

A Study on TQM in College Education*

-The Models of TQM-

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대학에서의 TQM에 관한 연구

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Abstract

Total Quality Management(TQM) in Higher Education Institution(HEI) has been popular since early 1980s. Implementation of TQM, however, has not been easy. The difficulties of the implementation is partially due to the lack of effective TQM models in HEIs. This paper proposed a new model based on PDCA cycle.

The paper consists of four chapters. First chapter introduces the status of TQM in HEIs and implementation problems. Second chapter delineates the models used in HEIs. In third chapter, a new model is suggested. Last chapter is the conclusions.

1. Introduction

Since the early 1980s when the US industries were awakened 'rudely' by the superior quality of Japanese manufacturing goods, the quality has been one of the hottest issues in the US industries. During

the 1970s and 1980s US manufacturing industries suffered from 'bloated costs, slothful product development, a certain insensitivity to the desires of customers, nonsensical labor contracts and rules, declining product quality, administrative proliferation, and sclerotic leadership that exhibited a striking lack of vigor and vision.' 「Koch and Fisher, 1998」 To cure the disease they adopted total quality management concept.

Same phenomenon happened again in the

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world of higher education institutions (HEIs) during the 1980s and 1990s. Koch and Fisher(1998) also reported that during the period HEIs in the US suffered from bloated administrative employee, insensitivity to student customers and changing markets, out of control costs, and ineffective leaders. Also TQM became panacea for the problems.

Not only the US universities but also International Universities have adopted TQM. The list of universities includes, but is not limited to California State University(CSU) system and University of California(UC) system 「Aly and Akpovi, 2001」, South Bank University, UK 「Chadwick, 1995」, University of Kansas, Penn State University, Drexel University, Georgia Tech., Belmont University, Samford University 「Lozier and Teeter, 1996」, Auburn University 「Muse and Burkhalter, 1998」, Oregon State University, US, Griffith University, Australia, Bradford University, UK 「Tang and Zairi 1998」, Even Swedish Universities 「Wiklund et al., 2003」, Malaysia Universities 「Kanji et al., 1999」, and Turkish Universities 「Herguner and Reeves, 2000」 were reported to adopt TQM..

But how many HEIs can succeed to cure the disease after adopting TQM? As in the industry, in HEIs a success rate cannot be more than 20% to 30%. 「Vazzana et al., 2000」 Then what are the reasons of the low success rate? The

different characteristics between HEIs and TQM can be the major reason. HEIs are emphasizing individual responsibilities, professional leadership, autonomy, professional authority, goal expectation, and retrospective performance appraisal. TQM, on the other hand, are stressing collective responsibilities, managerial leadership, accountability, participation, performance and process expectation, and concurrent performance appraisal. 「Tang and Zairi, 1998」

To increase the success rate, TQM in HEIs should be implemented carefully. Well-established TQM models can help HEIs overcome the barriers to implement TQM. Even though there are several TQM models used in HEIs, the dominant model does not exist.

The purpose of the study is to review the TQM models and to suggest a new model to avoid the problems of the existing models. In chapter 2, we describe the existing TQM models. Chapter 3 suggests a new TQM model. Chapter 4 is the conclusions.

2. TQM Models

2.1 A Typology of the Models

Several TQM models have been used by HEIs in the world. The list of the TQM models in HEIs includes, but is not limited to Malcom Baldrige National

Quality Model 「NIST 2004」, Business Excellence Quality Model 「McAdam and Welsh, 2000」, Hoshin Kanri[Roberts and Tennant, 2003], Balanced Scorecard 「Cullen et al., 2003」, Kanji Model 「Kanji and Tambi, 1999」, ISO9000 model 「Moreland and Clark, 96」 and Mergen Model 「Mergen et al. 2000, Grant et al. 2004」. Other models like LEARN used by Belmont University and Samford University 「Lozier and Teeter, 1996」 are omitted because they are not suitable model for university wide quality movement.

To evaluate the models appropriately we adopt a categorizing scheme. We can name the model which emphasizes implementation process of TQM a process model. We can also give a name of content model to the model which deals with the important constituents for TQM(i.e. critical success factor). Then we might have models which do not belong to any of these two categories. Let's call them mixed models. These models emphasizes process and content simultaneously. <Table 1> shows the three categories and the models.

