

## NOMINATION PACKET FOR ANN E. WATKINS FOR THE USCOTS LIFETIME ACHIEVEMENT AWARD

Dear Colleagues:

We write to nominate Ann Esther Watkins for the USCOTS Lifetime Achievement Award in Statistics Education. In what follows, we summarize Ann's contributions under six headings: their context, uniqueness, duration, breadth, volume, and influence.

**Context.** To appreciate the full magnitude and influence of Ann's lifetime of accomplishments, it is important to take both a long view and a broad view. To set the stage, consider the changes in our field since the mid-1960s, especially the relationship between statistics and mathematics. Statistical *practice*, as an applied science, has largely been free to *use* mathematics without having to depend on the *support* of mathematicians. Not so for statistics education. The teaching of statistics has long been dependent on patronage from departments of mathematics, whose orthodoxy regarded statistics as mere numerical ritual in service of a loftier abstraction. Computers and Tukey's EDA opened the door to David Moore's heresy: "Data are not just numbers, but numbers with a context." Computing and EDA energized graduate programs in the 1970s, but it would take another decade of energized trickle-down, and more, for statistics to be recognized in K-16 as a subject in its own right. This change in how educators think about statistics within K-16 has been pivotal in bringing statistics education to where we are today. No one, we assert, has done more than Ann Watkins to make this essential transition a reality.

**Uniqueness.** Ann Watkins is without peer in the history of statistics education. She is the only person to be elected both President of the Mathematical Association of America and Fellow of the American Statistical Association. *More than any other statistics educator*, she has worked within the mathematics community for decades, tirelessly, thoughtfully, and effectively, to highlight the importance of statistics and to ensure that our subject is taught with an appropriate emphasis on data. *More than any other mathematician*, she has worked collaboratively with statisticians and their organizations, over the decades of her career, to ensure that mathematicians and statisticians work together.

In saying this we do not in any way underestimate the extraordinary contributions within the mathematics community of statisticians such as Frederick Mosteller, Robert Hogg, David Moore, and more recently Allan Rossman, nor do we want to downplay the important and committed support of mathematicians such as James Leitzel and Donald Albers. Nevertheless, despite the immense and enduring value of these contributions, we believe it is accurate to say that *no one has done more than Ann Watkins to ensure that mathematicians and statisticians have supported each other and worked together* over the last three decades: to appreciate their similarities and differences, and to advance the teaching of statistics, from the elementary grades through the undergraduate curriculum.

**Duration:** Ann's first major contributions to statistics education date back 30 years. She was one of the leaders of the NSF-funded Quantitative Literacy project of the 1980s, and an author of its most widely used workbook, *Exploring Data*. This project set the tone for the integration of statistics into the K-12 mathematics curriculum, influencing the NCTM Curriculum Standards, the Woodrow Wilson Foundation (which funded workshops for teachers), the College Board frameworks for mathematics, the AP program, and other state and national efforts on curricular reform.

About the same time Ann co-edited the book *New Directions in Two-Year College Mathematics* and co-authored two statistics-related articles in *The Mathematics Teacher*. A year later, her co-authored book *Exploring Surveys ...* was published. She has been on scene ever since.

**Breadth** of contributions. A simple measure of the breadth of Ann's achievements comes from the list of national and international conferences where she has been an invited speaker: ICOTS, USCOTS, JSM, JMM, NCTM, and ICME. What matters here, is not the number of venues, but the span of the audiences who want to hear from Ann. The same is true for the range of journals of her published articles: TAS, JSE, CHANCE, College Mathematics Journal, Math Horizons, American Mathematical Monthly. Moreover, Ann is not narrowly limited to a focus on the introductory course. She has taught courses in regression, probability, mathematical statistics, and multivariate statistics.

**Volume** of Ann's contributions. Granted, it is the substance of Ann's contributions, rather than the mere count, that is responsible for her influence on statistics education. Nevertheless, the sheer volume of her substantive contributions reflects her impact.

