
Quality Management in Education: Building Excellence and Equity in Student Performance

JACQUELINE S. GOLDBERG, NORTH BROWARD COUNTY (FLORIDA) HOSPITAL DISTRICT
BRYAN R. COLE, TEXAS A&M UNIVERSITY

© 2002, ASQ

This research is based on a study of Brazosport ISD, an exemplary school district in Texas that used a quality management approach that resulted in greater equity and higher student performance. Faced with deteriorating state test scores in several schools, particularly those with a high population of economically disadvantaged students, this district elected to apply the philosophy, tools, and methods of quality management as a means to raise student achievement through system alignment and improvement of instructional processes.

The findings of the study reveal a school district that successfully transformed its approach to education, redirecting its goals and processes to assure the success of every student. This article provides an analysis of the approach and deployment of changes, outcomes obtained, and implications for continuous improvement in other public school systems.

In validation of the success of its new methodology and the results achieved Brazosport ISD won the Texas Quality Award in 1998 and received a site visit for the Malcolm Baldrige National Quality Award in 1999, the only school district to date to achieve both honors.

Key words: educational reform, instructional process, Malcolm Baldrige National Quality Award, school improvement, state testing, Texas Quality Award, total quality management

INTRODUCTION

Educational leaders in the new millennium face a dramatic state of uncertainty. There is a great deal of pressure to achieve a range of performance expectations in a climate of student performance and financial accountability. Pressure is also mounting from those seeking to create alternatives to public education. How educational leaders perform the role of change agent may well determine the success and future of public schools. The direction for change must guide schools to be more productive, effective, efficient, and human.

One school district in Texas, Brazosport ISD, has been an exemplar for bringing about effective change. In 1998 it was the first public-education recipient of the Texas Quality Award. This award recognizes organizations that are outstanding role models for performance excellence and in the application of quality management principles. In 1999 Brazosport ISD was one of only two districts nationwide that received a site visit from the Malcolm Baldrige National Quality Award program.

This study reports the research of a yearlong qualitative study of Brazosport ISD. The study analyzed and documented the approach and deployment of quality management at Brazosport ISD that led to winning the Texas Quality Award, and analyzes the outcomes and implications for continuous improvement. In that Brazosport ISD has shown tremendous improvement in the area of student achievement, this study reveals strategies that can be applied toward increasing equity and raising the performance and overall quality of education in other districts.

Background on Reform

Reform efforts in education have focused on a variety of issues mirroring the problems of the decades in which they were endorsed. Dobyns and Crawford-Mason (1994) state that in every decade since the 1940s, there has been at least one major study of American public education, and all of them concluded that public education was bad and getting worse. Despite the best efforts of educational specialists and large amounts of money being dedicated to reform, quality has not been systemically attained. This is partly because initiatives stemming from “A Nation at Risk” and other similar reports did not recognize that the problems of education were systemic and therefore recommended solutions that only aimed at improving parts of the system rather than the whole (National Commission on Excellence in Education 1983). The abundance of data suggests that reforms have failed to remove the problems they were intended to solve. Perkinson (1995) identified four overriding problems in education. They are: 1) an inadequate emphasis on academic subjects, 2) a lack of standards, 3) poor teaching, and 4) an absence of leadership. Most important, reformers called for excellence and equity so that all students would receive the same high-quality education.

The prevailing current opinion is that reform requires fundamental and comprehensive change (Herman and Herman 1994). Morris (1996) notes: “Organization theorists have long argued that school districts suffer from uncertain goals and indeterminate technology, a difficult environment for identifying appropriate innovations. Moreover, reformers and governing agencies push districts into adoption with legislation, court orders, and administrative restrictions and pull them in with rewards of funding and other resources. Such innovations may or may not be well suited to the problems they are expected to solve or well received by those they are intended to aid.” (p. 22)

Senge et al. (2000, 77) note: “Most schools are drowning in events. Each time (an event occurs), the superintendent (or other staff member) does a heroic job of fixing the problem.... But there’s a real chance that each quick fix will do more harm than good in the long run.” Piecemeal attempts at reform cannot do much but

perpetuate the status quo because they tend to be overwhelmed by existing institutional structures and attitudes. Schools that learn and improve are those that approach change from a systems perspective (Senge et al. 2000). The more systemic the change, the more the school embodies change in behaviors, culture, and structure, and the more lasting the change will be. W. Edwards Deming (1994, 50) maintained that “a system is a network of interdependent components that work together to try to accomplish the aim of the system.” Thus, to bring about effective change in schools, their components and interdependencies must be understood and managed as a system directed at a well-articulated aim.

QUALITY MANAGEMENT AND TQM IN EDUCATION

Total quality management (TQM) was first introduced as a business management approach in the post-World War II era when Deming and others successfully reinvented the Japanese economy. Beginning in the early 1980s, American business leaders looked to the philosophy, principles, and TQM tools to improve the economy. More recently, education leaders have begun to recognize the potential for TQM applied to educational organizations.

Quality management provides a connection between outcomes and the process by which outcomes are achieved. If, as many people realize, the cause of failures in education is a problem in design, quality management may be regarded as an ideal systemic process for managing change in public education (Frazier 1997).

There has been some reluctance to apply quality practices to education, yet central to Deming’s methods and management philosophy is an insistence that anything can be made or done better. Americans have steadfastly held the belief that education is the fortification against poverty and social unrest. There exists, however, a subtle pessimistic attitude that people are doing the best they can with what they have. The message appears to be that education can only be successful with certain students. Deming (1992, 6) writes that with its “underuse, misuse, and abuse of skill and knowledge...the United States may be the most

underdeveloped nation in the world.” Improvement with all levels of students must be viewed as not only possible but also essential.

The decision to use TQM principles to guide change in schools is made for a variety of reasons. Some school districts are encouraged by business partnerships and training; others see the similarities with effective schools research (Lezotte 1992). In 1989 the State Department of Education in Louisiana made effective schools/school improvement process available to all districts for planning and implementing improvement. In the school year 1991-1992, the state made training in quality management available to schools on a pilot test basis. The experiences of schools and districts were positive, and the department expanded its training and assistance to more schools (Hord and Monk 1997). In 1982 the South Huntington school system in Long Island, N.Y., became interested in bringing quality processes into its educational setting. It found local businesses such as Grunman, Hazeltine Corporation, and Estee Lauder willing to share what it knew of quality management (Wilson 1993). In Chicago, the impetus was a major change in state law in 1989. Legally mandated redistribution of power and resources led city educators to embrace quality as a key part of the process of change.

