

The Contributions of W. Edwards Deming to the Improvement of Education

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Introduction

It is not often that one man's contributions to educational thought and practice can be traced so clearly as those of Dr. W. Edwards Deming. In preparation for this review I have written to, spoken with, and interviewed people from Alaska to Tasmania, from across the United States, from the United Kingdom, from France, from Australia and from Latin America. Through their letters, comment and reports, it is now possible to describe and document the extraordinary impact Dr. Deming has had and continues to have on education. I have been privileged to be a witness to much of this adventure and today am honored to be able to deliver the W. Edwards Deming memorial lecture devoted to his contributions to education.

In The Beginning

As far as I can tell, the first attempts to apply quality management methods in education occurred in Arizona. There may have been others. I did not find them. Tricia Ewing began to teach her students in business classes some of the tools of quality improvement at Gilbert High School around 1984. Deloris Christenson, working out of the State Department of Education, promoted after-school clubs and contests devoted to quality improvement. These activities were treated as “add ons” to the existing curriculum.

The first person to make quality management a “way of life” in the classroom was David Langford. David was hired at Mount Edgecumbe High School (MEHS), Sitka, Alaska, in 1984. MEHS had three primary themes: 1) Pacific Rim Education, 2) Entrepreneurship and 3) Technology. David was hired as the technology coordinator and teacher of business. To become better at his assignment, David enrolled in graduate courses in business in Tempe, Arizona, where he met Tricia Ewing and learned what she was doing in her classes. He was invited to come along to a presentation on quality improvement at McDonnell Douglas Corporation in Mesa, Arizona. There he saw improvement teams in action and met with the company quality coordinator who spent two hours with him and, in David's words, “Completely chopped up what I had previously been taught as a philosophy of management.”

David went back to Sitka with a box of video tapes, books and articles on quality and the beginnings of a new way to think about management. All of the tapes and writings were aimed at industry. Some of the tapes had been produced at MIT and showed Dr. Deming explaining his 14 points. Some were training tapes for McDonnell Douglas. Some were from Bill Conway, CEO of the Nashua Corporation, one of the first companies in the USA to adopt Dr. Deming's approach. David saw numerous contradictions with what he was being taught as part of his course work preparatory to becoming a school superintendent.

David assembled a list of quality coordinators at different companies where the Deming philosophy was being introduced and wrote to them, asking for help. Their responses were uniformly positive. He obtained materials from Ford and the Nashua Corporation.

David went to the Superintendent of MEHS, Larrae Rocheleau and said, “I have found it!” Larrae was not impressed.

David wrote to Dr. Deming in 1986 and asked for advice. “Where and how to start?” Dr. Deming was very kind and solicitous and replied: “Change has to start from the top.” David interpreted this to mean that the Superintendent had to lead, so he started bombarding the Superintendent with notes, video tapes, and clippings from other writers. This only served to make the Superintendent's position harder. “Leave managing to me. You teach.”

In August 1986 David decided that if change was to come from the top, then, since he, David, was the top manager of his classes, he would start there. So he began to teach the 14 points to his students in the business class. In September 1986 he had his students make personal time studies, applying the quality tools as best he understood

¹ In preparing this paper I had helpful contributions from Monta Akin (Texas), Brenda Clark (Florida), Jim Clauson (Tennessee), Jean-Marie Gogue (France), Francesca Hunt (England), Michael King (Australia), David Langford (Montana), Betty McCormick (Texas), Mick McNeill (Iowa), Lew Rhodes (Virginia), Verel Salmon (Pennsylvania), Franklin Schargel (New York) and Ivan Webb (Tasmania)

them. The students examined their own study habits, time allocations, correlation between time spent studying and scores on quizzes, etc., etc. In October, after a short experience with the students, David wrote again to Dr. Deming, explaining that he was preparing some computer programs to automate the teaching of quality to students. Dr. Deming wrote back a “sizzling letter” saying that gimmicks, gadgets and such would get in the way. “What you need is knowledge, not gadgets.” So David then decided to use the classes as a vehicle for studying and learning quality improvement. He and his students became teachers and learners, working together.

