Curious Cat
Management Improvement Institute

Statistical Applications in Management

By William W. Scherkenbach

William Scherkenbach is internationally recognized as one of the world's foremost authorities on the subject of quality and its implementation. Theory without action is useless. Action without theory is costly. Bill has the rare combination of both state-of the-art theory and the experience of applying it in the real world.

He was in the very privileged position of learning from and working with Dr. W. Edwards Deming in the last 25 years of his life. He was with him on over 1000 meetings, including at least 50 four-day seminars, with leaders of industry and government all over the world.

> *"He was my student, and there's none better in the world... It takes a little ingredient called profound knowledge, and he's got it."*
>
> *W. Edwards Deming*

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STATISTICAL APPLICATIONS IN MANAGEMENT

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When Aaron asked me to speak today, I didn't know that I would be the oldest on the panel! This is a first for me since I am usually the youngest.

First of all I come here as a customer. Many colleges think that the students are their primary customer. Not so. They are work-in-process. Industry is your most important customer and I am here to give to you the Voice of your Customer. Thinking back to when I was work-in-process, I consider myself very privileged to have been taught by a great man. It is very important to be taught by someone with profound knowledge.
Dr. Deming tells the story about attending R. A. Fisher's lectures at University College in London. The classroom environment was cold, dark and crowded with bad acoustics. Fisher would come in the classroom with the ink not yet dry on his notes. He would make mistakes at the board and a Dr. Paul Rider would help right them. If you could give Fisher a grade as a teacher, Dr. Deming says that he would have to give him a zero because you couldn't give a lower grade. But why was it that his classes were always filled? Why did the students come? Because they wanted to see and hear about what a great mind was thinking. What problems he think were important? What approaches was he using or considering to solve these problems? Now days many students think a good teacher is one who entertains them. Which brings me to another Dr. Deming story.

A number of years ago, Dr. Deming was asked to help develop a survey of former students of NYU's Graduate Business Administration School. I think one criteria for a student to be in the frame was to have graduated at least 10 years previous. Two of the questions Dr. Deming proposed went something like this: Was your life affected by any of your teachers? If so, who was he? Out of the numerous professors at GBA, only five stood out. If the student answered yes to the first question, he always remembered the name of the professor. None of the professors had been nominated for the Great Teacher Award by these same students when they were enrolled. How would they know? The reason for this is obvious, the students needed a degree of maturity and time to recognize that someone had greatly affected them. I am sure that this conference will recommend a curriculum that will meet the express needs of your customers. But this is an outcome. I am more concerned about the process which is a blending of People, Material, Methods, Equipment, and Environment. Specifically, who will teach the curriculum? Where will we get the great teachers? Richard Mulcaster, in the year 1611, stated that the ablest teachers should be assigned to the earliest grades. We need Masters, not graduate students, to teach the beginner. The beginner doesn't know enough about the subject to discern whether he is learning the correct application of theory. With a solid foundation laid by the Master, a student can then confidently question subsequent learning opportunities.
For instance, today we have graduate students or others of equivalent expertise, teaching statistical theory from text books that lead them to the wrong application of the theory .

They do not know the difference between Enumerative and Analytic uses of statistics. I am sure that Dr Deming will elaborate on this later today so I will not go into it in detail. Except to say that Enumerative studies are descriptive in nature and are concerned about action on the frame. Analytic studies are concerned about action on the cause system that produced the frame. Statistical inference requires a frame, which does not exist for Analytic purposes. Since most of the problems of this world are analytic in nature, we often misuse statistical theory by placing confidence intervals or making inference beyond any frame we might choose today. It is tomorrow's production or frame we are concerned about and we can only go beyond today's frame with subject matter theory, not statistical theory.

I think the real opportunity for the learning and use of statistical methods is not through specific statistics classes but through integrating the theory and application in other mainstream subjects such as financial or personnel or engineering management. But other disciplines cannot be expected to learn unless we ourselves learn. We cannot expect others to improve unless we lead the way by improving ourselves. Dr. Deming advised Mr. Petersen to change Ford's evaluation system to something, anything but what it was because it was so bad that any change would be a powerful signal. He changed it.

I notice that last year we talked about this subject in Chicago, this year we are talking about it in New York, and next year we probably will be talking about it somewhere else. I think it is time to do something about it.