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Stat 684 – 600 HW2
Report on " *Aspects of Statistical consulting not taught by Academia"*

Kennet et al discussed several stages involved in statistical consulting in the paper entitled "*Aspects of Statistical consulting not taught by Academia*".

The authors list out all ideal qualities that a consultant is expected to possess. I find this listing rather pedantic, boring and demotivating. Even though statistical consulting is a difficult job and requires coordination among all cognition departments of a consultant, the listing doesn't distinguish statistical consulting from other professions. In other words, the same list is equally applicable, in general, to any other field of study. What are the required skills that are unique to statistical consulting?

The authors broadly categorized consulting into: 1) Problem elicitation, 2) Data collection, 3) Data analysis, 4) Formulation of findings and 5) Reporting and explaining each of them with some examples. Particularly, in the data-collection step, the authors remind the audience of an important perspective. That is: *Data are not just numbers but numbers with a meaning and context attached to them*. They provided ice-cream sales example in this context . When put in the perspective, often times, we can look at the data and explain several phenomenon that might have been the reason for what has been observed. A careful look at the numbers with the context in mind can detect abnormalities in the data that are just due to error in measuring.

Probably, to justify the title, the authors stress the fact that often students in gradate classes are not taught about the importance of 1) data collection and 2) asking the clients many questions. But with outstanding educators like Dr. Longnecker at TAMU, the students can never under estimate the importance of data collection. In my personal opinion, data collection is as important, if not more important, than the analysis itself. After all, with a bad data, no analysis can lend insights into the problem at hand. And this where student consultants face the dilemma: how do you satisfy the clients. Sometimes, the approach to be followed, possible conclusions to be drawn, WILL be set by the clients advisors. Their question is not "what the data is speaking" but rather "how can the data speak what my major advisor wants it to speak?"

Many real-life examples were given to highlight some aspects of statistical consulting. In particular, the SKF ball bearing example illustrated how asking questions can help determine the future course of actions and how "design of experiment" can save huge amounts of money for industries. The statistician hired by the firm exercised all right skills, looked at the historical data, asked important questions concerning the processes involved and then designed the experiment. It highlighted the "six sigma" concept that "you fix the problem in the design stage" not "in the factory". In my view, this is the best example they gave in the paper.

However, it would have been very informative had they provided the "Ford" recalling its "Explorer" trucks due to defects in the electrical fuses. Sometimes, the best way to learn is from the mistakes and how costly such mistakes can be.

The authors stressed the importance of presentation, communicating the results to the clients. They do not advocate the use of fancy powerpoint presentations but use them only reinforce point and but not repeat what is being said. Nevertheless, I think that with powerpoint presentations, you surely enhance the learning experience of the client, if properly done. After all, presentation is more of an art than of

science.

O-ring example was given to underscore the importance of using graphical tools. It showed how important it is is use the right summary tools and graphical tools to put forth the view point and convince the audience. In the graph one can easily see that the probability of failure is greater than 0.5 if the temperate is below 18c. When the temperates are as low as -3c, it is almost certain that the O-rings will fail. A verbal communication many not reveal the underpinnings of the data.