

Total Quality Management in Higher Education

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INTRODUCTION

In considering various management approaches internationally for the delivery of computer-based learning, there is an interest in total quality management (TQM). The majority of the research on TQM focuses on its application to for-profit businesses; however, TQM also has been used in universities more broadly, especially in student services areas. Generally, current research on TQM in higher education has focused on methods, barriers to implementation, learning-outcome assessment, human factors, and case studies.

HISTORY

The history of TQM is traced by Sims and Sims (1995) in the general attempt to build quality products in business that became the focus of interest at the beginning of this century. In *Principles of Scientific Management*, Frederick Taylor applied his method of achieving quality through inspecting the product at the end of the assembly line and the checking on the efficiency of the process. In 1922, G. S. Radford published *The Control of Quality in Manufacturing*, which reinforced the notion of inspecting products at the end of the process. In 1931, W. A. Shewhart published *Economic Control of Quality of Manufactured Product*, which converted statistical methods to manufacturing to standardize performance. Eventually, random sampling eliminated the need to test every manufactured product, and the notion of quality through inspection became streamlined.

Hoffman and Summers (1995) trace the history of TQM theory to postwar Japan when American general Douglas MacArthur's occupation forces created a unit called the Japanese Union of Science and Engineering (JUSE) to put their efforts into rebuilding the country. Engineers from Bell Labora-

tories working on General MacArthur's staff had previously used statistical methods for quality control in building weapons during the war with a "plan-do-check-act" system and thought that it could be applied to the rebuilding of Japan. The JUSE offered training to Japanese engineers in these methods, and a Columbia University professor, W. Edwards Deming, became one of their leading trainers. Deming is known as the father of TQM and for his statistical control process. To TQM theory he contributed the seven deadly diseases, the 14 points of quality principles, and popularized the plan-do-study-act (PDSA) cycle (Deming, 1984, 1990). Joseph Juran, teaching TQM at the management level, began offering seminars for JUSE in 1954. Juran defined quality as "fitness for use" and had a project-based notion of quality (Juran, 1992; Juran & Godfrey, 1995). Between 1950 and 1970, 14,000 Japanese engineers were trained in TQM (Hoffman & Summers, 1995). Along with Deming and Juran, Philip Crosby (1978, 1995) is the third leading figure in the TQM movement. Crosby published *Quality is Free* in 1978, which popularized the notion of "zero defects" and "doing it right the first time".

Historical accounts of the rise of TQM include generalizations about TQM principles. Sims and Sims (1995) contrast Taylorism to TQM by describing the focus on systems and the process of creating products, not just the end product. The key themes of TQM are customer focus, commitment to process improvement, total involvement, and system thinking. Hoffman and Summers (1995) describe TQM as asserting that 85% of total error is system error; the rest is individual performance error. Managers should look for unnecessary complexity that does not add value to the operation.

In their overview of TQM, Lozier and Teeter (1993) look at the notion of quality in higher education and see that it has meant an abundance of resources such as faculty and libraries, but has evolved to focus on the degree of stakeholder satis-

faction. In line with this shift to stakeholder satisfaction, quality is defined by Juran (1992) as fitness for use, by Crosby as conforming to requirements, and by Deming as surpassing customer needs and expectations. Lozier and Teeter point out that Deming's notion of meeting customer needs and expectations fits well with the stakeholder-satisfaction notion. Furthermore, Deming also promotes the need for organizational constancy of purpose that applies well to education.

METHODS

Much of the current literature has focused on various methods used to implement TQM in higher education. Moreland and Clark (1998) look at ISO 9000, a procedural approach to quality assurance. Quality is defined according to stated and implied consumer requirements, and then procedures are written and followed to assure that customer requirements are consistently delivered. The procedures form a comprehensive and consistent system. The intended result is a staff that works in predictable ways, and is meant to control behavior rather than ideas. The assumption behind this method is that if you change the practice, you can change the culture. Three themes affect the successful implementation of ISO 9000 in educational settings: Organizational sense making affects the responsiveness of the systems, managerialism affects the framework for implementation, and behavioral consent affects staff empowerment.

Some have analyzed the process itself. Sherr and Teeter (1991) look at the process defined as the flow of work activities being the most important aspect of quality. By plotting the process of work, one can identify unnecessary complexity and steps that do not add to the product's overall quality. According to Sherr and Teeter, the five key ingredients to continuous improvement are honesty, shared vision, patience, commitment, and TQM theory.

BARRIERS

In applying TQM to higher education, much has been written about the problems in making a business tool fit an academic administrative structure. Ewell (1994)

describes resistance from faculty members who are opposed to interference in academic activities, particularly using a business model. Even with faculty members agreeable to TQM principles, embedding assessment in an ongoing fashion into their courses is time consuming and difficult. Furthermore, Ewell points to a lack of meaningful staff development in higher education as a barrier to TQM. Yudof and Busch-Vishniac (1996) cite both resistance from academics and lack of resources as barriers.

HUMAN FACTORS

Recent research has investigated the effects on humans to the implementation of TQM. Connor (1997) uses a cost-benefit analysis to find that the human costs of TQM are often substantial and have a direct relationship to management fears, employee motivation, frivolous employee participation, and the coercive nature of teams. Another study (Brimm & Murdock, 1998) focuses on the need for improved communications in a world of unstable employment while implementing TQM. In Brimm and Murdock, effective communication in a fluctuating labor market relies on understanding and responding to resistance. Management needs to recognize the isolating effects of a flexible workforce and address self-esteem issues.

LEARNING-OUTCOMES ASSESSMENT

In the business setting, the importance of assessment is central to TQM, and consequently, much has been written about this subject. Shepherd and Helms (1995) found that the use of TQM measures is growing and may eventually dominate many of the quantitative measures. Furthermore, they proposed that managers should give greater importance to encouraging employees to obtain proper measurement education so that they are able to make accurate TQM observations.

TQM has also been applied to learning-outcome assessment in higher education with varying degrees of success. In one study (Kerr & Sutton, 1995), a teacher engaged students in a quality audit and applied focus-group techniques. The study found

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