THE STATISTICS TEACHER NETWORK

Jerry L. Moreno, John Carroll University, USA

In 1967, the American Statistical Association /National Council of Teachers of Mathematics Joint Committee on Curriculum in Statistics and Probability grades K-12 was created. It was to develop strategies and curriculum materials to promote statistics and probability in the precollege/university classroom. The Statistics Teacher Network newsletter (STN) was first published in 1982 as the publication to keep schoolteachers informed of the Joint Committee's efforts as well as schedules of events, reviews of statistics books, calculators and software, and articles on successfully used classroom statistics activities. The history of STN and examples of its various types of articles will be discussed. STN is a free publication, three issues a year.

THE ASA/NCTM JOINT COMMITTEE

To understand the creation of the Statistics Teacher Network (STN) newsletter in 1982, the committee that created it should be discussed first. In 1967, the American Statistical Association (ASA)/National Council of Teachers of Mathematics (NCTM) Joint Committee on the Curriculum in Statistics and Probability for grades kindergarten through twelve was created by ASA and NCTM. It was given four responsibilities: to support a newsletter for communication with precollege/university teachers; to assist in securing funding to support precollege/university curricular efforts; to develop strategies to promote statistics and probability in the school classroom; and, to provide leadership for the inclusion of statistics and probability in assessment and curriculum efforts. The committee consists of seven members: three appointed by the president of ASA, three by the president of NCTM, and one ASA staff person. Terms are three years.

The impetus for the formation and early success of the Joint Committee was provided by Frederick Mosteller of Harvard University who served as its first chair. Under his leadership, two publications were created: a four volume series called *Statistics by Example* (1973, no longer in print); and, the book *Statistics: A Guide to the Unknown*, edited by Judith Tanur (Wadsworth 1989, 3rd ed.).

In the 1980's, reports from many national committees and commissions indicated that mathematics and science education were in serious trouble in the United States. Heeding the call, NCTM developed a new set of *Curriculum and Evaluation Standards for School Mathematics* (1989, NCTM, Reston Virginia). To many of us, the most exciting part of this reform document was the unprecedented, integral roles that statistics

and probability were to play in the mathematics curricular content. In this development, the Joint Committee provided significant input to the NCTM Standards committee.

Anticipating that when the Standards would be published in 1989, there would be a tremendous need for modern statistics materials as well as teacher support, the Joint Committee received funding from the National Science Foundation. The project, called *Quantitative Literacy* (QL) included the development of five volumes of hands-on statistics and probability materials, training sessions for workshop leaders, and several workshops to help teachers upgrade their understanding of statistics and to learn new activity-based methods of instruction. (Today, promotion of QL workshops nationally is the responsibility of the ASA Advisory Committee for Quantitative Literacy.)

The Joint Committee has been involved with several other related projects: Elementary Quantitative Literacy (EQL) for grades K-6; Data Driven Mathematics (DDM), twelve modules in high school courses including algebra, geometry and advanced mathematics that motivate mathematics topics from a data collection point of view; and, Science Education and Quantitative Literacy (SEAQL), designed to incorporate QL graphical analysis into analyzing data collected in biology, chemistry and physics laboratory experiments. The committee created the American Statistics Project Competition in 1987, and in 1998 has become responsible for overseeing the American Statistics Poster Competition as well. (The first poster competition was held in 1990.)

THE CREATION OF STN

As implied previously, statistics was hardly a household word in schools throughout the country in the early 1980's (although there were some states such as New York and California that had just adopted curricular strands in probability and statistics). Much more typical was for statistics to have been found as one of the last chapters of an algebra book, a chapter seldom taught because of lack of time in the school year. Besides, if any topics were done in this area at all, they were more apt to have been counting problems in probability.

As seeds were being sown to introduce statistics into the school curriculum, there was need for a publication that would inform schoolteachers of the worth of statistics including whatever support activities and materials that would be developed. The Joint Committee thus created STN to be a major vehicle by which information concerning these

developments, as well as notices of workshops and programs, and reviews of books, software, and calculators, was to be disseminated to the school teaching community.