Whatever the determining incentive, where quality management has been applied to education, it has made a huge difference (Dobyns and Crawford-Mason 1994). Quality is creating an environment where educators, parents, government officials, community representatives, and business leaders work together to provide students with the resources they need to meet current and future academic, business, and societal needs (Arcaro 1995). As has been the case in industry, when quality management comes to education, some long-held ideas, specifically about how to manage the teaching/learning process, have to change. In some instances, the ideas are not new but long had been ignored. In any case, education can be improved through quality management (Tribus 1993).

The industrial model does not transfer perfectly into education. Successful practitioners take the best from industrial experiences and combine this with the best learning theories and methods. The result is a hybrid that varies from school to school (Marsh 1995).

There appear to be three levels of application of quality management in education. The first level is to the management processes of a school. Sample school processes include strategic planning, recruiting and staff development, deploying resources, and alignment of what is taught, how it is taught, and how it is assessed. The next level is teaching quality to students. Students are recognized as both customers and workers in the educational system. Administrators need to involve students in their own education by training them to evaluate the learning process and accept responsibility for their learning. What the learning will look like is no longer predecided. Educators know what they want to evaluate, but there are many choices as to how the students arrive at the goals set by them and by their teachers (Herman and Herman 1994).

Schools that learn and improve are those that approach change from a systems perspective. The more systemic the change, the more the school embodies change in behaviors, culture, and structure, and the more lasting the change will be.

The highest level of quality principles is in learning. This is where it impacts the classroom. To achieve the desired results, educators must question their core teaching and learning processes and methods. Quality standards are established for each work process that results in improving grades and test scores. When the focus becomes instructional processes and student learning, the impact of quality management is the greatest. This represents Brazosport ISD's most significant change. The benefit of this focus is further evidenced by the 2001 Baldrige Award winners in education: Chugach School District (CSD) in Anchorage, Alaska, and Pearl River School District (PRSD) in Pearl River, N.Y. Through systemic changes and a consistent emphasis on student achievement, both districts have made significant improvements. Since 1998, the CSD increased the percentage of its students who took college entrance exams from 0 percent to 70 percent. Results on the California Achievement Tests improved significantly in all content areas from 1995 to 1999 (see www.chugachschoools.com). PRSD increased the

percentage of students graduating with a New York Regents diploma from 63 percent in 1996 to 86 percent in 2001. PRSD has improved advanced placement (AP) course performance from 34 percent of the students achieving a “3” or better in 1997 to 76 percent in 2001 while dramatically increasing the percentage of students taking the AP courses (see www.pearlriver.k12.ny.us). Further results of these two quality-driven school districts can be seen at www.nist.gov/public_affairs/chugach.html and www.nist.gov/public_affairs/pearl_river.html.

The TQM philosophy manifested by these quality-driven districts is built upon tenets that can be applied to any organization. They are systems thinking, customer focus, continuous improvement, management by fact, participatory management, professional development, teamwork, leadership, and long-term planning (Baldrige National Quality Program 2001). Brazosport ISD, as well as Chugach and PRSD, embraced each of these in their quest for excellence.

SUMMARY OF METHODOLOGY

The qualitative methodology was chosen for this study based upon the assumptions and compatibility of the process to the goals of the research. This research paradigm, also referred to as “naturalistic,” is ideographic in that the purpose is to document one particular case so readers may potentially transfer and apply the findings into their own culture (Erlandson et al. 1993). Naturalistic evaluators reject the idea that social reality is reducible in the same manner as physical reality; therefore, methods used to study social reality must differ. The goal in qualitative research is to *understand* rather than to *know*.

Naturalistic research can be defined as an in-depth and timely focus on a group of people interacting with each other, their tools, and their environment (Hall 1998). Participants in the study include the researcher and the people who are being observed and interviewed. Scott (1995, 51) notes that:

“One of the key factors of this emphasis is the idea that behavior is based on a perception of reality as socially constructed. The individual’s internal representation of the environment is

referenced to a cultural framework that is constantly evolving. Reality construction is an ongoing process, carried on at the macro level by ‘science, the professions, and the mass media [which] operate to create new categories, typifications, and causal connections.’”

Scott further points out that individuals also contribute to that conclusion at the micro level by “appropriating and employing these broader cultural frameworks but also improvise and invent new understandings and interpretations that guide their daily activities.”

It is the goal of this type of study for the researcher to observe and explore human behavior in a particular context and then weave a narrative that accurately and honestly reflects the lives and voices of a group of people (Spradley 1979). This type of narrative is called thick description. Through *thick description*, the researcher attempts to uncover meaning.

The “particular context” for this study was a school district in Texas—Brazosport ISD. Naturalistic ontology suggests that realities are entities that cannot be understood in isolation from their context. Naturalistic research also calls for the researcher to be the data-gathering instrument. This enables the identification and understanding of the realities and interactions that will be encountered. This researcher used purposive sampling to determine subjects for this study. The people were identified by their participation in the change processes that were being chronicled. Random sampling was not used because the researcher was not attempting to generalize the findings of the study to a broad population but to capture the specific activities within a particular context under study.

The naturalistic research process, as explained by Erlandson et al. (1993), is an interaction among four phases. In the first phase, orientation and overview, information was gathered about the district. This included state test scores, demographics, economic factors, introductory talks with the superintendent, and other information from open records. The initial orientation provided information that led to decisions concerning choice of respondents, follow-up information needed, and research questions.

The next phase was focused exploration. This was conducted both on and off site. The purposive sampling of 10 people, including the superintendent, two principals, one teacher, two board trustees, and four director-level individuals, were interviewed. Time was also spent observing the community, school, and administrative offices. Each interview was semistructured around a set of predetermined questions. The questions were:

- What were the goals of the district at the outset of the implementation of quality practices and what were the anticipated and unanticipated results?
- What approach did Brazosport ISD take in implementing quality practices?
- What deployment strategies did Brazosport ISD use in implementing quality practices?
- What approach and deployment strategies were used in applying for the Texas Quality Award?
- What recommendations does the district have for other districts with respect to preparing and applying for the Texas Quality Award?
- How were the Texas Quality Award examiners' report and site visit used to continue the quality improvement process?

