Qualitative and quantitative measurements, developed within the context of the values, vision, mission, processes, and outcomes of an institution, are the basic ingredients for informed decision making.

Qualitative and Quantitative Measures: One Driver of a Quality Culture

Jonathan D. Fife

Decision making, as described in the two preceding chapters, reflects a concern on the part of the decision makers that their decisions are not only right but also consistent with meeting the needs of the institution and its stakeholders. In each chapter, the authors discuss the use of integrated qualitative and quantitative information to support their planning and decision making. These decision-making processes reflect many of the attributes associated with the quality movement that many institutions have embraced during the past fifteen years. The intent of these efforts has been to create an organization that reflects quality in all aspects of its programs and processes.

This chapter discusses the characteristics of a quality organization. Various relationships and processes will be examined that contribute to an institution achieving its stated objectives, meeting stakeholder expectations, and being consistently true to its values. In particular, the crucial role that measurement—both qualitative and quantitative—plays in ensuring that these ends are met is the focus of this discussion. This chapter is not necessarily about total quality management, continuous quality improvement, or other derivations of these concepts, although what will be reviewed does pertain to these approaches.

The Drivers of a Quality Institution

Measurement is one of the three drivers essential to developing, maintaining, and modifying an institution’s policies and procedures to produce an organizational culture of quality. It is critical to know that without measurement,
the other two drivers could not be effectively put in place. The three drivers of a systematic approach to quality are as follows.

**Having Shared Vision, Mission, and Concept of Expected Outcomes.** All higher education institutions are social institutions. They are granted their existence by a state because they are involved in activities that contribute to the welfare of the citizens of that state. With the founding of Harvard in 1636, the English undergraduate college model, with its classical curriculum, was the accepted norm until the mid-1800s. At this time, research-oriented graduate schools based on the German model and a more applied curriculum promoted through the Morrill Land Grant Act of 1862 began to appear across the nation.

Prior to World War II, all U.S. higher education institutions had two things in common: their size and overall importance to society. As for their size, all were small. This had a major advantage in creating a shared concept of their vision and mission; everyone knew each other and interacted frequently enough to develop a common understanding of the values, vision, and mission of the institution. This created a sense of shared purpose that in turn contributed to consistent outcomes. As for the external importance of a higher education institution, except for the status of its existence in the local community, it held very little meaning to most citizens. A higher education degree was not seen as vital to an individual’s personal success or to the economic prosperity of a state and, therefore, there were few external demands on an institution.

In the 1950s and 1960s conditions changed dramatically so that existing assumptions and processes no longer worked. Higher education institutions, especially public institutions, became so large that often it was a problem to know all one’s colleagues in the department, let alone the entire institution. This in itself would not have been a problem if society’s expectations of higher education institutions remained constant. This did not happen. Higher education institutions began to be seen as being vital to an individual’s social mobility and career success, indispensable to the economic well-being of a state, and major players in the nation’s long-term research objectives. The positive result of this new importance was that federal, state, and local governments provided increasingly greater financial support. The negative result was that with the money came increased expectations and a concern about how well higher education institutions were meeting society’s needs (Crowder and Janosik, 2001).

Thus, the first driver of a quality institution is its ability to have processes that create a shared understanding throughout the organization of who its major stakeholders are and what their needs and expectations are.

**Leadership Systems.** With the change of institutional size and increased social importance came a need to change how an institution is led. It was always the responsibility of a college president to create a shared understanding of who the internal and external stakeholders of an institution were and to develop and maintain processes that were needed to successfully meet these stakeholders’ needs and expectations. When an
institution was small and the external demands on the curriculum stable, one person could successfully lead an institution. However, with institutional growth and rapid change in demands on the curriculum, there developed a need to move from a command-and-control style of leadership to a leadership system that functioned throughout the entire institution.