<Table 1> Three Categories of the TQM Models in HEIs

Process Model	Content Model	Mixed Model
Hoshin Kanri	Kanji	MBNQA
ISO 9000		Business Excellence
Mergen		Balanced Scorecard

2.2 Comparison of the Models

In the process model category, Hoshin Kanri, ISO 9000, and Mergen models can be assigned. Hoshin Kanri, a.k.a. Hoshin planning, is an execution tool and a system which deploys an strategic plan throughout the organization with a clear set of objectives. 「Roberts and Tennant, 2003」 A small unit of University of Warwick in the UK has reported Hoshin Kanri experience. With this application of

Hoshin Kanri, the participants have dramatically improved their understanding of various needs of customers. 「Roberts and Tennant 2003」 Since the application, however, is executed within a quite small group, we cannot be sure that it would work in a large scale implementation in a big university.

ISO 9000 has been quite popular since the 1990s. So there was an application of ISO 9000 in education organization.

ISO9000 is a procedural approach to TQM and it requires a lot of documentation. ISO 9000 helps any organization establish a quality management system. 「Kanji, 1998」 It builds patterns of working and thinking on institutions, examining issues, problems and solutions. The social cost, however, does exist. The costs are the sense of exclusion by some employees, the increase in bureaucracy, and an impersonal feel. 「Moreland and Clark 1998」 The increase in bureaucracy is quite related to the heavy documentation mentioned above.

Mergen et al.(2000) suggested a process model which is called Mergen model. The model consists of quality of design, quality of conformance, and quality of performance. There is a close resemblance between the model and quality trilogy (quality planning, quality control, quality improvement) by Juran. 「Goetsch and Davis, 2003」 It is quite simple and the three elements of the model form a cycle during which the organization using the model can carry out continuous improvement program.

The model, however, has a major drawback that we cannot distinguish the quality of conformance from the quality of performance. The former deals with the level of conformance to the design specification of a product or service. The latter deals with the performance of a product or service in the market. But

there is a gray area into which both of the quality of conformance and the quality of performance fall. For example, the number of research publication can be considered the internal standard of a HEI(i.e. the quality of conformance) or the performance measure of the society which the HEI serves(i.e. the quality of performance).

In the content model category, there are only one model, Kanji model. Kanji model is a modification of the Business Excellence model suggested by Kanji in 1998 「Kanji and Tambi., 1999」. Actually the model is another representation of Kanji's modified pyramid model. [Kanji et al., 1999] The elements can be considered as critical success factors of TQM. In this model, Kanji sees leadership as a prime. Then he suggests that the model's principles should be 'delight the customer', management by fact, people-based management, and continuous improvement. Then each principle has two core concepts. They are customer satisfaction, 'Internal customers are real', 'All work is process', measurement, teamwork, 'people make quality', continuous improvement cycle, and prevention. And he expects that business excellence will be achieved if all core concepts applied correctly to any HEI.[Kanji and Tambi, 1999] The model delineates the important factors of TQM but it does not suggest any procedural guidelines. Thus the content of the model

may be critically important, but the model does not guarantee that the implementation process be guided effectively.

The mixed model category consists of three models: Malcom Baldrige National

Quality Award (MBNQA) model, Business Excellence model, and balanced scorecard model. The mixed models emphasize the content and the process simultaneously during the implementation stages.

<Table 2> Strength and Weakness of TQM Models

TQM Models	Strength	Weakness
Hoshin Kanri	strategic plan deployment	no experience in full scale implementation
ISO 9000	helps to establish QM system	increases bureaucracy
Mergen Model	simple logic	hard to differentiate between conformance and performance
Kanji	suggests critical success factors	no procedural guidelines for implementation
MBNQA	focuses on leadership, strategy, customer, and market results	hard to implement in small scale
Business Excellence	equally emphasizes Enablers and Results	similar to MBNQA
Balanced Scorecard	concerns four perspectives simultaneously	no specific action plans

MBNQA has been awarded since 1988. In 2001, the University of Wisconsin-Stout became the first recipient from HEIs in the US. MBNQA model was proven quite powerful in the manufacturing and other service industries. Many HEIs have been trying to apply MBNQA model to their organizations.