Books. Ann has been primary author or co-author of many books related to statistics education. These include *Exploring Data* (1986), *Exploring Surveys and Information from Samples* (1987), *Statistical Abstract of Undergraduate Programs in the Mathematical Sciences and Computer Science* (two books: 1990-1 survey published 1992, and Fall 1995 survey, published 1997), *Activity-Based Statistics* (1997), *Contemporary Mathematics in Context* (1996; Ann wrote the chapters on probability and statistics), *Teacher's Guide – AP Statistics* (1997, primary author), *Statistics in Action* (2003)/*Statistics: From Data to Decision* (2011, primary author). In addition to these books, Ann was co-editor of three other books, and wrote or co-wrote chapters on statistics for eight other books. She has published three articles in TAS, two in JSE, and statistics-related articles in journals for teachers of mathematics.

Grants and workshops. Ann has been PI, co-PI, or member of the advisory committee for more than two dozen grant-funded projects, most of them funded by NSF. In connection with those grants, she has organized or co-led dozens of workshops, beginning with the Quantitative Literacy workshops in the 1980s, and including many workshops related to teaching statistics for K-12 teachers across the country.

AP statistics. Ann was a leading member of the College Board task force that formulated the AP Statistics course through deliberations with schools, colleges and the College Board itself during a period of about five years prior to the first exam in 1997. She was the chair of the inaugural Test Development Committee that set the format and style for all AP exams to this day. She has been an integral part of the AP Reading for many years, where she was adept at bringing together high school and college teachers of statistics.

Leadership and service. It is characteristic of Ann that she leads through service. Yes, she was elected President of MAA, but she won that election through a career of service. Space constrains us, so we focus on two categories, editorial and committee membership. Editorial. Ann was co-editor of *The College Mathematics Journal* (89-93), associate editor of the *American Mathematical Monthly*, founding editor of *The Statistics Teacher Newsletter*, and reviewer or member of the editorial board for many other journals. Committees. Over the last 30 years, Ann has served on dozens of committees – of the MAA, ASA, NCTM, and other organizations. Consistently, thoughtfully, and effectively, she has worked to advance the cause of statistics education.

**Enduring influence.** In summary, we suggest that a suitable context for evaluating the magnitude of Ann's lifetime of achievements is provided by two fundamental and parallel evolutions in statistics education over the last half-century – one intellectual and one institutional. Ann's work has been critical in advancing both.

Intellectual – Think of David Moore's "Should mathematicians teach statistics?" and "Teaching statistics as a respectable subject." David articulated the arguments, but Ann was the leader among mathematicians in recognizing the validity of Moore's arguments, and in persuading her fellow mathematicians to pay attention. It is now part of the mainstream that statistics is a subject in its own right. That new understanding is rooted in computing, real data, and Tukey's EDA. Ahead of many of us, Ann was quick to recognize the change and lead the effort to spread the word.

Institutional. It would be natural for statisticians' declaration of independence from mathematics to lead to ill will and nasty fights (mathematicians think statisticians are just inferior, failed mathematicians; statisticians think mathematicians are ignorant of statistics and arrogant). Ann deserves a lot of the credit not just for our avoiding "stat wars" but more positively, for our reaching a mutually beneficial understanding.

Ann was key to the transformation of statistics education from descriptive statistics, probability and watered-down theory to an emphasis on data analysis in the Tukey tradition. The emphasis on data is what allowed statistics to become an ever expanding part of the mathematics curriculum since the 1980s, where previous efforts had failed.

In conclusion, we ask you to imagine where we might be but for Ann. Thanks largely to her intelligent openness to statistical thinking, to her energy and commitment, her thoughtful, impactful writing and speaking, and her diplomacy in persuading statisticians and mathematicians to work together, statistics is now an integral part of the K-12 curriculum, is now recognized by college mathematics departments as an important subject in its own right, and is now facing a bright future.

In support of this nomination, we include letters from statisticians Rob Gould, Jim Landwehr and Jerry Moreno (all ASA Fellows), and mathematicians Gail Burrill (former President of NCTM), Chris Hirsch, Martha Siegel (14 years as Secretary of the MAA, current chair of CUPM), Lynn Steen (former MAA President), and Chris Stevens (Associate Executive Director, AMS).