As the interview progressed, additional questions were derived from initial respondents' interviews, allowing for clarification, triangulation, and member checking. A process of interviewing, analyzing, and identifying new information continued until information became redundant or fell into categories that were at odds with each other.

The coding phase (which is designed to organize the data collected into categories and concepts) was performed during and after the interviews. Categories began to emerge as responses began to overlap. Open coding identified general categories of information. The categories were: 1) impetus for change, 2) district issues, superintendent leadership, 3) management team, 4) instructional focus, 5) quality management philosophy, 6) effective schools research, 7) data-based decision making, 8) high expectations, 9) board support, 10) parent support, and 11) paradigm shifts. Axial coding set up relationships that produced conceptual categories. Six categories were identified in sequence: 1) causal

issues, 2) phenomenon, 3) context, 4) intervening conditions, 5) actions/interactions, and 6) consequences.

Selective coding produced the core theory that defined the central phenomenon as it pertains to the school district under study. The result of the coding phase was the creation of a central theme or "story line" that reveals and supports (but does not necessarily prove) the grounded theory.

The last phase of the methodology was the final report. Findings were organized, described, and analyzed; conclusions were drawn; and recommendations were developed.

THE BRAZOSPORT STORY BEGINS

Brazosport, Texas, is located in southern Brazoria County southeast of Houston and covers an area approximately 195 square miles along the Gulf of Mexico. It is home to the largest chemical complex and deepwater port, with Dow Chemical as a major presence employing some 6000 people. A study in contrast, Brazosport has areas of newer, upper-middle class housing as well as small, cottage-like dwellings, suggesting poorer areas. It is out of this economic disparity that the impetus for change in the district arose.

In 1991, Gerald Anderson had just been appointed superintendent for Brazosport. State test scores, just announced, revealed great disparity in the success of the Brazosport district's 18 schools. Several schools had received letters from the Texas Education Agency warning that if their test scores were not raised, they would be rated as a "low performing school." This affected nine of the 18 campuses. Twenty-five years earlier, prior to state assessments, Brazosport had the reputation of being a "premier quality" school district. A wealthy district, it had the highest entry-level pay in the state. The high salary drew many applicants to the district, allowing it to hire top-notch personnel.

The label given to the nine schools, accredited/warned, meant at least one subgroup of students scored lower than 25 percent on the Texas Assessment of Academic Skills (TAAS). If that subgroup did not move above 25 percent by the next year, the schools would be subject to state review.

The schools receiving this notification were those that had the most economically disadvantaged students, all in the southern part of the district. The staff members at those schools believed they were doing the best work they could with their student population, and there were many excuses for the lack of success. They claimed that lack of support for education in the home prevented those students from being successful.

The test scores at the district's high schools also showed great variation, which prompted a parent question at Anderson's first board meeting. The northern part of the district, including Lake Jackson, was the higher socioeconomic community; Freeport, in the south, was the lowest. The parent asked, "Was there a superior level of quality in educational resources, teaching staff, and practices that explained the differences between the schools?" While the Brazosport educational staff spoke of their belief that "all children can learn," they accepted as "fact" that children bring different backgrounds and abilities to the classroom, which, in some cases, limit a student's ability to learn.

When the incident at the board meeting appeared the next day in the local newspaper, it was embarrassing and demeaning for the staff of the lower-performing schools. The article suggested the Freeport staff actually agreed they were inferior to staff in the other part of the district. The implication of that suggestion motivated Anderson and the board to action. As a performance-driven individual, Anderson had to admit that even his expectations for those students in low socioeconomic situations were not the same as for others in more advantaged situations. He was determined to find a way to change the mindset toward lower socioeconomic students, his own as well as others, and to work toward equity and success for all in the delivery of education at Brazosport ISD.

Changing the Approach to School Reform

Morris (1996) points out that the dominant model for change in education has been the rational model that relies on goals, a selected policy, program changes put in place, and the process set into motion. Feedback to

the process is achieved by monitoring the process through inspection and evaluation. Morris (1996, 428) goes on to note that the rational model has not provided effective educational reform, and one preferred reason for that comes from institutional theory. "School districts are institutionalized organizations, compelled by an ambiguous technology to seek rewards and means of survival through conformation to expectations in their environment about the behaviors appropriate to school districts."

In contrast, the TQM approach suggests breaking from this "institutionalized model" and viewing schools as systems. Senge (1990) points out that "business and other human endeavors are systems. They too are bound by invisible fabrics of interrelated actions, which often take years to fully play out their effects on each other." This is certainly true in education where hundreds, if not thousands, of variables influence the educational processes and ultimately the achievement of students. School reform and enhanced student achievement must go beyond simple direct cause and effect analysis and understand the interdependencies and relationships that exist and influence the temporal performance of systems, processes, and people functioning within a school district. Anderson recognized the limited impact traditional "institutionalized" approaches to educational reform would have and was open to the quality management experiences that many of his board members had experienced as Dow Chemical employees.

TQM IS INTRODUCED IN BRAZOSPORT

Anderson was invited by several board members to attend quality management training. He attended a course given by Deming himself. As he listened, he began to look at school districts as systems and how improvement might be possible following the quality philosophy and using its tools.

Parallel events occurred that reinforced the Brazosport quality start-up. The district used Service Master Corporation to provide custodial services. One of its employees began quality training of district administrative personnel to effect improvement in the

support areas of the district, primarily in the financial area. This concurrent involvement with quality management accelerated the interest of the Brazosport management team.

The next step in the process was to institute training for the central office staff and all the principals. Anderson worked with Dow to get the resources required to bring about this training. Many people in this group had previously studied the effective school research of Larry Lezotte (Lezotte 1992) and recognized the correlations between Deming's and Lezotte's work. Training continued, and soon assistant principals and lead teachers were also educated in the quality philosophy.

School reform and enhanced student achievement must go beyond simple direct cause and effect analysis and understand the interdependencies and relationships that exist and influence the temporal performance of systems, processes, and people functioning within a school district.