In the Spring of 1987 David arranged to take 20 students back to Phoenix. The students had to earn their own money to finance the trip. They visited McDonnell Douglas, Motorola and other companies. During these visits they not only saw and heard presentations and learned about manufacturing, they also made presentations of their own. The companies were delighted to see students with such a degree of mastery of quality concepts. One executive observed: “That girl knows more about quality than most of my managers!” The effects upon the students were dynamic. This experience gave David the courage to come out of the quality closet. He and the students made presentations to the staff at MEHS. Their enthusiasm was infectious. Soon David was made “Continuous Improvement Coordinator for Mount Edgecumbe High School,” probably the first such assignment in the World. He took that appointment as a license for him and the students to work schoolwide.

During 1988 David worked closely with students to help spread the message to the other teachers. He also kept up an active correspondence with Dr. Deming. David told me that the paradigm shift was so great he often had to read and re-read Dr. Deming’s letters many times.

In the Summer of 1989 Dr. Deming invited David to come to Minneapolis to attend a four day seminar as his guest. David persuaded the Superintendent, Larrae Rocheleau, and the School Principal, Bill Denkinger, to come along. They came away enthusiastic. This was a key turning point in the school, for now the “top” was on board.

In the Spring of 1990, I learned that David had written a set of notes on statistics for his students and I asked him for a copy. He sent his draft of “Stats for Success” which reflected a weak background in statistics. I sent him a suggested set of improvements and invited him to be my house guest in Fremont, California. He accepted and in a few days we became good friends. In November 1990 I visited Sitka and MEHS for the first time.

Although I had, by then, about 40 years of experience in education, I was totally unprepared for what I found. I wrote a report on what I saw, and distributed it widely around the World.¹ That report showed, for the first time, what could be done by making quality a way of life in the classroom. I refer you to that paper for details.

The next year, at the annual meeting of the American Association of School Administrators, in New Orleans, Larrae Rocheleau presented a paper on quality in education. There were two sessions and both of them overflowed in attendance. People stood in the halls, trying to get in. This meeting marked the beginning of the diffusion phase. Mount Edgecumbe High School had presented an example:

- Students in charge of their own learning.
- Students improving the learning processes of the school
- Faculty and students working together to improve processes
- Faculty, students and administration treating the school as a system
- Shifting the focus from teaching to learning

The Second Phase: Diffusion of Quality Concepts

An example of how the diffusion occurred is furnished by Franklin Schargel, author of the book, “Transforming Education through Total Quality Management” (a title Dr. Deming would not have approved!). In this book Franklin describes how quality principles changed the entire character of the George Westinghouse Technical-Vocational High School of Brooklyn, New York. I can testify to the transformation, having visited the school twice, each time conducting extensive interviews with students, teachers and staff. Franklin Schargel, and his partner in the transformation, Lewis Rappaport, often said, “If you can make it work in Brooklyn, you can make it work anywhere.” The school in which they introduced quality concepts is what is euphemistically called an “Inner city school.” I saw what that means for myself. It means a school where the windows are broken, the lockers don't work, the building is falling down and unsafe and where the students go through metal detectors on their way in. When I visited they had 1400 students, of whom two were white, a few percent Asians, about 15% Hispanic and the rest of African American descent. Most were from welfare families. Yet this school began to send half of its graduates to college and went to the top of the list of schools in reducing the number of failures. This transformation is directly traceable to the teachings of Dr. Deming. Franklin Schargel's description of how he was

¹ A copy of that report is available at http://deming.ces.clemson.edu/pub/den/deming_tribus.htm

affected by the presentation of Larrae Rocheleau provides such a vivid example that I have included it, verbatim, as an appendix to this paper.