Sincerely,

George Cobb, Richard Scheaffer, and Jeffrey Witmer

## Supporting letters from mathematicians:

### **Gail Burrill, ASA Fellow, past President, National Council of Teachers of Mathematics**

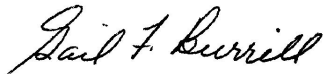
I am writing to enthusiastically support your nomination of Ann Watkins for the Lifetime Achievement Award in Statistics Education. I met Ann in the early 1980s when I was nominated by the National Council of Teachers of Mathematics (NCTM) to be a member of the ASA/NCTM Joint Committee. The Committee was in the process of developing the Quantitative Literacy Series with major input and contributions from Ann, and my high school students and I spent many good hours exploring the four booklets (in particular *Exploring Surveys and Information from Samples* opened doors into my own understanding of confidence intervals). As part of a NSF grant to implement the QL materials, we did many workshops together. and she was instrumental in building my understanding of statistics.

Over the years our paths have crossed often (for example, I was President of NCTM when she was President of MAA). Throughout this time, her understanding of teachers and of statistics enable her to provide wisdom and guidance to literally thousands of teachers through her leadership on the Advanced Placement statistics test, numerous publications and many, many workshops. She was also able to provide guidance to policies that supported teaching statistics in the K-12 curriculum, at the state and national levels in their work on standards and curriculum as well as through her involvement in organizations (e.g., supporting the MAA/NCTM Mutual Concerns Committee).

Ann truly deserves this award because of her dedication, long years of varied and important service to the community, and her many, many contributions in helping us rethink introductory statistical content in order to make it a statistically practical and rewarding experience for students.

Thank you for allowing me to be part of the support for Ann's nomination.

Sincerely,



Gail Burrill  
Program in Mathematics Education  
Michigan State University

### **Christian Hirsch, Director, Core-Plus Mathematics Project**

This letter is in support of the nomination of Ann E. Watkins for the Lifetime Achievement Award in Statistics Education. I have had the good fortune to collaborate with Ann since 1992 on the design, development, evaluation, and subsequent refinements (editions) of *Core-Plus Mathematics* in response to evolving national standards for school mathematics.

Our design and development work, funded by the National Science Foundation (NSF), was initially to develop a comprehensive problem-based, data-rich unified four-year high school mathematics curriculum and teacher support materials that interpreted and implemented the National Council of Teachers of Mathematics' 1989 *Curriculum and Evaluation Standards for School Mathematics*. Those standards identified a common core of broadly useful mathematics (including statistics) for *all* students in grades 9-11 and a fourth-year option for STEM-oriented college-bound students. The *Standards* document further recommended that statistics be elevated to a more central position in the curriculum for all students. This recommendation stood in stark contrast to statistics education in high schools at the time which, if at all, offered a narrow descriptive statistics course as a fourth-year elective for advanced students.

Ann Watkins brilliantly designed and developed the units in the statistics and probability strand for each of the courses in the *Core-Plus Mathematics* four-year curriculum that was subsequently recognized as an Exemplary Program by the U.S. Department of Education. Ann's approach to data analysis, probability, and statistics with its focus on distributions as a unifying theme was both innovative and unique in high school mathematics programs of the 1990s – and even today.

Ann's writing was clear and concise, with careful attention to detail and a consistent emphasis on the use of real data. Among her traits I found most striking over the years were her breadth of knowledge of statistical studies that involved data that was grade-appropriate and engaging for students while revealing important

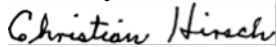
statistical ideas and motivating key practices, her ability to collaborate well with others, and the extent to which she carefully listened to feedback from field-test teachers, often asking them for suggestions on possible ways to modify a problem or sequence of problems within an investigation.

More recently, Ann played a similar significant role in the design and development of an alternative fourth-year course, *Transition to College Mathematics and Statistics*, funded by NSF to help ensure college and career readiness for graduates who were pursuing degrees or apprenticeship programs in non-STEM fields.

Among the four content strands in each of these two programs, both students and teachers frequently identified the statistics units as the most interesting - and often among the strands in which students were most proficient.

In summary, Ann's vision, commitment, and engaging writing have played a key role in reshaping high school mathematics programs to have a much greater focus on data analysis and statistical thinking.