It is important to note that the support for quality management came from all players in the district. Anderson was zealous, several members of his administrative staff were committed, and the board was encouraging the direction. It is uncommon for such a strong alliance of ideas to come together in support of a major philosophical, cultural, and managerial change. While the widespread support for quality management from the top might have implied an easy conversion to quality, it was, in fact, not a simple matter to convince everybody of its value. The district took a more gradual, common-sense, and pragmatic approach. After covering the quality philosophy, they began with things such as meeting skills. They introduced agendas for their meetings and constructed them to produce results, not merely to cover agenda items. The practicality of this approach had an immediate impact in showing the efficiency that meetings could have. Consensus building through the use of multivoting was introduced. Affinity diagrams came next as a means for understanding and deconstructing big, unapproachable issues into components that could be worked on. Impact analysis, Pareto charts, and matrix diagrams followed. Management

and staff began to see that processes could be improved through the practical application of these tools. The introduction to quality occurred through a process of applied learning rather than by an edict sent by management. With the introduction of an effective tool, principals could immediately apply the same tool back on their campuses with equally effective results. The recognition of professional development and participatory management as part of the criteria for effective quality management drove this effort.

An important step Anderson took with his board was to create a vision for the district. The vision for Brazosport was to be an exemplary school district by 2000. The word "exemplary" has two meanings in this vision. The first is a classification given to school districts by the state of Texas when they achieve the highest level in their test scores. The vision, however, goes beyond the official accountability to touch every aspect of Brazosport ISD operations as well. Anderson called it "his missionary zeal," but it was a vision that he held on to and successfully instilled into the hearts and minds of his staff. Each person interviewed touched on Anderson's vision and how it made a difference in transforming the district. The vision was consistently articulated by everyone in the organization, and it mirrored a principal tenet referred to by Deming as "constancy of purpose." The district's persistent focus on this organizational vision led staff members to make decisions and act in ways that helped them reach their goals.

Instructional Focus

The state accountability in Texas has been an extrinsic motivator by providing an inducement to work toward better scores and higher ratings. What began as an extrinsic motivation later became intrinsic, but in 1991 poor test scores in Brazosport ISD had triggered concern. Anderson turned to his director of instruction, Patricia Davenport, to research teacher performance in the low-rated schools. She chose to focus on Velasco Elementary, because it had an excellent principal and staff. With that foundation, what else made a difference in success? She also chose Velasco because it had a high population of economically disadvantaged students. After examining thousands of test results, it was

found that the students in Velasco Elementary were the most unsuccessful subgroup.

The theory was that if certain teachers were identified as having success with typically low-performing students, they would be able to share their most effective teaching strategies that lead to success. In the data-rich environment of the TAAS results, Davenport disaggregated data on all teachers in this one elementary school in the summer of 1992. In those data, she discovered a teacher whose third-graders, all economically disadvantaged, had a 95 percent mastery of their subjects. This class stood out from all others.

As Davenport further investigated to identify what differentiated this class, she discovered a teaching strategy being used by that teacher. This strategy, called the eight-step instructional process, is a common-sense approach that closely resembles the plan-do-check-act (PDCA) model used by Deming. In this case the strategy encompassed: 1) data disaggregation (what are the targets to master for testing, 2) developing timelines for the teaching process, 3) instructional focus, 4) assessment, 5) tutorials, 6) enrichment, 7) maintenance of skills and knowledge, and 8) monitoring continued improvement.

THE EIGHT-STEP PROCESS IS PILOTED

In the first year of the pilot at Velasco Elementary, teachers were trained and the eight-step process was deployed to all grade levels. In the spring of the first year, Velasco received a “Significant Gains” award given by the Texas Education Agency. The school did not make the “Recognized” category of the TAAS results, although it came close. The instructional model was piloted again in the second year with the philosophy to “go slow to go fast.” It was important that data be gathered to determine if this solution was the right one.

At the end of the second year, Velasco received its “Recognized” rating, the first school with its demographics in Brazosport to do so. Two years of success convinced the management team that the process offered a sound solution and it should be instituted

Table 1 Percentage of Brazosport ISD students passing TAAS tests in pilot campuses.

	1992-1993	1993-1994	1994-1995
Velasco Elementary (eco disadvantaged)	35.50%	72.20%	84.60%
Velasco Elementary (all students)	37.00%	69.50%	83.80%
Freeport Intermediate (eco disadvantaged)	22.00%	49.00%	46.50%
Freeport Intermediate (all students)	36.60%	55.90%	55.00%

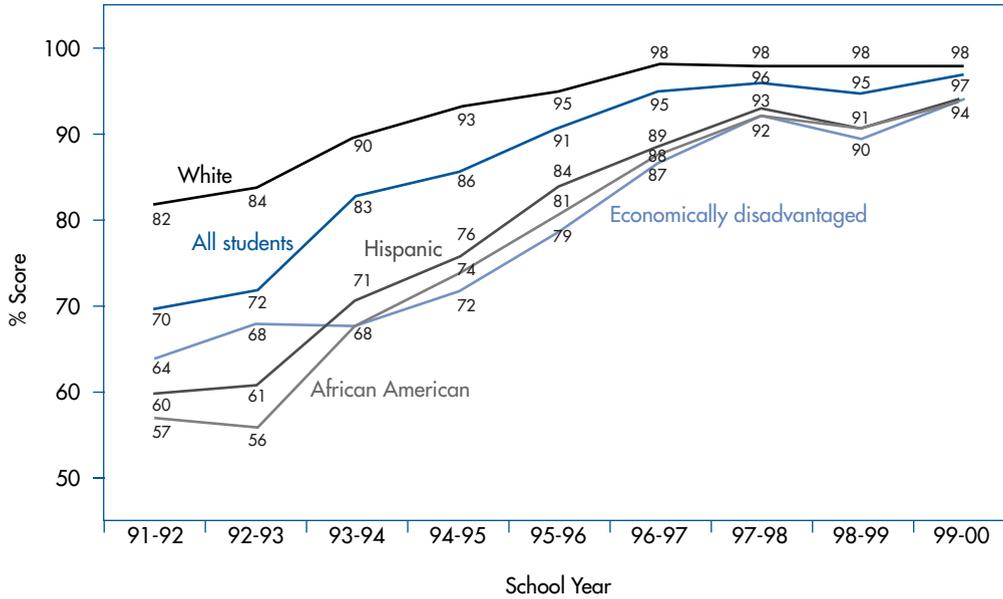
©2002, ASQ

elsewhere in the district. Lanier, a fifth- and sixth-grade school; Freeport Intermediate; and Brazosport High School were the next schools to use the eight-step process supported by the overall quality framework. It was significant to discover that the same instructional process undergirded by the quality principles worked at different grade levels. After the third year, Brazosport became the largest recognized district in the state, primarily because of the high scores of the economically disadvantaged population. Table 1 shows the test scores of the economically disadvantaged population for the 1992-1993, 1993-1994, and 1994-1995 school years.