The first issue of the Statistics Teacher Network newsletter appeared in September 1982 with Ann Watkins (California State University - Northridge) as editor. Beth Bryan (Augusta College) took control three years later with issue 10, followed by Jack Kinney (Rose-Hulman Institute of Technology) in December 1988 with issue 19. Jerry Moreno (John Carroll University) became editor with issue 31 in the fall of 1992. The editor, a voluntary position, is chosen by and is responsible to the Joint Committee.

THE STRUCTURE/PUBLICATION OF STN

STN is published three times a year. During its first several years, it consisted of four pages, but as interest in statistics education grew in the USA, the publication increased to six pages and then to its current eight. Occasionally, there is an additional one-page insert for special purposes such as listing the winners of the American Statistics Project and Poster Competitions. Content is the responsibility of the editor; layout, printing and mailing have been done by ASA's publications department.

STN has always been a free publication. The printing and mailing costs have been absorbed by ASA and NCTM. The number of subscribers grew in the first four years to almost 2,000, and reached 8,000 in the mid-1990's. In an effort to keep postage costs reasonable and to be sure that subscribers were still interested in receiving it, the mailing list has been pared at least twice. STN is now also available at the ASA website (http://www.amstat.org/education/STN/). The goal is to have full content of several current issues displayed on the web, along with selected reviews and articles from previous ones. As access to the web by more teachers increases, the hard copy version of STN will no doubt decrease.

THE CONTENT OF STN

Over the years, the pages of STN have reflected the development and changes in statistics education and teaching in the United States as outlined in parts I and II of this paper. It has consistently included announcements of workshops and conferences (including ICOTS of course); information on innovative projects and programs such as QL and the NCTM Standards; news items of what is going on in statistics education in other parts of the world such as through Sheffield's Centre of Statistical Education, now

the Royal Statistical Society Centre housed at Nottingham; reviews of books and technology; descriptions of successful classroom statistics activities; and opportunities for readers to submit suggestions, questions, requests and problems to solve. It should be noted that the reader "help" section of STN has given way to the more timely and efficient computer bulletin boards and listserves. In some respects, the "network" part of the Statistics Teacher Network newsletter never developed into a full-fledged interactive communication link that the creators no doubt had intended.

STN was created to be a newsletter and not a journal and thus is not peer-reviewed. However, as the readers of the newsletter over the years became more knowledgeable of statistics and more in need of in-depth information, the STN book and technology reviews have become of a quality worthy of being considered for a peer-reviewed publication rather than just a brief paragraph or two of description. The same is true of articles pertaining to activities that teachers have found successful in their classrooms. And so, there has been an increased need for the editor to take on the responsibilities of careful review, often seeking help from statistics colleagues and schoolteachers to determine the quality and interest level of articles.

The statistics books and software products that have been reviewed in STN since fall 1994 are shown in Table 1, identified by title, author, and reviewer with the issue number in parentheses and "el" indicating elementary school level.

The *Statistics in the Classroom* articles have become very popular. Hopefully an appreciation of the content of these articles may be gleaned from their titles: *Exploring Centers, Data Driven Mathematics* by Henry Kranendonk (47); *Teaching Data Analysis to Primary Teachers* by Joan Garfield (45); *Efficient Storing of Statistical Data in the TI-83* by Al Coons (45); *SEAQL Techniques in a Physics Classroom* by John Thompson (45); *A Quick Introduction to the Statistical Capabilities of the TI-83 Calculator* by Tom Short (44); *A Statistician Goes to First Grade* by Lorraine Denby (44); *Hats Off to Least Squares* by Roger Johnson (42); *Tag and Recapture with Live Prey* by John Luedeman (41); *A Budget, Salt Usage, and Anti-Skid Usage Analysis* by Christine Shuma (41);

Estimating the Attendance at a Football Game by Celeste Brockington, John Luedeman, and Paula Pruett (40); *Is Seeing Believing? A Problem to Improve Middle Schools Students' Stochastic Vision* by Joanne Caniglia (39); *Using the CBL in the Algebra Classroom* by Elaine Carbone (39).