In discussing how quality as a way of life came to David Langford's classrooms, I do not wish to give the impression that David was the only person working to bring quality to education. There were many others. Among them, for example, was Lee Jenkins, currently Superintendent of the Enterprise School District in Redding, California. His book bears the subtitle, "Applying Deming's Principles in Classrooms."¹

Dr. Deming's influence is most strongly seen in the extensive use of statistics throughout Lee Jenkins' book, but that is not all. Dr. Deming always insisted on clarification of the aim of any enterprise. Lee paraphrases Dr. Deming, "Increase the yearning for learning" in his statement of an aim for his school district: "Maintain Enthusiasm while Increasing Learning." Lee shows how to measure enthusiasm and uses his measurements to document what many educators have known: The longer children are in school the less enthusiastic about learning they usually become. Lee has gone beyond that observation and, using his data, investigated the root causes of this destruction of enthusiasm. He has verified (as have others) the harmful effects of grading, ranking and competition in classes, practices Dr. Deming often decried. His book illustrates, by creative use of probability distributions, how current approaches to judging schools can distort the distribution of learning without improving the system. If a school is judged on dropouts, is it an improvement if the achievements of the top students are reduced in consequence? Lee's book contains well over 150 statistical charts and tables demonstrating how to use statistical methods to decide if a change in education has resulted in an improvement.

When I asked Lee Jenkins for a short answer to the question, "How did Dr. Deming's teachings influence you?" he replied: "For the first time I had a theory of leadership and management I could act upon."

In 1991 CC-M productions came to Sitka to film the story of MEHS. The results were incorporated in a videotape follow up to their original NBC tape of a decade earlier, only this time the title was "Quality or Else." The appearance of these tapes hastened the diffusion of Dr. Deming's teachings in education. One case stands out. Monta Akin is the Assistant Superintendent of Schools in the Leander Independent School District (LISD) which is just outside of Austin, Texas. She wrote:

*Unable to sleep one evening, I turned on my local PBS station. What I happened upon was the last half of the *Quality or Else* video, part three--which highlights David Langford and Mt. Edgecumbe in the last ten minutes. Rather than help me sleep, the message presented in the video excited me so that I could hardly wait for the book stores to open the next morning. That was in January of 1991.*

Monta attended a two day seminar by David Langford in April 1992. David was then invited to become a consultant to LISD. I have visited LISD three times and watched their progress in the quality journey. Last February I attended their district wide conference which involved over 700 teachers, at least 200 people from other parts of the USA (as far away as Hawaii) while teachers, students and visitors told stories of quality in the classroom. Hutchins, when President of the University of Chicago once said, "No one knows what can be done with education because we have never really tried." At the Leander Independent School District I got an inkling of what Hutchins meant, for there I met and spoke with young men and women who had started to learn about quality in the fifth grade and now were in high school. When I asked one young man, "What will you do when you get to College where the professors do not know about quality and teach the old ways?" he looked at me for a moment and then said, "It won't really matter. I know how to learn by myself." I began to understand also when I listened to a group of third graders being questioned on how they improved a process. "And what did you do next?" asked a visitor. The students replied in chorus: "We created operational definitions!"

In what follows I have given up trying to see who did what first or learned from whom. A steady stream of books, videotapes and publications on quality in education has begun to appear, each of which acknowledges the influence of Dr. Deming on the author's thinking.

Influencing School Administration

Improved learning can only take place if the teachers change the way they manage their classrooms. Since we are dealing with a system, a change in the classroom learning environment can only take place if the school is managed differently, which in turn requires that the district, the county and the state boards of education be managed differently. It is my observation that the higher you go in these systems of management the more you will find eloquent lip service to Dr. Deming's teachings. Lee Jenkins, mentioned above, provides an example of what can happen if a district is led by someone who believes strongly in Dr. Deming's principles. Tom Glenn of the Leander

¹ Jenkins, Lee *Improving Student Learning* ASQ Press, 1997.

Independent School District is another. To that list I must add Dr. Dragseth of the Edina School District in Minnesota and Ivan Webb in Launceston, Tasmania. But these people are few and far between.

As we look more closely at top administrations, it becomes clear that what has to change is not so much the tools and techniques of the classroom, but rather the basic paradigm out of which management makes its decisions. When I asked Monta Akin what were the greatest barriers to success with quality in education, she gave me this list, which she said had been inspired by her study of Dr. Deming's writings:

The two biggest barriers I have identified are the tendency to want to “recreate the schools of our youth” (to use Daggett’s terminology) and the difficulty of communicating a new ‘paradigm’ through old ‘paradigm’ filters.

