ASQ Statistics Division Newsletter

Volume 2, Number 2, October 1, 1981

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Officers of the Statistics Division, ASQC

New Chairman
Douglas C. Montgomery
School of Industrial and Systems Engineering
Georgia Institute of Technology
Atlanta, Georgia 30332

New Chair-Elect
Frank B. Alt
Dept. of Management Sciences and Statistics
University of Maryland
College Park, Maryland 20742

New Treasurer
Peter J. Jacobs
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New Secretary
John S. Ramberg
Dept. of Systems & Industrial Engineering
University of Arizona
Tucson, AZ 85721
Chairman's Message

Douglas Montgomery

During its brief existence, the Statistics Division has experienced rapid growth. We presently have over 2,000 members, and are continuing to increase our membership at a rapid rate. I would like to take this opportunity to share with you a number of my thoughts and ideas regarding goals, objectives, and activities for the Division over the next few years.

First of all, I would like to solicit advice and guidance from all Division members concerning their views of the Division and the kind of activities we should be involved in. Your input is really needed.

We're going to begin publishing a newsletter on a regular basis. Our objective is a quarterly newsletter, and we hope to get that project on schedule this year. Hopefully, the newsletter will become an important vehicle for contact and dialogue between Division members. Anyone who has information he wishes to publish in the newsletter, or suggestions for newsletter content, should contact either the newsletter editor (Ron Askin) or myself.

Some of the other possible areas of activities that the Division could become involved in are the following:

Membership

The Division's goal should be to increase membership at at least the same rate of growth as the overall membership of ASQC. This could be accomplished by increasing the awareness of current ASQC members of the Division's activities, and through appropriate emphasis of conference programs and other activities that the Division is involved in.

Members' Personal Development

A major undertaking of the Division will be the promotion of wider member involvement in Division activities. This could include encouragement of member contributions to the Division's newsletter, to Quality Progress (and other ASQC publications) to the "How-To" booklet series published by the Division, conference involvement, and in other activities. The regional councilors should provide a direct communications link between the Sections, individual members, and the Division. I am encouraging all of the regional councilors to get involved with Section activities in their region. These individuals may be contacted to serve as speakers at Section meetings, and to participate in other programs.

Education

The Division long been involved in publishing the "How-To" booklet series, edited by John Cornell and Sam Shapiro. This is an outstanding series of books dealing with basic statistical methods and their application in quality control. The plans are to continue publication of this series, and to expand it as far as possible. There is a brief report about the status of the series elsewhere in this newsletter.
Also in the Education area, we have been conducting one-day short courses at the annual Quality Congress. We plan to continue this activity, and would be delighted to work with any Section that is interested in sponsoring a one-day seminar on a particular topic. Continuing education is an area in which the Division could make a great contribution to the Quality profession.

Conferences

The Division will continue to be involved with the annual Quality Congress, and to organize several sessions dealing with statistical topics in quality control at that meeting. We are also getting involved with the annual Conference on Applied Statistics, and the Fall Technical Conference (jointly sponsored by SPES and the Chemical Division) I think this is a valuable activity and it is another move through which members can become involved in Division activities.

Professional Society Liaison

We need to develop a close relationship with the Chemical Division of ASQC, and with the Section on Physical and Engineering Sciences of the American Statistical Association. Actually the membership of these two groups overlaps with the Statistical Division membership considerably and all three groups could cooperate on a number of joint ventures. Some possible joint activities include educational programs, conference sponsorship, and developing joint speakers lists.

There are a lot of things that we need to do. Your input and advice but most of all your involvement, are needed. I would like to see the Statistics Division become a focal point for statistical activities within ASQC. Let us know what you expect from the Division and we'll do the best we can to assist in meeting your personal and professional objectives. Please contact your regional councilor, me, or one of the Division officers with your ideas and suggestions.

Douglas C. Montgomery
Chairman, ASQC Statistics Division
News Release

The newly formed Statistics Division is ready to start serving the ASQC membership.

One of our services will be to guide people to the source of appropriate quantitative, statistically-oriented solutions to problems. We know, as practitioners of Quality Control, that often we run into problems for which we have difficulties finding the technical solutions. Also we recognize that there are problems still without technical solutions - that is why there is still research.

This is an invitation for you, as ASQC members, to channel through me descriptions (less than one page long, including name and address) of the problems that constitute roadblocks to the effective performance of your jobs. When possible, we will attempt to indicate where solutions exist. The other unresolved problems will give us insights into what our profession may have to develop further to enhance the effectiveness of our work.

Carlos Wm. Moreno, Ph.D.,
C.Q.E., Statistics Div.,
Region 9 Councilor
35 Oliver Road
Cincinnati, OH 45215
Statistics Division Booklet Series

Progress is being made on the writing of new volumes for the booklet series The ASQC Basic References in Quality Control: Statistical Techniques. Volume 4 "How to Perform Skip-Lot and Chain Sampling" by Kenneth S. Stephens is presently in the production stage. Two other topics are in the final manuscript stage and drafts and manuscripts on nine (9) other topics are presently being written or reviewed.