Based on these dramatic results, Brazosport ISD’s quality improvement framework, including the eight-step instructional method, was deployed to all campuses throughout the district. Results have continued to improve as systems have been aligned and as the quality principles and improved teaching and learning processes have taken hold throughout the district. Figures 1-3 illustrate the dramatic improvement in student achievement resulting from the district’s quality journey. The scores reflect student performance on the TAAS test administered annually in reading, math, and writing.

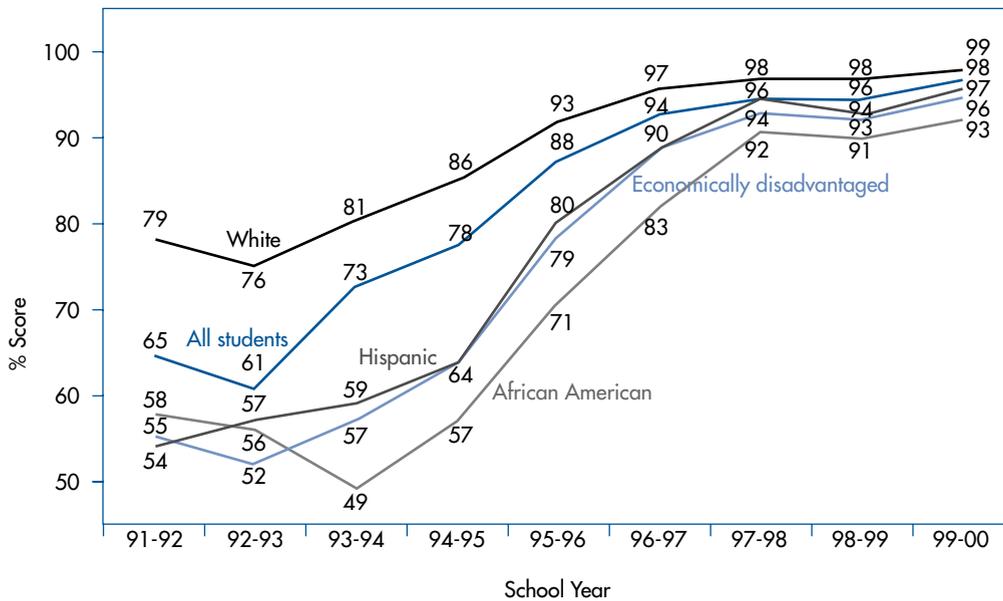
The focus on improving the core educational process of instruction was working in schools that had large populations of at-risk students. At other schools in the district, economically disadvantaged students represented only a small percentage of the population. Their scores on the state tests did not affect overall school rating to the same degree. This did not mean, however, that those students were any more successful

Figure 1 Brazosport ISD TAAS reading results.



© 2002, ASQ

Figure 2 Brazosport ISD TAAS math results.



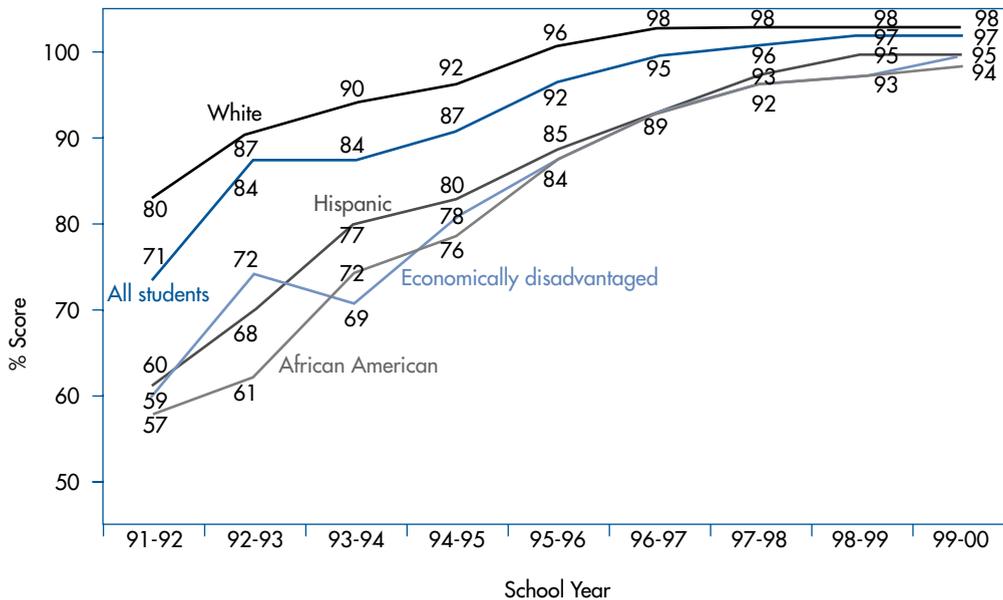
© 2002, ASQ

in the better-rated schools. To the contrary, disadvantaged students were not being focused on in those schools because they were not impacting the overall accountability measure.

By now, the zeal to help every student be successful had spread. All principals in the district were trained in

the eight-step process and encouraged to institute programs for their low-performing students. Anderson told the school principals that he held them accountable for all their students regardless of whether the state did. Staff at all Brazosport schools were expected to act as if they truly believed that all students were going to

Figure 3 Brazosport ISD TAAS writing results.



© 2002, ASQ

achieve success and to make sure their behavior conveyed this message. If they were not convinced of this, they were asked to suspend any negative views or excuse making. Brazosport leadership was convinced that if all teachers acted as if they believed all kids could learn and systems were put into place to support this, then student achievement could be improved.

There was resistance to using a prescribed instructional process, but it actually proved to empower teachers rather than hold them back. The process is a framework within which teachers can adapt their own teaching style and make important decisions regarding their classes. This benchmark process was adopted and enhanced by the district as the instructional strategy around which the district would align resources, staff development, and support services. The following outlines in detail Brazosport ISD's eight-step process.