I also see some cultural assumptions about school that--although not written--create difficulty in making changes. Some of these unwritten assumptions are that. . .

Learning is not enjoyable. If students are enjoying learning, then they must not be learning much.

Serious learning only occurs with students in isolation from each other, especially when there is competition.

*If more and more students are ‘achieving’, the standards must be getting lower. Because it is impossible to raise standards **and** have increasing numbers of students achieving those standards.*

Students must be enticed to achieve. Without rewards or consequences, students will set low standards and take the easiest path to completion.

There is a way a proper school looks. It has teachers teaching and students passively listening.

Quality Does Not Cost--It Saves!

Launceston is the second largest city in Tasmania, the Australian state often used as a staging area for people who are headed for the South Pole. In Launceston, Ivan Webb ‘discovered’ quality by a chance reading of Mary Walton’s “The Deming Management Method”. Its philosophy rang true and he began to meet people involved in TQM. Ivan found these people to be very encouraging with their sense of confidence, well-being and interest in the well-being of others. He began to adapt the ideas to his school, again with good results. By deploying the ideas of quality throughout the school, enrolling everyone in the improvement of all processes, he has reduced the number of people involved in administration and is close to maximising the proportion of staff directly involved in teaching.

He recently wrote me:

“This year, because the School is running so smoothly (thanks to continuous improvement), I am teaching 0.5 of the School week and the Assistant Principals teach about 0.8. We have two people in the Office for clerical tasks--the same as ten years ago. In other words the School has 600 students and it takes less than a total of one person to administer the whole operation. Not bad. And on top of that people of all ages are happy, well, confident, doing great work, and the children are benefiting enormously.”

In describing how his school strives to attain its vision:

1. Everyone happy, confident and learning well
2. Everyone a contributor (of teaching and caring), and,
3. Everyone a beneficiary (of learning)

he found it necessary to understand better the relationship between quality in education and cost. The school was subject to a 20% reduction in teaching staff while the student population remained the same. The School has the highest pupil:teacher ratio (22:1 which includes the Principal & senior staff) and receives one of the lowest resource packages (money) per capita in the State. Ivan Webb observes that the massive cost of education is largely associated with the cost of rework (perhaps as high as 80%??), i.e.,

reteaching students who have not learned at their first opportunity or
teaching students what they already know.

Ivan Webb decries inspection, as it relates to supervision, testing, marking work, evaluation, reporting, and so on. Inspection can be helpful if it provides information to those who can act on the information. He concludes that

providing information to society on 'school performance' is unlikely to be of value. Learning by individual students is the central performance item. The students themselves have the greatest capacity to improve their performance, hence the critical information is the information they receive. If they can generate or acquire information about their learning achievements then so much the better!! Older students in Grades 4 to 6 keep their own records which are readily available to both their teachers and their families. Older students appraise their own work and then confer with their teachers. Information makes people responsible in ways that roles and rules never can.

A breakthrough in Ivan's understanding came when he was able to identify the students' 'customers', viz, their workgroup, their families, their friends and the community (including the School). Even very young students report to their parents weekly. Ivan Webb says that he, conservatively, estimates that:

top students may well cost only 20% of what the least able students cost
top students may well achieve learning value 2000% greater than the least able
top students may contribute 1000% more to operation of the school.

Top (capable, cooperative, independent & contributing) students cost the least to educate! Students who fail to learn are increasingly expensive to educate. They may be uncooperative, remain highly dependent for much of their activity, and usually have less to contribute within the school on the basis of their learning. "Non readers" and/or disruptive students are very expensive to teach. The amount of learning they achieve is small yet they attract a disproportionately high amount of the resources of the School they attend. They require greater direction, supervision, encouragement and support. In addition under-performing students frequently reduce what is possible within the classroom.

Ivan Webb concludes: I actually think that our 'job description'* is the most valuable thing we have developed. I even think that it aligns nicely with the Baldrige Award criteria. It is certainly very consistent with the Australian Quality Awards criteria.