This leadership system has a top-down responsibility to ensure that everyone in the institution understands his or her various individual roles and how these roles contribute to the larger vision and mission of the unit and the institution. As the leadership system works to create this sense of shared vision and mission, it has the bottom-up responsibility of ensuring that the policies and processes of the institution support the mission of each individual. An institution functions best when both the articulated vision and mission of the institution and its policies and procedures work together to meet the needs and expectations of its internal and external stakeholders.

Thus, the second driver of a quality institution is to have leadership systems that reflect both top-down and bottom-up responsibilities.

The issue is, how does an institution’s leadership know when this is or is not happening? To answer this requires the third driver of quality. Contextual Measurement. The old saying “You value what you measure and you measure what you value” is both accurate and incomplete. Too often, what is measured is determined as much by convenience as it is by importance. For example, for many faculty members, refereed publications are considered more critical to their ability to gain tenure than is the quality of their teaching. The reason for this is not that publishing is more highly valued than teaching but that counting the number of refereed publications (a quantitative measurement) is easier than developing indicators of high-quality teaching (a qualitative measurement).

The ease-versus-importance dilemma in measurement is exacerbated by two other conditions. The first is the failure to present data and information in a way that clearly reflects the relationships between what is being measured and the purpose of the measurement. It is only when data and information are placed in the context of what is being examined that their meaning becomes apparent. Deming (1982) made this point in his discussion of profound knowledge when he observed that without context, data and information are merely unimportant numbers and letters. The second condition is that the most common points measured are inputs and outputs. This is partially the consequence of higher education’s reliance on the resource model, which guides funding throughout the institution. The primary principle behind this model is that if the campus controls for inputs (for example, accept only the brightest students, hire the best faculty, and maintain an up-to-date infrastructure) and outputs (for example, only graduate students with the highest grades or tenure faculty with the most refereed publications), the result will be a quality institution. What is missing in these measurements is a sense of the real meaning behind the numbers and letters that occurs when the relationships between the numbers and letters are examined in context to the vision and mission of the institution.
Thus, the third driver of a quality institution is to measure both the quantitative inputs and outputs and the qualitative context in which they are measured.

What follows in this chapter are illustrations of how measuring the elements that make up a system of quality will greatly aid in developing a more meaningful presentation of contextual information that can be used to help institutions in the achievement of their vision and mission.

A Systematic Approach to Measuring Quality Processes

Because the needs and expectations of an institution’s stakeholders are determined by many considerations, often not directly related to the institution, the measurement of quality is not static. Because the ability of an institution to continuously meet these changing needs determines the quality of an institution, the most meaningful measurements of quality are those that assess the relationships among inputs, processes, and outcomes over a period of time in a way that can be used to help an institution adapt to the changing needs of their stakeholders. Knowing how to develop these measurements is made easier by understanding the three elements of quality: the principles of a quality culture, the values of a quality process, and the criteria of a quality system.

The Principles of a Quality Culture. In an extensive analysis of the literature on quality, Freed, Klugman, and Fife (1997) came to three conclusions. First, there are eight principles that are central to creating a quality organizational culture. Second, these principles form a system that is sequential, interrelated, and interdependent. Put another way, all eight principles must be present to create an organizational culture of quality and without the presence of the preceding principle, the next principle cannot be fully developed. Third, these principles are not only fundamentally compatible with traditional higher education values but also are being practiced at many institutions. However, few institutions are aware of the importance of their order and interdependence. These principles and their relationships to each other are depicted in Figure 7.1.

For these principles to be fully operational in a higher education institution, it is necessary that an institution understand the following points:

- The vision, mission, and expected outcomes of quality organizations are defined by the needs and expectations of the primary internal and external stakeholders.
- How well the expected outcomes are achieved depends on how well the institution’s processes and systems are designed to interrelate and support each other in working toward supporting the overall vision, mission, and expected outcomes of the organization.
- Its leadership must recognize that the concept of quality is as much an organizational philosophy and culture as it is a management technique and
that the culture of an organization is greatly affected by the consistency and integrity between the stated vision of the organization and the processes of the organization. Therefore, there is a top-down responsibility of leadership to create a sense of shared vision and expectations throughout the organization and a bottom-up responsibility to make sure that the processes are aligned with the inherent values of the organization’s vision.