- **Step 1.** Data are provided to principals by the central office. Principals distribute the data to teachers who analyze the data by grade level and subject area. Using state assessment data, test scores are arranged from lowest to highest to identify instructional groups and weak and strong objective areas. Wrong answers are used to improve instruction and help develop strategies.

- **Step 2.** Teachers are given time to meet by grade level and subject area to develop a campus timeline that encompasses all objective areas. The purpose is not the order of objectives but the length of instructional time needed. Time allocations are determined based on the needs of the student groups and the weight of the objective.
- **Step 3.** Using the timeline, an “instructional focus” sheet stating the objective, target areas, instructional dates, and assessment date is disseminated by teachers. The teachers are encouraged to follow the schedule as closely as possible. Adjustments are made after the January mock assessment. The entire school works on the same target. It is listed on the board and announced every morning. Even nonacademic teachers are expected to work the targeted objective into their instruction.
- **Step 4.** After the instructional focus has been taught, an assessment is administered to identify mastery/nonmastery students. The assessments are given at the end of each target in math, every three weeks in reading, and every two weeks in writing. These are teacher graded, usually ranging from 4 to 10 questions in length. The assessment is recorded in a binder for student and teacher evaluation

Figure 4 The multiplier dynamics of schooling that are ineffective for low-achieving children.

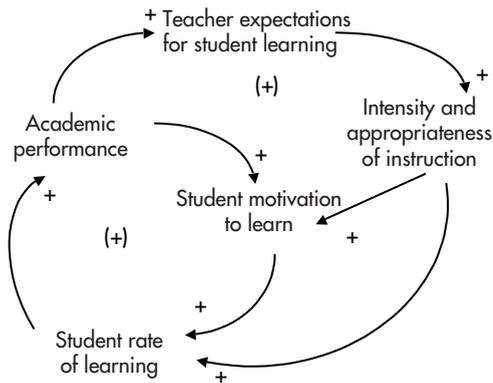
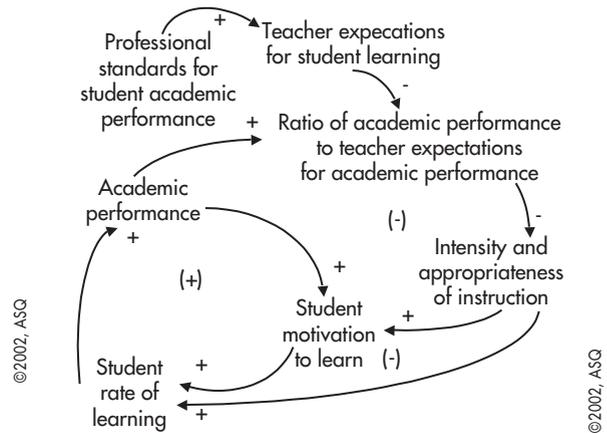


Figure 5 The negative feedback maintaining effective schooling for low-achieving children.



conferences. The central office also budgets for the purchase of assessments, tutorial, and enrichment materials.

- **Step 5.** For those yet to master the objective, this time is spent for tutorials and reteaching the non-mastered target area. This is scheduled for 90 minutes a week.
- **Step 6.** Team time is scheduled for the students who mastered the objective to have target-related enrichment.
- **Step 7.** Maintenance and ongoing reteaching is continuous until testing time. Brazosport considers this the most important step. It is not accomplished with worksheets, but with creative teaching strategies.
- **Step 8.** The whole instructional process is monitored daily by the instructional team from the central office in addition to the building principal. They see that the critical success factors are in place. Those factors include teacher behaviors that convey high expectations, a safe and orderly climate conducive to teaching and learning, teamwork and commitment, and ongoing measurement that provides good data for decision-making. They also provide the role model of being strong instructional leaders. By focusing on data gathering, analysis, and student and teacher performance, they are conforming to TQM criteria.

Gaynor (1998) distinguishes between the system dynamics operating in effective and ineffective schools.

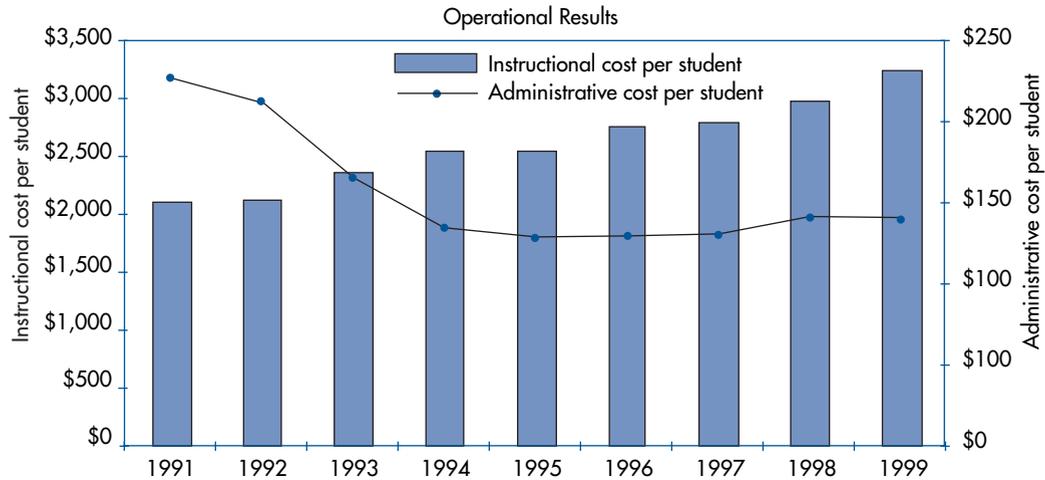
He notes: “An ineffective school is characterized most effectively by its multiplier effects on children’s learning. The learning rate of initially high achievers tends to be exponentially reinforced upward in comparison with other children. Whereas multiplier effects are helpful and desirable for high-achieving children, they are undesirable for lower-achieving children.” (p. 121)

The dynamics of this reinforcing system are illustrated in Figure 4 (Gaynor 1998, 122).

The key point is that the multipliers of this reinforcing system are based on socially constructed teacher expectations that academic performance for all students is primarily a function of “intensity and appropriateness of instruction” based on a “student’s motivation to learn” and a “student’s rate of learning.” This is a common approach to “improve performance” by many educators.