- * 1. Know what is happening around you.
- 2. Work with others to improve what is happening.
- 3. Do your work in such a way that it makes it easier for the next person to do their work really well.

And even little children can understand this. It applies to handwriting, teaching, 'behaviour management,' ...

Quality in Higher Education

The interest in *applying* (not just discussing) Dr. Deming's ideas in education, in my experience, varies inversely with the level and reputation of the school. At MIT, where I taught and first became acquainted with Dr. Deming, the environment was quite inhospitable to Dr. Deming's ideas. As far as I can tell, it still is. Only a few colleges seem to be involved in quality and these are not the most prestigious ones.

At the level of the community colleges, the story is somewhat better. Delaware County Community College (DCCC), near Philadelphia, has been involved in quality management principles for about 15 years. Quality management practice have permeated most of their administrative practices. The transformation at DCCC can be directly traced to the activities of PACE, the Philadelphia Association for Community Excellence, which began in 1981 with a sequence of seminars led by Dr. Deming. Susan Staas has been the leader and driver in the transformation of DCCC, persuading the President to learn and use quality principles. Another school led by a President who believes in quality is Rio Salada Community College in Phoenix, Arizona. In both schools, however, the applications are mostly in administration, not the classroom.

Northwest Missouri State University, under the leadership of President Hubbard, has made important advances in quality of administrative services, but as with most universities, the application in the classrooms has been much less.

A few business schools have begun to use and teach quality. Fordham University has established a special curriculum which is clearly and frankly based upon Dr. Deming's teachings, with at least two "Deming Masters" on their faculty. The program is under the direction of Dr. Joyce Orsini, who studied with Dr. Deming at NYU and applied his methods in banking before joining Fordham.

The business school at the University of Chicago has made quality principles a mainline effort.

Beyond US Borders

The influence of W. Edwards Deming beyond the borders of the United States has been equally profound. In 1992 I took two students from Mt. Edgecumbe, Louisa Polk and Oman Wild, with me to address the annual meeting of the British Deming association. We were also accompanied by Tricia Hicks who, inspired and helped by Dr. Deming and the Detroit Deming User Group, had been applying Dr. Deming's ideas in her second and third grade classes in Ohio. (One of the students in her class who had become a roving consultant on quality was referred to by the other students as "Dr. Deming") The presentations in the UK by the students from Mt. Edgecumbe, especially their evident maturity in fielding questions from an audience of about 400 persons, had a strong effect on the audience. One of these was Robert Duprey, Head teacher at the Ecclesbourne School, who took the ideas back to his school with great success. He has written numerous articles describing the healthy effect quality principles have had on students, staff and administration.

A special subcommittee of the British Deming Association is now working with a number of schools in the UK, giving special training to staff and students.

The path in France was different. Here the leader is clearly Jean-Marie Gogue who translated "Out of The Crisis" and "The New Economics" into French and who organized the French Deming Society. When I asked Jean-Marie how he started, this was his reply:

Basically, I took the decision to try Deming's ideas in the French education system in Spring 1993 after reading in "Quality First" 4th edition, the Tribus report "The Application of Quality Management Principles in Education, at MEHS, Sitka, Alaska". In 1992 already, when I met Myron Tribus in Birmingham UK, he urged me to try it. But I was reluctant because the French education system is very different from the US, Canada and UK ones.

I decided to start in primary schools (age about 9-12). I submitted a written project to the Versailles District authorities. The project was accepted under the condition that this would be done on a voluntary basis. I gave lectures to invited teachers, calling for volunteers. The initial core was made of 4 schools.

We have 30 identified schools now, and probably 100 unidentified.

When I asked Jean-Marie for some evidence that the introduction of Dr. Deming's ideas had really worked in the French system he told me that when he interrogated the teacher and students they replied:

The teacher : "I don't recognize the children anymore, it's like it would be another class, other children!"

The pupils : "The teacher is not the same, it's like we would have another teacher--a best one!"