The model is called Baldrige Education Criteria for Performance Excellence Framework. The model has seven elements: (1)leadership, (2)strategic planning, (3)student, stakeholder and market focus, (4)measurement, analysis, and knowledge management, (5) faculty and staff focus, (6)process management,

and (7)organizational performance results.

「NIST, 2004」 The model emphasizes the organizational performance results and the customer focus. It is a very powerful tool for TQM but HEIs might not be attracted to the model because they don't want to implement the model in full scale. They cannot get good results if they apply the model to local and tangential problems. Thus the model lacks a guideline for small scale implementation.

Business Excellence Model(BEM) was developed by European Foundation Quality Management(EFQM) between 1988-1991. The model has been changed from time to time. EFQM 99 model which has been used since 1999 includes nine constituents: leadership(10%), people(9%), policy and strategy(8%), partnerships and resources(9%), processes(14%), people results(9%), customer results(20%), society results(6%), and key performance results(15%). The elements of leadership people, policy and strategy, partnerships and resources, and processes are called Enablers. The other elements are called Results. The sum of the scores assigned to Enablers is exactly 50% of the total score. Results has the same portion that Enablers has. It means that the model emphasizes the importance of Enablers and Results equally. The model is quite similar to MBNQA model. The structure and content of the model give us the big picture of managerial issues important to

TQM. Some critics, however, argued that the terminology should be modified for use in the HEI context. It is because the terms in BEM used in the business environment can be interpreted differently in the academic atmosphere. 「McAdam and Welsh, 2000」 Also the model has the same difficulty as MBNQA model has; it is difficult to implement in small scale project.

Balanced Scorecard(BS) Model is categorized as one of the mixed models. Originally the model was developed by Kaplan and Norton(1992). Four perspectives included in the BS are: learning and growth, internal process, customer, and financial perspectives. Kaplan and Norton suggested a partial strategy path which starts from learning and growth perspective. Next stage is the internal process perspective, and then customer perspective. Finally, financial perspective will show the results of the partial strategy path. Cullen et al.(2003) applied the model to HEIs. They suggested a faculty strategy map for enhancing overseas students and franchise income on the basis of BS. The BS model is objective driven and shows the stages to achieve strategic goals. But the model proposes quite broad group of task like 'enhancing teaching' or 'develop and launch programmes'. Thus it cannot recommend any specific activities to carry out.

3. Proposed Model

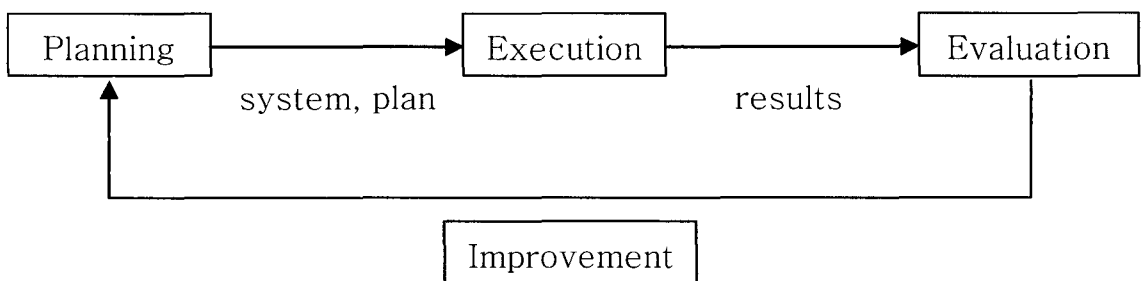
So far we reviewed TQM models used in HEIs. The models have their own merits and demerits. Roughly speaking, the process models lack contents and the content models lack procedural concerns. And the mixed models are weak in implementing TQM in a local and small scale project.

We propose a model which is a mixed model, but not weak in a small project. <Fig. 1> shows the model. The model starts with Planning stage. It is quite similar to the 'Plan' stage of PDS cycle or PDCA cycle. It also resembles Quality Planning stage of Juran's Quality Trilogy. In this stage, we define who the customers are and what they want. Next, we establish strategy to fulfill their needs on the basis of our vision and mission. Then we formulate plans to establish system to pursue the strategy and to operate the system. The system and plans are the outcome of the first stage.