Contrast this with the multiplier dynamics operating in an effective school. Figure 5 illustrates these dynamics (Gaynor 1998, 123). “The key difference between the multiplier dynamics operating in an ineffective and an effective school is that in the effective school, teacher expectations are based on commonly shared and stable professional standards for student academic performance where. . . teacher expectations for student academic performance are not permitted to fall below professional grade-level minimal expectations, and the intensity and appropriateness of instruction is augmented whenever student academic

Figure 6 Change in instructional cost per student and administrative cost per student.



© 2002, ASQ

performance is below grade-level standards. Thus, there is a stabilizing thermostat system put in place for low-achieving children, a negative feedback dynamic that, instead of reinforcing low achievement, seeks to counteract it.” (Gaynor 1998, 122)

Brazosport’s eight-step instructional process was the “thermostat system” that enabled the district to move from being an ineffective school district to a highly effective school district.

DEPLOYMENT AND QUALITY PRACTICES

In addition to the attention and emphasis that Brazosport gave to the use of disaggregated data to ensure teaching and learning processes were designed to meet individual learning needs, other processes were significantly redesigned and improved. Representative of those were curriculum alignment, staff development, support services, and the instructional schedule. Each of these was designed to leverage the resources of the district in focusing on individual student learning needs and teacher support required to meet those needs. An example of the success of Brazosport ISD in this area is illustrated by the dramatic improvement of its instructional cost per student and administration cost per student (see Figure 6). The district’s success is further evidenced by the high teacher retention rate.

The success at Brazosport is due largely to the strong leadership of Gerald Anderson. Faced with this challenge as he began his superintendency in 1991, Anderson proved to be the right person for the job. He refers to this early period as his “point of transformation.” What has made Anderson unique in his efforts is his ability to share his vision. He relishes his responsibility to share his philosophy, and he speaks with passion and urgency. Anderson says, “I am truly a missionary with zeal, because I think for the very first time in my career, I am truthfully focused on what I think public schools have got to do.”

It would seem that, to work for Anderson, one has to cultivate the same vision. His staff describes him as a true leader rather than a manager. Anderson believes, “You have to be able to motivate people. Not only does the superintendent have to preach those high expectations and expect them, but you have to be able to convince people that it is the right thing to do and that they can do it.” According to one of Anderson’s principals, “Dr. Anderson has a slogan. If you deliver for me, I will deliver for you.” This is interpreted to mean that there is a reciprocal agreement that the superintendent is committed to enabling an administrator to succeed.

It is obvious that Anderson had to have firsthand involvement in the district. One of his personal goals was to visit a campus every day he was in the district.

He used those opportunities to revisit the vision for the district as well as discuss curriculum and

instructional issues. He tried to get a sense of everyone's satisfaction with the processes in place and hear their concerns. Anderson described his campus visits this way: "I put myself on the firing line with the people out there making it happen. They need to be able to challenge the superintendent, take him to task. We've had some great debates occur in that period about kids and my expectations, because I will not accept any excuses that kids can't learn. I mean, it's just unacceptable with me."

It seems apparent that one cannot separate the success at Brazosport from the visionary and supportive leadership that Anderson provided. It is a clear example of why strong leadership is a criterion of quality.

Management by fact is another TQM criterion. All decisions are based on supporting data. Nothing is determined by feelings or precedent. Decisions are also centered on how they support the instructional focus. While this may seem difficult to achieve, it is very effective. When data are presented that support a decision, and those data show the focus on the students, the leadership is apt to respond positively. Education is ripe with data, particularly in the state of Texas. Information, such as the district's results on TAAS, is reviewed thoroughly with district personnel, and then shared with campuses and their staff in an effort to provide appropriate responses. The responses may come in the form of redesigning processes and programs, curriculum, or instructional strategies for a specific student, a specific campus, or the district as a whole.

The data can also lead to decisions regarding setting improvement targets, encouraging breakthrough approaches, and forecasting and identifying opportunities for continuous improvement.

Brazosport ISD, guided by a clear mission and vision and community support, used disaggregated data to identify individual student learning needs. School leadership and teachers then translated these needs into district, campus, and classroom goals and objectives aligned to the vision and mission. Systems and processes at the district, campus, and classroom levels were evaluated and redesigned to accomplish the identified goals and objectives. Teachers and administrators were trained to ensure they had the requisite skills and knowledge to effectively implement the

redesigned systems and processes. Process data were then generated to align resources and to continuously improve instructional strategies, teacher and administrator training, and to improve support processes. Brazosport ISD worked as a system to transform itself so all children could learn and be successful.

RECOMMENDATIONS FOR OTHER DISTRICTS

The story of one award-winning district was designed to provide an understanding of the circumstances leading to and contributing to successful change. Certainly school districts with high percentages of economically disadvantaged students will find Brazosport's approach and deployment strategies models for their own situation. Any educational organization can adapt and duplicate many of the quality approach and deployment strategies implemented by Brazosport ISD. By instituting a cycle of planning, analyzing, and continuously improving processes, using the abundance of data available in education to inform decision-making, and identifying areas of success within the district to serve as a model for best practices, improvement will occur. The results will be higher student success. It is not a fast or easy transformation, and districts looking for quick change should not attempt to follow this model. They must have patience to collect and analyze data and a willingness to change their paradigms about instructional approach, time, and assessment. Support systems have to be redesigned to align to the core educational process. Districts need to be aware that they must continuously measure their results and use the results to drive continuous improvement in their systems and processes. Change can no longer be instituted without benchmarks established and data analyzed for informed decision-making and instructional practice in the context of the whole district as a system.

Other essentials in Brazosport's success were the quality of the leadership and the way in which the vision of the district was constantly articulated. A strong instructional leader is necessary to help define the school mission, manage curriculum and instruction,

and promote school climate. This person should be a resource provider, model expected behavior, and build the capacity of the staff. Training in quality processes and tools is *also* vital. This training should encompass management, board members, faculty, and staff, but training alone is not sufficient. The processes and tools must become institutionalized in the way the organization conducts business.

Brazosport attributes its success to four tenets: consistency, accountability, motivation, and expectations. By taking a systemic approach, the district was able to overcome the old habit of random acts of improvement. Key questions that were asked included: What is the vision for the school/district? How will the students benefit if the vision is achieved? What are the planning processes that will guide the vision? What opportunities will there be for people to learn? What will be the monitoring processes? Will the vision make a positive difference?