- Consistent quality is ensured only when the people in the organization are adequately trained, have some decision-making control over their job, and have a sense of appreciation for their role in the organization. Because no organization succeeds in having quality outcomes if its people are not willing to produce them, a systematic investment in people is the foundation for a quality organization. The single factor that separates the long-term quality companies from their lesser competitors is that they devote more time and money to their people.

- Quality decisions are made consistently, over a long period of time, only when there is an accessible flow of contextual information. One of the major early mistakes organizations make when they begin to institute a quality approach is the use of measurements that are unrelated to the vision, mission, and expected outcomes of the organization and to the processes and systems that are producing the measured results.

- There must be a systematic sharing of information and viewpoints between both internal and external stakeholders to more fully understand the issues and expectations around a problem. Also, by designing processes that foster internal and external collaboration and by encouraging people to seek information and opinions beyond their limited department areas, organizations are better equipped to understand the changing needs and expectations of their major stakeholders.
• The people closest to a problem have different insights about the cause(s) of the problem than do those who are at the top of the organization. Therefore, by developing processes that encourage shared decision-making with those closest to the problem, there is a greater likelihood that more effective solutions and decisions will result.

• An organization is not seen as a quality organization unless it has established a culture that encourages assessment and adaptation to the changing expectations of stakeholders. Having in place the seven previous quality principles will go a long way toward establishing a climate of trust. However, without creating processes that foster continuous improvement, this climate of trust will not become a culture for change. As depicted in Figure 7.2, systematic change occurs when the relationships of an approach to an issue, the actions taken, and the results are examined together in context to the vision and mission of the institution. The results of this analysis usually produce evidence or support for some form of change or adaptation. This in turn produces a modification in the approach, and the process cycle continues once again.

By using the principles of a quality culture and the process of continuous adaptation as a contextual focus of the qualitative and quantitative measurements of various institutional processes, institutional leaders can quickly identify specific areas that need to be improved (Chmielewski, Casey, and McLaughlin, 2001). As these principles become an integral part of an organization’s culture, the outcomes of the institution will be more closely linked to its vision and mission.

**The Values of a Quality Process.** An organization’s culture is the sum of the values of the individuals within the organization. The principles of a quality culture form a basic framework to reinforce specific values. This section focuses on the values that have been articulated by two quality processes: the Academic Quality Improvement Project (AQIP) of The Higher Learning Commission of the North Central Association and the education criteria of the Malcolm Baldrige National Quality Award. These values are listed in Table 7.1.

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**Figure 7.2. Cycle of Meeting Stakeholders’ Changing Expectations**

- Approach processes
- Deployment processes
- Measurement and contextual analysis
- Continuous adaptation
Table 7.1. Principles of a Quality Culture