Next stage is Execution stage. In the stage, we implement the plans. We apply TQM principles to organization while executing the plans. The TQM principles are: strategically oriented, customer(internal and external) focus, employee satisfaction, prevention, teamwork, continuous process improvement, employee involvement and empowerment, scientific approach to decision making and problem solving, and education and training.[Goetsch and Davis, 2003] During this stage, the conformance to the specification will be enforced. Financial and non-financial results will be produced when the execution stage finishes.

Then, in the evaluation stage, we review the results of the execution stage. The results include not only the conformance records but the market results, especially bottom of the line results. They also comprise the customer satisfaction indexes and employee satisfaction indexes.

Finally we go back to the first stage



<Fig. 1> Planning, Execution, Evaluation, and Improvement Model

through Improvement stage. In this stage, we compare the results with the strategic objectives and tactical goals. We plan for corrective action to adjust our stance to the objectives and goals. The stage is quite similar to Act stage in PDCA cycle.

The model can be applied to any organization and it can be used in a large scale project or in a small project. While the original PDCA cycle can be implemented easily in small projects, our model is devised for both large and small scale projects.

The strong feature of the model is its continuous improvement orientation. The model emphasize feedback with adjust activities in improvement stage. It expresses feedback with improvement explicitly because the model stresses the feedback with improvement. Thus the model constitutes a cycle and continuous movement following the cycle in any organization results in a spiral to the top (i.e. business excellence).

4. Conclusions

Can TQM be a panacea for all the problems facing HEIs? Maybe it is not. But TQM can be a very powerful remedy for chronic troubles of HEIs. Thus many HEIs in the world have implemented TQM in their institutions. And the results are quite decent compared with other industries.

The importance of TQM models is that they can guide the implementation procedures. The performance of TQM models quite differ because each model has its own strength and weakness. Because of the performance difference there has not been a dominant model. The model suggested in this paper is designed to enhance the performance of TQM implementation in HEIs.

The model is quite similar to PDCA cycle, but the model is devised to be suitable for implementing TQM mainly in large scale project of HEIs. Even though the logic behind the model is quite simple and easily understandable, the performance of the model is not self-evident. Thus next research direction will be the evaluation of the model in terms of internal performance (i.e. conformance) and external performance (including market performance).

References

- [1] Aly, N. and Akpovi, J.(2001), "Total Quality Management in California Public Higher Education", *Quality Assurance in Education*, Vol. 9, No. 3, pp. 127-131.
- [2] Burkhalter, B.B.(1996), "How Can Institutions of Higher Education Achieve Quality within the New Economy", *Total Quality Management*, Vol. 7, No. 2, pp. 153-160.

- [3] Chadwick, P.(1995), "TQM at South Bank University: Issues in Teaching and Learning", *Quality Assurance in Education*, Vol. 3, No. 1, pp. 39-44.
- [4] Cullen, J., Joyce, J. Hassall, T. and Broadbent, M.(2003), "Quality in Higher Education: From Monitoring to Management", *Quality Assurance in Education*, Vol. 11, No. 1, pp. 5-14.
- [5] Divoky, J.J. and Taylor, R.W.(1996), "Modeling Change in Curriculum: A Total Quality Management Perspective", *Total Quality Management*, Vol. 7, No. 2, pp. 173-182.
- [6] Froiland, P.(1993), "TQM Invades Business Schools", *Training*, Vol. 30, No. 7, pp. 52-56.
- [7] Goetsch, D.L. and Davis, S.B.(2003), *Quality Management: Introduction to Total Quality Management for Production, Processing, and Services*. 4th ed., New Jersey: Prentice Hall.
- [8] Grant, D., Mergen, E. and Widrick, S.(2004), "A Comparative Analysis of Quality Management in US and International Universities", *Total Quality Management*, Vol. 14, No. 4, pp. 423-438.
- [9] Hebert, F.J., Dellana, S.A. and Bass, K.E.(2000), "Total Quality Management in the Business School: The Faculty Viewpoint", *SAM Advanced Management Journal*, Vol. 60, No. 4, pp. 20-31.
- [10] Herguner, G. and Reeves, N.B.R. (2000), "Going Against the National Cultural Grain: A Longitudinal Case Study of Organizational Culture Change in Turkish Higher Education", *Total Quality Management*, Vol. 11, No. 1, pp. 45-56.
- [11] Johnson, F. C. and Golomski, W.A.J.(1999), "Quality Concepts in Education", *Quality Assurance in Education*, Vol. 11, No. 6, pp. 467-473.
- [12] Kanji, G.(1998), "An Innovative Approach to Make ISO Standards More Effective", *Total Quality Management*, Vol. 9, No. 1, pp. 67-78.
- [13] Kanji, G. and Tambi, A.M.B.A.(1999), "Total Quality Management in UK Higher Education Institutions", *Total Quality Management*, Vol. 10, No. 1, pp. 129-153.
- [14] Kanji, G., Tambi, A.M.B.A. and Wallace, W.(1999), "A Comparative Study of Quality Practices in Higher Education Institutions in the US and Malaysia", *Total Quality Management*, Vol. 10, No. 3, pp. 357-371.
- [15] Kaplan, R.S. and Norton, D.P.(1992), "The Balanced Scorecard: Measures that Drive Performance", *Harvard Business Review*, Vol. 70, No.1, pp.71-79.
- [16] Koch, J. and Fisher, J.L.(1998), "Higher Education and Total Quality Management", *Total Quality Management*, Vol. 9, No. 8, pp. 659-668.