Jean-Marie continues to promote Dr. Deming's ideas. He wrote: "The first copies of my book "La qualite a l'ecole" were shipped today by the printing house."

David Langford has been running seminars in Argentina with a dozen or so schools participating. I have met representatives from Brazil who are starting to use quality methods in private schools. Last year I received a request from a physics teacher, Leonid Velyutin, in St. Petersburg, Russia, saying that he had heard that Deming's ideas could be applied in education. I connected him with several educators in the USA who have been sending him materials. I am confident that this brief recitation only reveals the tip of the iceberg.

What do We Find In a School Where Dr.Deming's Ideas are Followed?

I have given many details in the paper on Mt. Edgecumbe High School in Sitka, Alaska, where I met with many teachers and students. I have not been back in about seven years; there have been changes in administration there, so I cannot vouch for what is happening there, now. I have also visited the Leander Independent School District in Leander, Texas and the Azalea School in Pinellas County, Florida. I found similar results in visits to Ames, Iowa.

First, and most striking, is the way the students and teachers interact. The students have all learned to use the tools of quality and are applying them to the improvement of their own learning. The students and teachers have discussed what it is they expect to learn, how they will know if they have learned it, what they are supposed to do

and what the teacher is supposed to do. They make run charts of their progress. They apply the PDSA cycle to their studies. They examine the way the classes run and suggest improvements.

They reflect the admonition of Larrae Rocheleau, who said: "If you want students to be responsible, you must first make them response-able." As they learn how to improve the quality of what they do, they become quality conscious; it begins to permeate everything they do. They act more mature. They are nice to be with.

The Future of Dr. Deming's Ideas in Education

In the foregoing I have documented only a small portion of the ways in which W. Edwards Deming has contributed to the thinking and development of many teachers, educators and students. The large number of publications, books, conferences, videotapes and internet discussions attest to the growth and vigor of his ideas. They have staying power!

Having said that, I must also acknowledge that there remain significant barriers to the system wide adoption of Dr. Deming's ideas. For about 13 years I worked to help spread these ideas in industry and found there that the principle barrier was the mindset of the men and women at the top. The views about:

1. The Aim
2. The System
3. The Values

which guide the actions of their companies were inconsistent with long term health and vitality. Having turned my attention almost exclusively to schools, school districts and state offices of education, I must sadly conclude that the same limitations are true of the top managements in education. In education, as in industry, the higher I go in the system, the lower the probability of encountering people who understand what Dr. Deming was talking about.

The pronouncements of Governors, and political candidates for Governor, about education, focus on standardized tests, on holding teachers accountable and on enhancing competition among schools. They are ignorant, and choose to remain so, regarding Dr. Deming's 14 points, especially

- #3: Cease dependence upon mass inspection to assure quality
- #5: Improve constantly and forever the system.
- #6: Institute training on the job
- #7: Institute leadership
- #8: Drive out fear

There are no easy answers. In Dr. Deming's words, "No instant pudding." Past history and current events teach us that those who come to power under a particular paradigm find it extremely difficult to adopt a new paradigm, especially if the new paradigm makes them fear loss of control. When asked, in the last year of his life, what to do about the ignorance of parents, teachers and administrators, who insist on competitive grading Dr. Deming answered, simply, "You must educate them."

Dr. Deming used to say, "How could they know?", reminding us of the words of another leader, many centuries ago, who said: "Forgive them, they know not what they do."

I could forgive them more easily if I did not think so much about the children. As Robert Gordon Sproul, longtime President of the University of California, used to say: "Youth must be served in its day, or not at all."

Appendix

From: Franklin Schargel
 To: Myron Tribus
 Re: Dr. Deming and Education

How did you come upon Dr. Deming and his work?

I was introduced to Dr. Deming's work by Larrae Rocheleau, the Superintendent from Mount Edgecumbe High School. In November of 1988, I met Larrae for the first time at a GOAL/QPC meeting. (GOAL = Growth Alliance for Lawrence, the first organization to sponsor Dr. Deming's lectures on quality in the USA) Larrae was delivering a workshop with two students from the school. I was fascinated and after the session I asked to speak to

him. Before our meeting I had studied about quality by reading Philip Crosby's works that were easy for me to understand and by reading books about Dr. Deming's work by people like Mary Walton, Philip Agruyo and Andrea Gabor. I had read a number of interpretations of Dr. Deming's 14 Points and how they applied to education.