The final recommendations may be the hardest for districts to follow. Decision-makers must be willing to make those systemic changes that deviate from the concept of traditional education if the data confirm the need and they must have the discipline to stay the course. In the case of Brazosport, solutions to problems caused significant systemic changes, including scheduling learning opportunities to meet student needs and giving teachers increased autonomy to make those changes. The ways in which education dollars were spent needed to be aligned with creative solutions. Many districts are reluctant to make those changes, but real and lasting solutions cannot always be found within the current paradigms of existing educational systems. Morris (1996, 443) posits that “the idea is that if successful and widely accepted, a systems perspective that changes the mental models of administrators, reformers, and policy makers can modify the cultural framework on which the institutionalized school district is constructed.” It appears that as a result of this study, a major determiner in increasing excellence and equity in school and student performance was the willingness of school leaders to adopt new mental models that enabled and empowered school district personnel to follow a systemic and systematic change strategy based on quality

principles and to seek and institute solutions that were outside the bounds of the institutional cultural framework of “education as usual.”

ACKNOWLEDGMENT

The authors of this article would like to acknowledge Dr. Gerald Anderson, Dr. Patricia Davenport, and other Brazosport ISD personnel for their support and assistance in the conduct of the study reported here.

REFERENCES

- Arcaro, J. 1995. *Quality in education: An implementation handbook*. Delray Beach, Fla.: St. Lucie Press.
- Baldrige National Quality Program. 2001. *Educational criteria for performance excellence*. Washington, D.C.: National Institute of Standards and Technology.
- Deming, W. E. 1992. *Out of the crisis*. Cambridge, Mass.: Massachusetts Institute of Technology.
- Deming, W. E. 1994. *The new economics for industry, government, and education*. 2nd edition. Cambridge, Mass.: Massachusetts Institute of Technology.
- Dobyns, L., and C. Crawford-Mason. 1994. *Thinking about quality: Progress, wisdom, and the Deming philosophy*. New York: Random House.
- Erlanson, D., E. Harris, B. Skipper, and S. Allen. 1993. *Doing naturalistic inquiry: A guide to methods*. Newbury Park, Calif.: Sage Publications, Inc.
- Frazier, A. 1997. *A roadmap for quality transformation in education*. Boca Raton, Fla.: St. Lucie Press.
- Gaynor, A. 1998. *Analyzing problems in schools and school systems: A theoretical approach*. Mahwah, N.J.: L. Erlbaum Associates.
- Hall, J. 1998. *Ethnography and evaluation*. See URL www.learning.ed.vt.edu/evalsummer/methnmain.htm.
- Herman, J., and J. L. Herman. 1994. *Education quality management: Effective schools through systematic change*. Lancaster, Pa.: Technomic Publication Co.
- Hord, S., and B. Monk. 1997. *Total quality: A missing piece for educational improvement. Issues about change*. Austin, Texas: Southwest Educational Development Lab.
- Lezotte, L. 1992. *Creating the total quality effective school*. Okemos, Mich.: Effective Schools Products, Ltd.
- Marsh, J. 1995. Special report: Quality in education on the move. *Quality Digest Magazine* 15, no. 9: 26-32.
- Morris, D. 1996. Institutionalization and the reform process: A system dynamic perspective. *Educational Policy* 10, no. 4: 427-447.

National Commission on Excellence in Education. 1983. *A nation at risk: A report to the nation and the secretary of education*. Washington D.C.: U.S. Government Printing Office.

Perkinson, H. 1995. *The imperfect panacea: American faith in education*. New York: McGraw-Hill.

Scott, W. 1995. *Institutions and organizations*. Thousand Oaks, Calif.: Sage.

Senge, P., N. Cambron-McCabe, T. Lucas, B. Smith, S. Dutton, and A. Kleiner. 2000. *Schools that learn*. New York: Doubleday.

Senge, P. 1990. *The fifth discipline: The art and practice of the learning organization*. New York: Doubleday.

Spradley, J. 1979. *The ethnographic interview*. New York: Holt, Rinehart, & Winston.

Tribus, M. 1993. Why not education: Quality management in education. *Journal for Quality and Participation* 16, no. 1: 12-21.

Wilson, J. 1993. South Huntingdon schools: A decade of seeking excellence through total quality in education. *Journal for Quality and Participation* 16, no. 1: 62-66.

BIOGRAPHIES

Jacqueline Goldberg is a quality specialist for the North Broward County (Florida) Hospital District. She previously served as a senior consultant at TransUnion, LLC. She consults on quality improvement issues and facilitates quality teams in both education and business. She has been a school administrator, curriculum director, and consultant for both the New Jersey Department of Education and the Texas Education Agency at their Region IV Education Service Center.

Goldberg received her doctorate in educational leadership from Texas A&M University, emphasizing studies in total quality management practices as they apply to education. She has also served as an examiner for the Texas Quality Award and currently serves as an examiner for the Florida Sterling Award. She can be reached at jake1422@aol.com.

Bryan R. Cole is professor and head of the Department of Educational Administration and Human Resource Development at Texas A&M University. Effective September 2000, Cole received a special appointment as assistant vice president for quality leadership. He has also served as associate dean of undergraduate studies in the College of Education for 10 years and assistant dean for five years. He has served as the director of the Summer Seminar on Academic Administration for 25 years. Cole's professional interests include continuous quality improvement in educational systems, educational law, and higher education administration, and he is a frequent speaker and consultant on the implementation of continuous quality improvement in educational systems. He is a 1996, 1997, 1998, and 1999 examiner for the Malcolm Baldrige National Quality Award certified by the U.S. Department of Commerce, and currently serves as a judge on the Panel of Judges for the Texas Quality Award, and is a board member of the Quality Texas Foundation.

Cole has served as chairman of the Baptist General Convention of Texas Higher Education Coordinating Board and was a member of the board for six years. He is a recipient of the Texas A&M University Association of Former Students Distinguished Achievement Award in Teaching for 1979 and 1994. Cole received his bachelor's degree from the U.S. Military Academy at West Point and his master's degree and doctorate in educational administration (higher education) from Texas A&M University. He can be reached at b-cole@tamu.edu.