Sincerely,



Professor Emeritus, Mathematics and Mathematics Education  
Director, Core-Plus Mathematics Project  
Director, Transition to College Mathematics and Statistics Project  
Department of Mathematics Western Michigan University  
Kalamazoo, MI 49008

### **Martha Siegel**

I am very pleased to have this opportunity to support the nomination of Ann Watkins for a Lifetime Achievement Award in Statistics Education. I have known Ann from the days when she was a professor at Pierce College. From the beginning, she was one of those people who is stubborn in her belief in the efficacy of educating all kinds of students. When she taught at a two-year college, she made effective and resolute proposals for the improvement of mathematics and statistics education for students attending those schools. She has contributed energy and skill to the discussion of the role of statistics in quantitative education in K-16. She has a no-nonsense way of presenting her case with tremendous effect.

I now chair CUPM, MAA's Committee on the Undergraduate Program in Mathematics. In our *2015 Curriculum Guide to Majors in the Mathematical Sciences* there are very few subject areas that are specifically mentioned as essential; one of them is Applied Statistics and Data Analysis. This has been endorsed by the MAA Board of Governors. I attribute this consensus in large part to Ann Watkins.

In the early days when she was promoting AP Statistics, I must admit that I thought she was fighting an uphill battle. But she, and many others in the statistics community, worked hard to make this a reality. It was not a simple matter. Ann contributed enormously to the body of classroom materials and techniques that could make the AP Statistics an extremely successful course. The *Exploring Data* workbook and *Statistics in Action: Practical Principles for a World of Uncertainty* provided teachers with solid materials. That material and her work in *New Directions in Two-Year College Mathematics* fueled the interest in and recognition of early statistics education. When she began teaching at California State University at Northridge, her cool determination seemed to be even more effective. As a mathematician, she has been able to address the concerns, fears, and insecurities associated with making statistics, especially data analysis, such an integral part of the school and college curriculum.

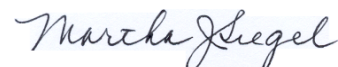
The Quantitative Literacy Workshops and her long-time participation in MAA-College Board activities add to her credibility with the mathematics community. When she co-edited *The College Mathematics Journal*, she further endeared herself to the community. Her election as President of the MAA is testament to the degree to which Ann is respected as a spokesperson for mathematics. She was never considered an outsider.

At the MAA MathFest in Hartford, CT Ann gave a one-hour talk that was heavily attended and widely praised. She continued to plead for a sensible approach to data analysis, urging the mathematicians in the audience to loosen their grip on the old-fashioned "normal distribution based" first college statistics course.

Her examples were well chosen and very convincing. The talk was the sort of well-constructed, well-delivered and scholarly presentation that has enabled Ann to be so influential with mathematicians. I hasten to add that though Ann is dead serious about achieving her goals, she has a keen sense of humor and humanity that further enhance her influence.

I served as Secretary during Ann's MAA presidency. She is a thoughtful and most effective representative of collegiate mathematics and statistics. She earned her status in the fields of education, statistics, and mathematics by working within the system through committees and working groups, with co-authors and fellow members of the academy. She has had a lifetime of high achievement. Her positions of influence in various organizations such as ASA, MAA, and ASA and her many grants from NSF and others reflect her hard work and intelligence.

I am very pleased to endorse the nomination of Ann Watkins for the Lifetime Achievement Award in Statistics Education.



Martha J. Siegel, Ph.D.  
Mathematics Department  
Towson University  
Towson, MD 21252

### **Lynn Steen, President (1985-6), Mathematical Association of America**

I write to enthusiastically endorse the nomination of Ann Watkins for the Lifetime Achievement Award in Statistics Education. I do so in large part because of Ann's sustained leadership in helping mathematics teachers comprehend and, eventually, embrace the data revolution in statistics that emerged as computer power spread across society.

I served as president of the Mathematical Association of America (MAA) in the mid-1980s at the beginning of several upheavals in the teaching of mathematical sciences—the first national “standards” for school mathematics, the reverberations of Tukey's EDA in statistics education, and the movement to reform the teaching of calculus in higher education.