Larrae said if I wanted to understand Dr. Deming I would have to go to the original material. The people at Digital Equipment supplied me with Dr. Deming's writings which were published by MIT. His work was not easy to understand because I lack a statistical background. In addition, it was easier to understand Deming through the works of Walton, Agruyo and Gabor.

I find Deming's work enigmatic. The more often you read it, the greater the meaning. It is somewhat like looking at a diamond. Looked at in one light, you see things which are different when looked at in a different light. In addition, reading things or listening to people who "were with Dr. Deming" you get a different perspective.

In 1989 I attended a Deming 2 day meeting held by the American Association of School Administrators in Washington, DC and saw Dr. Deming in person (along with 800 others). Even though he was not very big, he was quite a figure. He intimidated the superintendents, principals, teachers (and me) from the outset. Most of the people in the audience had not read his work or knew anything about him or his theories. We were openly hostile because he challenged our convictions and our desire to maintain stability, equilibrium and status quo. By the end of the two days, I do not believe he made many friends. However, a number of us, at least, decided to look more deeply into his writings. Upon my return to New York, I bought "Out of The Crisis" and I have been struggling with it since.

(An aside: As a result of shooting footage for a Deming Library video, Claire Crawford-Mason offered Lewis and me an opportunity to a private dinner at her home with Dr. Deming. On the evening of June 19, 1993, Lewis, I, Claire, her husband Bob and the director of the video sat down to eat lobster with Dr. Deming. By that time, he was quite ill and weak. He ate the lobster with a gusto that disappeared after he finished eating. There was an aura in the room that is difficult for me to describe. I knew I was in the presence of someone I admired, respected and feared I would never totally understand. I brought him my "Crisis" book which he autographed. He put his head down after we were introduced, as if sleeping. Suddenly he raised his head and asked, "Do you believe in grades?" His head went back down. "Yes," I replied. His head came back up and he asked, "Why?" Back down went his head. "Because our customer our students, their parents, and the colleges they apply to insist on them," I replied. "You must educate them," he said raising his head.

I don't think he spoke for the rest of the evening. If he did, I don't remember)

To what extent have you been influenced by his work?

I've read "Out of the Crisis" and reread the MIT book and I am reading "The New Economics." I have attended workshops, seminars and the Deming Institute. I have spoken with you, some of his "disciples," (Bill Latzko and others) and Diane Deming Cahill. I continue to read what others say about his theories. But Larrae was right. You need to go to the original source material. The more I read the greater my belief that he was correct about many of the things I thought he was wrong about - things like grades and slogans that are so much a cornerstone in education.

It is difficult bringing Deming's message into education. First, it means that I, like others, have to interpret his philosophy to education. Second, the people in power have achieved their position by supporting the status quo. They resist changing the structure that gave them their position.

At Westinghouse, we wanted to do away with grades and give 3 marks -- superior, acceptable and WIP (Work in Progress, an incomplete.) We felt that those grades would satisfy our customers and still allow our students to gain admission to college. When we proposed this to the officials at the board of education, we were told that since report cards were centrally produced, we had to convince the other 159 high schools in New York City to go along with the change. "The tail cannot wag the dog," is how one Board of Education bureaucrat put it. Still we did make changes and improvement in the school. Dr. Deming's 14 Points hangs in the principal's conference room, not to act as a slogan but rather as a checkpoint to make sure we don't do too far off course.

What is my outlook?

Over time, Dr. Deming's work is getting a hearing. People, in education, outside of Japan, hear the message. My book has been translated into Spanish and will soon be translated into Portuguese, Russian and Polish. David Langford has given sessions in much of the world. I have lectured in Brazil, Canada, Mexico, Sweden and Spain.

Slowly, the world is hearing his admonition, "You must educate them."