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<tr>
<th>Academic Quality Improvement Project</th>
<th>Malcolm Baldrige National Quality Award — Education Criteria</th>
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<tr>
<td><strong>Focus</strong>—Shared vision and mission.</td>
<td><strong>Visionary leadership</strong>—Senior leaders should set directions and create a student-focused, learning-oriented climate; clear and visible values; and high expectations.</td>
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<td><strong>Involvement</strong>—Ongoing development of people's skills in making decisions, working with diverse groups, resolving conflicts, and using quality-based tools to build consensus.</td>
<td><strong>Learning-centered education</strong>—Develop the fullest potential of all students by placing the focus of education on learning and the real needs of students.</td>
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<td><strong>Leadership</strong>—Top-down/bottom-up.</td>
<td><strong>Organizational and personal learning</strong>—Learning is embedded in the way an organization operates by being (1) part of the daily work life, (2) practiced at personal, work/unit department and organization levels, (3) used in solving problems at their source (root cause), (4) focused on sharing knowledge throughout the organization, and (5) driven by opportunities to effect significant changes to do better.</td>
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<td><strong>Learning</strong>—Developing everyone's potential talents; centering attention on learning.</td>
<td><strong>Valuing faculty, staff, and partners</strong>—Commitment to the development of their knowledge, skills, innovative creativity, motivation, and well-being</td>
</tr>
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<td><strong>People</strong>—Prizes and supports the systematic development of its individual faculty, staff, and administrators.</td>
<td><strong>Agility</strong>—A fast and flexible capacity to respond to the needs of students and other stakeholders.</td>
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<td><strong>Collaboration</strong>—Active collaboration among and within different internal departments and operational areas, and externally between the institution and other institutions or organizations.</td>
<td><strong>Managing for innovation</strong>—Making part of the culture and an integral part of the daily work the effort to make meaningful change to improve an institution's programs, services, and processes to create new value for the stakeholders.</td>
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<td><strong>Agility</strong>—The flexibility to respond quickly to opportunities, threats, and changing needs and practices.</td>
<td><strong>Focus on the future</strong>—An understanding of the short- and long-term factors that affect the institution and its education market.</td>
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<td><strong>Foresight</strong>—Tracking trends to better predict how conditions will change; anticipating how these changes may affect the institution's students and other stakeholders, operations, and performance.</td>
<td><strong>Management by fact</strong>—Decisions are based on measurement and analysis of performance that are derived from the institution's needs and strategy and include critical data and information about key processes and results.</td>
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<td><strong>Information</strong>—Seek and use [quantitative] data and [qualitative] information to assess current capacities and measure performance realistically.</td>
<td><strong>Public Responsibility and Citizenship</strong>—An institution has the responsibility to stress ethical practices and protection of public health, safety, and the environment.</td>
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<td><strong>Integrity</strong>—Mindful that education serves society, the institution continuously examines its practices to make certain its effects and results actively contribute to the common good.</td>
<td><strong>Focus on results and creating value</strong>—An institution's performance measurements need to focus on key results that add value to students and other stakeholders.</td>
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<td><strong>Systems perspective</strong>—Managing the whole organization, as well as its components, to achieve success by careful alignment of vision and mission, values, and processes.</td>
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The values articulated by AQIP are based on a quality system that is designed to be integrated into the culture and daily practices of higher education institutions. The long-term objective is that through the inculcation of these values into an organization’s culture, the traditional regional accreditation process that occurs once every ten years will no longer be necessary. The Baldrige values are based on a quality system that is part of an evaluation or assessment process that creates indicators of the degree to which an institution has successfully developed a systematic approach to quality as part of its culture. Both are values based, and both depend on the continuous use of qualitative and quantitative measurements to put in context an institution’s values, vision, mission, processes, and outcomes.

These values operate within the larger context of a system of quality that is comprised of subsystems called criteria. The ability to develop contextual qualitative and quantitative measurements is greatly enhanced when these criteria and the interrelationships are taken into consideration.

**Quality Criteria Framework.** The Criteria Frameworks or Systems of both AQIP and Baldrige are the product of many understandings of what contributes to helping a higher education institution practice on a daily basis what it says it is. In other words, it helps all within the institution live more consciously so that they are more able to achieve their own career goals, which collectively results in achieving the mission of the institution.

AQIP’s quality design combines nine criteria that function to produce a quality system. Through the relationship of an institution-wide understanding of student and other stakeholder needs and through the processes of valuing people, leading and communicating, supporting institutional operations, planning continuous improvements, and building collaborative relationships, institutions will help students learn and accomplish other distinctive objectives. However, to function properly, these relationships are dependent on continuously measuring the effectiveness of the institution. Two representations of the interrelationships of these nine criteria are presented in Figures 7.3 and 7.4.