In subsequent years, as these forces for change worked their way into school and college curricula, Ann Watkins was the most consistent, effective, and persuasive advocate for data-focused statistics education within the community of mathematics educators. She was one of few individuals who worked effectively at all educational levels—high school, two-year colleges, four year colleges, and universities. As a rare statistician working within the mathematics community, she conveyed unique authenticity in discussions of statistics education. Her election as president of the MAA attests to the high regard with which her work was (and still is) held.

The lifetime achievement award for Ann would not only honor her for this extraordinary career, but just as important, it would call attention to the continuing importance of the kind of leadership that her life's work represents. In an era of emotional disputes over school standards and widespread public disregard of scientific data, the need for individuals such as Ann who offer sustained, well-informed, and calm leadership is as great as it ever has been.

Both to honor Ann and to publicize a much-needed exemplar of educational leadership, I strongly support the Lifetime Achievement Award for Ann Watkins.

Lynn Arthur Steen  
Professor Emeritus of Mathematics, St. Olaf College  
President (1985-86), Mathematical Association of America

**T. Christine Stevens, Assoc. Exec. Dir., American Mathematical Society**



AMS

AMERICAN MATHEMATICAL SOCIETY

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It is a pleasure to write in support of the nomination of **Ann Watkins** for the USCOTS Lifetime Achievement Award. For more than twenty years, Ann has been a strong and effective advocate within the mathematical community on behalf of statistics education. Because of her work with both the Mathematical Association of America (MAA) and the American Mathematical Society (AMS), mathematicians have participated in the transformation of undergraduate statistics education.

I first became acquainted with Ann when I was directing the MAA's Project NExT (New Experiences in Teaching). Project NExT is a professional development program for new Ph.D.s in the mathematical sciences (including statistics) that helps them to make the transition to their first jobs as full-time faculty members. It addresses all aspects of an academic career: teaching, scholarship, and professional service. Ann made invaluable contributions as a member of the Project NExT Advisory Committee and as a successful workshop presenter. During her MAA Presidency in 2001-2002, she was also instrumental in signing up the American Statistical Association as a sponsor of Project NExT. Most of all, Ann was my resource for innovative ideas and new pedagogical approaches in the teaching of undergraduate statistics. Thanks to her, literally hundreds of early-career mathematicians (as well as many statisticians) have become familiar with an activity-based approach to introductory statistics that incorporates exploratory data analysis. To see the effects of Ann's efforts on the mathematical community, you need only look at the MAA program for last month's Joint Mathematics Meetings in San Antonio. On any given day, you will find panel discussions, minicourses, and contributed paper sessions about the teaching of statistics.

In 2013, the MAA both recognized and showcased Ann's outstanding contributions to undergraduate statistics education by inviting her to give the James R.C. Leitzel Lecture at the MAA summer meeting. Ann's talk – which bore the provocative title *Statistics Isn't Mathematics: So How's That Working Out?* – thoughtfully described both the achievements of mathematicians and statisticians in transforming undergraduate statistics education and the tensions and challenges inherent in their overlapping efforts.

The AMS has also benefited from Ann's talents, which were on ample display during her six years of service on the Joint Data Committee. In academic circles, the mathematical sciences community is renowned for the quality of the data that it collects about its activities, and the fruits of this effort are incorporated into a "statistical abstract" of undergraduate programs that is published every five years. In both 1990 and 1995, Ann was a co-author of this report.

By successfully bridging the gap between mathematicians and statisticians, Ann Watkins has made a deep, long-lasting, and unique contribution to undergraduate statistics education. I heartily endorse her nomination for the USCOTS Lifetime Achievement Award.

Sincerely,

*T. Christine Stevens*

## Supporting letters from statisticians:

Rob Gould, ASA Fellow



# UCLA DEPARTMENT OF STATISTICS

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I feel very strongly that Ann Watkins is deserving of this award and am grateful for the opportunity to make my case. Ann's achievements do indeed cover a lifetime, and I came into the statistics education community in 1994, quite some time after Ann's reputation was solidified. Still, I have had the honor of working with Ann on several occasions and, more importantly, I have been privileged to learn from Ann about how statistics should be taught, how it could be taught, and how to influence others to improve statistics.