- [17] Lozier, G.G. and Teeter, D.J.(1996), "Quality Improvement Pursuits in American Higher Education", *Total Quality Management*, Vol. 7, No. 2, pp. 189-202.
- [18] McAdam, R. and Welsh, W.(2000), "A Critical Review of the Business Excellence Quality Model Applied to Further Education Colleges", *Quality Assurance in Education*, Vol. 8, No. 3, pp. 120-130.
- [19] Mergen, E., Grant, D. and Widrick, S. M.(2000), "Quality Management Applied to Higher Education", *Total Quality Management*, Vol. 11, No. 3, pp. 345-352.
- [20] Moreland, N. and Clark, M.(1998), "Quality and ISO 9000 in Educational Organizations", *Total Quality Management*, Vol. 9, No. 2/3, pp. 311-320.
- [21] Muse, W.V. and Burkhalter, B.B. (1998), "Restructuring Brings Quality Improvements to Auburn University", *Total Quality Management*, Vol. 9, No. 4/5, pp. S177-S183.
- [22] NIST(2004), 2004 Education Criteria for Performance Excellence.
- [23] Osseo-Asare Jr., A. E. and Longbottom, D.(2002), "The Need for Education and Training in the Use of the EFQM Model for Quality Management in UK Higher Education Institutions", *Quality Assurance in Education*, Vol. 10, No. 1, pp. 26-36.
- [24] Owlia, M.S. and Aspinwall, E.M. (1996), "Quality in Higher Education - A Survey", *Total Quality Management*, Vol. 7, No. 2, pp. 161-171.
- [25] Roberts, P. and Tennant, W.(2003), "Application of the Hoshin Kanri Methodology at a Higher Education Establishment in the UK", *TQM Magazine*, Vol. 15, No. 2, pp. 82-87.
- [26] Tang, K.H. and Zairi, M.(1998), "Benchmarking Quality Implementation in a Service Context: A Comparative Analysis of Financial Services and Institutions of Higher Education: Part II", *Total Quality Management*, Vol. 9, No. 7, pp. 539-552.
- [27] Vazzana, G., Elfrink, J. and Bachmann, D.P.(2000), "A Longitudinal Study of Total Quality Management Processes in Business College", *Journal of Education for Business*, Vol. 76, No. 2, pp. 69-74.
- [28] Vazzana, G.S. and Winter, J.K.(1997), "Can TQM Fill a Gap in Higher Education?", *Journal of Education for Business*, Vol. 72, No. 5, pp. 313-316.
- [29] Wiklund, H., Klefsjo, B., Wiklund, P.S. and Edvardsson, B.(2003), "Innovation and TQM in Swedish Higher Education Institutions - Possibilities and Pitfalls", *TQM Magazine*, Vol. 15, No. 2, pp. 99-107.