![Figure 7.3. AQIP Quality Criteria Framework](source: Academic Quality, 2000)
Figure 7.4. AQIP Quality Process and Criteria

Figure 7.3 depicts the AQIP quality criteria in a linear design, and Figure 7.4 uses a closed-system design. Both designs show understanding students’ and other stakeholders’ needs at the beginning (or top) of the quality system and measuring effectiveness at the foundation (or bottom) of the system.

The Baldrige education criteria for performance excellence framework is an assessment of an institution’s efforts to develop a systematic approach for continuous improvement. As an assessment process, it uses different criteria than AQIP in conceptualizing its quality system. In Figure 7.5 the Malcolm Baldrige National Quality Award framework is depicted.

System Measurements

Both the AQIP and Baldrige models demonstrate the critical role that contextual data and information have to maintaining the dynamic processes of a system of quality. There is a need for quantitative and qualitative information from the beginning (vision and mission), throughout the various process steps, and to the final outcomes. Without information that is presented in the context of what is intended and how things are done, it is unlikely that any meaningful changes can be made to alter the outcomes.
Figure 7.5. Baldrige Education Criteria for Performance Excellence Framework: A System Perspective

Contextual information consists of several components:

1. **Baseline data**: These are the data that assess where an organization is at any given time. They are used to develop a context for the impact of activities that occur after the baseline data are collected.

2. **Process measurement**: Gathering these data entails looking at what happens and how it is happening. This information, usually presented in qualitative form, develops a picture of why the results are as they are.

3. **Contextual outcomes or result trend data**: If this information is to be used to alter events in the future, it must be presented in the context of both baseline and process information over a period of time, usually three or more years. When presented this way, trend data have more meaning.

4. **Comparison data**: Institutional outcome data, even if developed in a contextual format with inputs and process information, may not produce successful adjustments to changing stakeholders’ expectations and needs if there is no understanding of the processes and results of competing institutions. Therefore, the gathering of external data is crucial to improving internal processes. What types of comparison data should be used will be determined by the end objectives of gathering the comparison data. There are four types of comparison data:

- **Peer group data** is gathered when the objective is to know only how other similar institutions are performing.
Market basket data look at institutions that attract the type of students or research funds that an institution believes it should also be attracting. Aspirational data are input-process-outcomes data gathered from colleges and universities that an institution aspires to resemble. Benchmark measurement data are best-in-class data that do not pertain to a certain organizational type but relate to outcome objectives in context with the vision and mission of the institution. For example, if an institution wished to improve the results of teaching a certain scientific principle, instead of looking at another higher education institution, it might look at the training process of a for-profit company that is highly recognized for putting this principle into practice.

Summary

Data and information can be static, measuring a point in time, with no meaning to the dynamics of the organization. If this is the case, these data are subject to being seen as unimportant and therefore ignored or are subject to gross distortions and used for self-serving purposes. Qualitative and quantitative measurements that are developed within the context of the values and vision, mission, processes, and outcomes of an institution result in information that relates to the internal dynamics of the institution. This form of information has meaning, is the basic ingredient for informed decision making, and has a powerful impact on what an institution will become.

For institutions of higher education that are developing a culture of quality, contextual quantitative and qualitative data and information are indispensable. The quality of an institution is determined by how well it meets its major stakeholders’ needs and expectations. Because these needs and expectations are constantly changing, there must be a measurement system in place that provides a rational direction to the continuous adaptation needed to meet stakeholders’ changing demands. Rational adaptation across the institution is more certain to take place when the appropriate balance of contextual qualitative information and quantitative data-based information guides the development of strategies for adaptation.

References


**Jonathan D. Fife** has served as an evaluator, senior evaluator, senior examiner, and alumnae examiner for the Malcolm Baldrige National Quality Award Program. He also was a member of the Design Team of the North Central Association Commission on Institutions of Higher Education’s Academic Quality Improvement Project.