

# Discussion on IPM 45: Statistics Training for Consultants or Collaborators

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## 1. Introduction

These papers—Cordani; Harraway & Barker; Jolliffe; and Svensson--prompt three observations:

1. Our maturation as statisticians and as consultants/collaborators has implications for the population we assume in addressing our training needs and for the manner in which we address related communication skills.
2. There are differences in the settings where we perform our service.
3. Those differences in populations and settings have implications for the research we perform relative to aspects of consulting and collaboration, including research on the effectiveness of different forms of practice for the novice statistical consultant and on the work of experienced practitioners.

## 2. The Populations, Communication Skills, and Training Needs

The papers raise questions about the population used to focus our determination of *what* training needs for *whom*. Are we talking about undergraduates, recent graduates and inexperienced statisticians as are Cordani; Harraway & Barker and Jolliffe? Or are we talking about Svensson's more experienced consultant/collaborator? Each, in some way, also touches on the statistical inadequacy of many of the clients we serve—OUR collaborators. What is the population of interest here?

Harraway and Barker use practice by recent graduates to suggest curriculum emphasis. Svensson's work with more experienced practitioners uses failures in practice to create curriculum opportunities.

Important components of the training of statisticians relate to effective technical writing and communication, teamwork and collaboration and a consulting experience of some kind (American Statistical Association, 2001, February; Royal Statistical Society, 1998). The case studies presented in books like Peck, Haugh & Goodman (1998) and Cabrera & McDougall (2002) offer a medium for enhancing the analysis and communication skills of potential statistical consultants. Contrasting Cordani and Jolliffe with those authors prompts, "Which is more effective for addressing the communication, teamwork, and collaboration skills of potential consultants? Case studies, or work in university consulting centers, or internships and cooperative programs engaging the student in both study and work?" Or, "To what extent should examination of case studies precede engagement in the practice of consulting?" or "Shouldn't we be measuring communication skill development?" Derr (2000) or Kirk (1991) can provide us insight regarding communication variables that might be examined.

Another important observation from Svensson relates to the quality of a practice experience for a consultant in training. Regardless of the setting, the quality of the mentor and the willingness of the mentor to reflect on practice with the novice is crucial to the development of the consultant.

### 3. Differences in Settings

Cordani addresses the consulting center context. Jolliffe and Svensson focus on one-to-one exchanges. Where do statisticians practice consulting and what implications have those settings for the way in which we train the consultant? Are we talking about roles in university consulting centers, at large consulting firms, at governmental agencies, or about internships and cooperative work-study programs? Kirk (1991) and Piccinin & Boomer (2002) provide us with inspiration for variables to examine for the university consulting alternative.

### 4. Considerations for Research

As we conduct research on the training needs, including training in communication skills, these papers suggest that we need to be clear about (a) the population under study, (b) the setting in which consultants work, (c) the fields of study to which they consult, (d) the statistical applications employed, (d) issues associated with ethical, moral and acknowledgment dilemmas, and (e) the extent to which organizations assess the quality of their consulting.

Further, do comparisons of such modes of pre-employment practice as (a) use of case studies, (b) service in a university consulting center, (c) role as an intern, and (d) engagement in a work-study program reveal one mode to be more effective than another in producing (1) graduates who are more satisfied with their initial employment and (2) employers who are more satisfied with the initial work of new statisticians?

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### RÉSUMÉ

*Les papiers présentés par Cordani; Harraway & Barker; Jolliffe; et Svensson nous font penser aux différences qui existent dans la formation et préparation des statisticiens, aussi bien que des endroits de pratique statistique. Ces différences exercent une influence considérable sur l'entraînement des conseils statistiques. Or, ces distinctions mentionnées servent à informer l'importance essentielle des variants qu'il faut considérer en faisant des décisions en ce qui concerne la préparation et l'entraînement efficace des statisticiens.*