Table 1: Books and Software products reviewed in STN

TITLE	AUTHOR	REVIEWER
ActivStats software	Velleman	Don Macnaughton (47)
Statistics Handbook for the TI-83	Morgan	Michael Koehler (46)
A Casebook fora First Course in Statistics and Data Analysis	Chatterjee,Handcock, Simonoff	Norean Radke Sharpe (46)
TI-83 Enhanced Statistics	Barton and Diehl	Al Coons (46)
An Electronic Companion to Statistics software	Cobb, Witmer, Cryer	Thomas Short (46)
Activity-Based Statistics	Scheaffer, Gnanadesikan, Watkins, Witmer	Douglas Andrews (44)
Graphing Statistics and Data: Creating Better Charts	Wallgren et al	John Schollenberger (44)
Seeing Through Statistics	Utts	Beth Lamprecht (43)
Probability and Statistics	Barson	Caroline Brennan, Joanna Yantosh (43, el)
Student SYSTAT software	Systat Inc.	Joseph Ward (43)
Workshop Statistics	Rossman	Joan Garfield (42)
Statistics and Data Analysis: An Introduction (2nd ed.)	Siegel and Morgan	Robert Hayden (42)
Graphers software	Edwards (manual)	Frances Curio (42, el)
Exploring Statistics with the TI-82 Graphics Calculator	Kelly	Thomas Short (41)
Statistics, Graphing and Probability	Johnson	Caroline Brennan, Joanna Yantosh (41, el)
A Handbook of Small Data Sets	Hand, Daly, Lunn, McConway, Ostrowski	Robert Hayden (40)
Proceedings of the First Scientific Meeting of IASE	Brunelli and Cicchitelli	Al Shulte (39)
DataScope and Prob Sim software	Konold and Miller	Joan Garfield (38)
Exploring Measurements QL V	Barbella,Kepner, Scheaffer	Thomas Short (38)
Introducing Data Analysis in the Schools	Pereira-Mendoza, ISI	Joan Garfield (37)
The Cartoon Guide to Statistics	Gonick and Smith	David Bernklau (36)
Data Analysis: An Introduction	Witmer	Thomas Short (36)
Understanding Statistics	Barnett and Holmes	Linda Quinn (36)

software	manual	
Functions, Statistics, and Trig	Scott Foresman UCSMP	Pam Garrett and Greg Koltas (35)
The Art of Science Writing	Worsley and Mayer	Mark Martin (35)
Fifth Things to Do With Databases and Spreadsheets	Hammond, CSE Sheffield	Joan Garfield (35)

Several other very interesting applications of statistics were contained in previous issues. Of outstanding interest was an article (31) by a biology teacher, Mike Kimmel, who applied the concept of a quality control chart to having his students create their own "grade control chart" in which they enter their homework, quiz and test grades. They can thereby "see" their progress over the grade period, being able to graphically see patterns of when they did well and did poorly and then determine personal reasons as to what caused the observed performance. This is but one wonderful example of what QL has been able to do for teachers and for their students.

THE FUTURE OF STN

In the 1970's an avant-garde of statisticians and teachers had a vision to incorporate statistics into the school curriculum and to encourage new data-centered classroom instruction techniques. As their vision slowly but surely began to be manifested, STN played a role in informing the teaching statistics community of their progress and encouraging other teachers to become involved in its development. For STN to continue to be useful, it must increase its readership and expand its content to include more at the elementary school level. With STN now on the web, the future looks bright to satisfy those goals. With statistics firmly in place in the mathematics school curriculum, future tasks are for it to find significant favor in other disciplines of school curriculum - science, social studies, language arts. As those goals are pursued, STN will be there to encourage and record.