are eager to make use of statistical methods, the desire to improve the research environment within a university, and the desire to improve society in general. The papers in this session outline important points concerning the training of consultants and the practice of statistical consulting in both undergraduate and graduate settings.

According to Donald Bentley, practical experience with real consulting problems motivates many students to consider careers as statisticians. Engaging in real research provides students with a feeling of ownership of the data and the excitement of discovery that is absent from textbook exercises. Wang Jinglong adds to that theme in reporting that undergraduates are quite capable of solving practical problems of some importance to industry and government, and that such contributions are of critical importance in a country with few applied statistics programmes.

At the graduate level John Schuenemeyer points out that statistics is something we DO, and students must DO it, with guidance, if they are to be properly trained. Consulting experiences can heighten student interest in statistics to the point that it carries over to their courses; a major part of the interest comes about because they are

involved in real contributions to society. Gordon Smyth agrees and adds that a key part of training consultants is to get them to hold off on the theoretical models long enough to look at the data. Statistics is more than learning to fit mathematical models and test hypotheses; it involves a practical component of exploration and a sense of knowing when to stop. Expanding on this theme, Stephen Haslett and Ross Renner caution statisticians to carefully assess their roles as "expert" or "facilitator", with perhaps the latter being more important in a university setting. As facilitators, statisticians can and should broaden the knowledge of their colleagues, according to Ken Russell. Clients should see the need to think critically and should learn something from each consulting session. One way to improve the whole consulting process and the related training of students is to make extensive use of video feedback, as outlined by Smith and Griffin.

Statistical consulting is part statistical theory, part art, part psychology, part communication, part business, and part enthusiasm (recognising that these are not mutually exclusive). Training students in this area is a complicated but important process. These authors have given the problem serious attention and their remarks can help improve the process.