Co-Editors John A. Cornell and Sam Shapiro are pleased to announce that Professor Alan J. Gross, Professor Saul Blumenthal and Dr. Gerald J. Hahn have agreed to serve on the Editorial Review Board. In addition to these new members, the Editorial Review Board consist also of Professors N.L. Johnson, Harry M. Wadsworth, H. Alan Lasater, Joseph W. Foster and Mr. Edward A. Sylvestre.

John A. Cornell
Co-Editor for ASQC
For those of you attending the Fall Technical Conference in Gatlinburg, TN, there will be a Division Business Meeting in the Howard Johnson's Motor Lodge at 5:30 P.M. on October 29th.
Ask Carlos

Question

When designing sampling plans I find that for meaningful LTPD's (that is, a quality that I really do not want to accept, such as five times the AQL):

a. The MIL STD's have a high Beta error, and still

b. The MIL STD's plans appear too large for what is necessary.

How do we resolve the problem of what are the correct Alpha and Beta errors? In this respect, I am not bound by military or legal requirements.

Answer

This is an old problem. Apparently all is a matter of the objective you want to achieve

-- whether you want to control the conditional probability of accepting a lot which is at a LTPD quality (regardless of the probability of such lot existing);

-- whether you should do this taking into account how probable is to have such a bad quality lot so as to control the total probability to deliver a lot at LTPD or worse;

-- whether you wish to control the long-run average quality accepted (delivered);

-- whether you wish to arrive at the best cost/benefit combination of sampling and corrective actions.

The correct Alpha and Beta errors are a function of the objective you intend to achieve. Except for the first objective, the optimal errors are highly variable, and furthermore, there are no good rules-of-thumb to follow.

References


Technometrics August. 1960 - Articles by Hald and Wetherill.


Statistics Division Program
Annual Quality Congress

May 3-5, 1982
Detroit Plaza, Detroit

Session 1
Moderator
Professor Douglas C. Montgomery
School of Industrial and Systems Engineering
Georgia Institute of Technology
Atlanta, Georgia 30332

Speaker #1
Professor Kenneth E. Case
(Soauthors: Shinya Ozaki and J. Bert Keats)
School of Industrial Engineering and Management
Oklahoma State University
Stillwater, OK 74078

Sampling When the Mean and Variance are Important
Professor David E. Fyffe
(Coauthor: Donald Russell)
School of Industrial and Systems Engineering
Georgia Institute of Technology
Atlanta, Georgia 30332

Markovian Analysis of Sequential Sampling
Professor Harrison M. Wadsworth
(Coauthor: Gregory F. Gruska)
Chevrolet Product Assurance
General Motors Corporation
30007 Van Dyke
Warren, MI 48090

Session 2
Moderator
Professor Harrison M. Wadsworth
School of Industrial and Systems Engineering
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Speaker #1
Professor Francis J. Cullen
Loyola College
4501 N. Charles St
Baltimore, MD 21210

Please Don't Squeeze the Statistics
(Coauthor: Donald Russell)
Session 3

Selecting a Sampling Procedure Can Be Fun
Mr. John J. Heldt
(Alcoauthor: John Breeze)

The Risk and Resource Factors in Sampling
Mr. Charles A. Mills
Manager, Quality Assurance

A Qualification Procedure for Attributes Data
Ms. Barbara K. Kimball

Optimizing Sampling Plans Using Bimodal Fitting
Mr. John H. Glaser
Principal Engineer

Training Employees in Statistical Techniques
Mr. Myron A. Waclawiw
Product Evaluation Engineer
Westinghouse Electric Corporation
P. O. Box 746
Baltimore, MD 21203

Multivariate Quality Control: State of the Art
Professor Frank B. Alt
Management Science and Statistics
College of Business and Management
University of Maryland
College Park, Maryland 20742

Statistical Techniques in Sampling - II
Dr. Lynne B. Hare
Thomas J. Lipton, Inc.
800 Sylvan Ave.
Englewood Cliffs, NJ 07632

Selecting a Sampling Procedure Can Be Fun
Mr. John J. Heldt
(Alcoauthor: John Breeze)

The Risk and Resource Factors in Sampling
Mr. Charles A. Mills
Manager, Quality Assurance

A Qualification Procedure for Attributes Data
Ms. Barbara K. Kimball

Optimizing Sampling Plans Using Bimodal Fitting
Mr. John H. Glaser
Principal Engineer

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Statistical Methods for Validating Q.C. Tests
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Glendale, CA 91202
I would like to reemphasize and expand upon the Chairman's comments. First and foremost, this is your newsletter. Please contribute whenever you have items of interest and let me know what type of items you would like to see (see list below). Hopefully, "Ask Carlos" will become a regular feature. For this to be successful, Division members must help transmit questions and solutions to the general ASQC membership. Other item suggestions are:

1. List of new statistical QC publications.
2. Member news (honors, promotions and moves)
3. Minipapers on successful and novel implementation of statistics in QC.

I am looking forward to serving as Newsletter Editor. With your input, the Newsletter can provide a valuable service. Let me hear from you.

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