In 1998, UCLA founded a Department of Statistics, and I was put in charge of designing the undergraduate program. Immediately I began to teach myself about the trends and "best practices" in statistics education, and was delighted to discover, among a respectably large volume of articles, research papers, and curriculum materials, a small number of people whose work glowed with intelligence, common sense, and a vision of the future. I was even more delighted to discover that one of these people, Ann Watkins, was nearly a neighbor, teaching at a university just 20 miles from my own.

As our program grew, I became more aware of how the future success of our program depended on Ann's influence and vision. We put together a team of "enlightened" high school math teachers to advise us on how to support the new AP Stats program. Statistics teaching then, you'll recall, was strongly procedural and formula-dependent. The very fact that there were enlightened teachers to advise us -- teachers who understood that statistics was about learning to interpret data and that learning statistics could be a visceral, exciting undertaking -- was due to Ann. Almost all of the teachers had been inspired and influenced by *Exploring Data* and were eager to adopt the just-released *Activity-based Statistics*. Ann's CV doesn't reflect the energy she spent into recruiting teachers to the "new" statistics, and certainly doesn't reflect her success at doing so. Her workshops, classes, and articles were inspiring to a large number of teachers (at least in Southern California) who were then able to convince their schools to launch AP Stats programs and even non-AP statistics courses.

I remember Ann as a voice of reason during the "math wars" in California, which became very heated when the Los Angeles Unified School District began hearings to adopt math books. The discussion was very heated and divisive, and one of the more polarizing figures was on the faculty in Ann's department. Ann advocated strongly that statistics had a place in the mathematics curriculum, and she did so with grace, good humor, logic, and an impeccable command of facts.

Ann's publications, particularly the two mentioned above, remain extremely influential, and are readings I require of graduate students interested in learning to teach statistics.

There have been three statistics textbooks that have had a great affect on my own teaching and, from my conversations and encounters with educators at both the high school, two-year, and four-year levels, I am not alone in this. Two of these books showed me *what* to teach, but Ann's book showed me *how*. One book was David Moore's *Practice*, which taught us how powerful real data could be in the classroom. The second was Freedman, Pisani and Purves' *Statistics*, which taught us what it meant to teach at a "conceptual" level and maintain intellectual rigor. And, finally, Ann's *Activity Based Statistics*, which showed us how to teach conceptually with data by incorporating activities that I, for one, still use, after nearly 20 years.

I would like to end with a personal anecdote that perhaps doesn't say very much about Ann's influence on statistics education, but I believe says much about the sort of person she is and about her influence on others. My PhD was in mathematics, and for many years I attended the MAA conference, including a memorable one in San Diego while Ann was MAA president (or perhaps president-elect). At that time, the MAA lagged culturally behind the ASA and did not recognize the ad-hoc committee on gay and lesbian mathematicians as an official group, nor did it allow the group to hold meetings using the conference facilities. Ann changed that, and for the



first time allowed the group to reserve an on-site room for its meeting. I was there, and remember how excited everyone was when, for the first time, the president attended the meeting and ensured that everyone there realized that they were a valued part of the organization. This was seen by many as an historic event, and had and continues to have a lasting positive affect. By that time, I knew Ann well enough to know that this typical of how she works and lives. When she knows that something is good, be it widening the community of mathematicians, or enlarging and enhancing the mathematics curriculum, she does it, and she brings others along with her.

I urge you to award the Lifetime Achievement award to Ann.

Sincerely,



Robert Gould, Ph.D.

Lecturer with Security of Employment, UCLA Statistics  
Fellow, American Statistical Association

### **James Landwehr, ASA Fellow**

It is with great pleasure that I write to add my support for the nomination of **Ann E. Watkins** for the Lifetime Achievement Award in Statistics Education.

The context for your consideration of my views as expressed in this letter could be a bit difficult, since I am a statistician who was employed almost entirely in industry as a research statistician (primarily at Bell Labs) throughout my career. My main contact with statistics education has been through projects with which I collaborated with Ann and others. Hence, any credibility I might have is inherently confounded with work I have done with Ann, so I am hardly an unbiased observer or evaluator of those contributions.

I worked closely with Ann starting in the early 1980's and into the mid-1990's as part of the ASA-NCTM Quantitative Literacy Project. Both Ann and I were newly appointed members of the ASA-NCTM Joint Committee on the Curriculum in Statistics and Probability in 1981. (The genesis of this committee was the leadership of Fred Mosteller in the late 1960's.) Ann was an NCTM appointee and I was from ASA, and we were very fortunate to have first Jim Swift (a classroom teacher from NCTM) and then Dick Scheaffer to provide leadership for the committee. Statistics in the K-12 classroom was neither mainstream nor non-controversial at that time. But those of us on the Joint Committee (as it was called) felt that there were opportunities for new initiatives, that the times were such that there might be more receptiveness from teachers and educational leaders than there had been in previous eras, and that new approaches motivated in part by John Tukey's Exploratory Data Analysis (EDA) could be effective with students and teachers. We were fortunate to be able to get some resources (from NSF and elsewhere), and we made the commitment to give it a shot and see what we could do.

This led to my collaborations with Ann. As shown in her vita, we published two books together, co-presented many workshops to audiences of teachers, mathematics educators, and statisticians on topics involving what we were trying to do and why, and we wrote several papers. Both of us—and especially Ann—worked with others as well on related projects and activities during this period. My professional collaborations with Ann wound down in the mid-1990's with the publication of the 2<sup>nd</sup> edition of our book, *Exploring Data*. Over this roughly 15-year period, the QL team created a lot of classroom-ready materials, taught hundreds if not thousands of teachers how to teach with the materials, and proselytized to the broader mathematics education and statistics communities that the effort really could succeed and benefit students. As a result, a lot of enthusiasm was generated. My personal opinion is that the Quantitative Literacy Project was effective and that it paved the way for further successes in K-12 statistics education, AP Stat, and undergraduate statistics education, all of which Ann has been involved in. But, as I stated, I can hardly claim to have an unbiased viewpoint concerning her and our earlier efforts.

What I can attest to is that collaborating with Ann is a professional and personal delight. She is open-

minded, willing to express her views, willing to listen, willing to change her mind if warranted or convince others if that is warranted, and is totally committed to true professional respect. It is the results from these qualities, which I was fortunate to benefit from first-hand, that has led to her success in so many other areas beyond the initial Quantitative Literacy Project work. Those contributions are shown in her vita and, I am sure, summarized in the nomination letter and supported by others.

Although Ann is not a statistician, she has been core to the rise of K-12 and undergraduate statistics education over the last 35 years. She has participated in creating exemplary materials, and she has helped to reach audiences that statisticians do not have the real credibility to speak to. She has been the most effective person in bridging the gap between the statistics and mathematics education communities. Hence, she is entirely deserving of the Lifetime Achievement Award in Statistics Education. I urge you to award it!

Sincerely,

James M. Landwehr Director, Data Analysis Research (retired)  
Avaya Labs, Basking Ridge, NJ

### **Jerry Moreno, ASA Fellow**

It is amazing the number of contributions that Ann has made to statistics education as summarized in the nominations document. Two of those areas of special importance to me are her enormous efforts in bringing mathematicians and statisticians together and the publications that she has written to inform pre-college educators of statistics for the classroom. Regarding the former, so many of us “isolated” statisticians who are in mathematics departments have relied on Ann, as mathematician who understands statistics, to help our mathematics colleagues understand how to teach statistics, to move from a formula-driven course to a conceptual one. Regarding publications, her writing for the Quantitative Literacy (QL) project, reviewing for the Data Driven Mathematics (DDM) modules, being founding editor of the Statistics Teachers Network (STN) newsletter, chairing the initial Test Development Committee for the Advanced Placement Statistics exam were huge important contributions done at the forefront of statistics education at the school level. The QL and DDM materials are as useful today as they were when first published. Seven years before NCTM’s 1989 curriculum standards that brought statistics into the classroom, Ann founded STN that was the primary vehicle by which schoolteachers were educated of the importance of statistics, publications and programs and contests.

Much of the success that statistics currently enjoys in school curriculum is due in one way or another to the ground-breaking efforts of Ann Watkins. Awarding her the Lifetime Achievement Award would be a wonderful acknowledgement of how very important and influential she has been to statistics education. She is truly deserving of this prestigious award.