Doğuş Üniversitesi Dergisi, 2002, (5), 1-15

A MULTI-DIMENSIONAL QUALITY SYSTEM FOR APPLICATION IN HIGHER EDUCATION

Nilüfer Gözaçan BORAHAN
Reza ZIARATI
Doğuş University

ABSTRACT : The paper introduces a generic quality model for application in higher education environment and investigates the role that the International Standards Organisation (ISO) 9000 requirements could play in such a model. The ISO terms have been translated into education terms and priority action plans have been developed to aid implementation. The generic model and the ISO system have been complemented with a quality manual. The latter identifies a number of processes and how these processes can be implemented in theory and in practice. A university has been selected to test the applicability of the various elements of the generic and ISO models and how the two approaches could be integrated and what else needs to be considered. Special references are made to higher education institutions that have adapted an ISO 9000 based system.

Keywords: *Quality Systems, ISO 9000, Higher Education, Turkey, UK.*

ÖZET : Bu yazı, Yüksek Eğitim çevresinde ve araştırmalarında genel kalite modelinin uygulanabilmesi için Uluslararası Standart Organizasyon (ISO) 9000 ihtiyaçlarının bu modelde nasıl rol oynayacağını ortaya çıkarmaktadır.ISO terimi eğitim terimlerine çevrilmiş ve faaliyet planlarının gelişiminin tamamlanmasına yardımcı olmuştur. Genel model ve ISO sisteminin özelliklerini gösteren klavuz tamamlanmıştır. Sonra ki aşama ise bu sürecin, uygulama ve pratikte nasıl yerine getirileceğidir. Üniversite çeşitli Genel ve ISO modellerinin içinden uygulanabilir olanı deneme amaçlı olarak şeçmiş; bu iki yaklaşımın nasıl bütünleşeceğini ve daha nelerin gerekli olabileceğini düşünmüştür. Özel Danışmanlar, Yüksek Eğitim Kurumlarının ISO 9000 sistemine adapte olabileceğinden emindirler.

Anahtar Kelimeler: *Kalite Sistemleri, ISO 9000, Yüksek Eğitim, Türkiye, UK.*

1. Introduction

This paper refers to a research programme of study at Dogus Univerisity to develop a quality system for application in a higher education sector in Turkey and in line with Total Quality Management (TQM) principles (Gözaçan and Ziarati, January 2000; Gözaçan and Ziarati, July 2000)

The approach adapted, in this part of the research studies, is to consider an existing generic model developed as part of the current investigation and in parallel consider a model based on an ISO 9000, and examine the merits of each system and whether the two models should or could be integrated, and if so, how? To this end, various elements of the generic model were clearly identified and the requirements of a given ISO system (Ziarati and Salt, 1995) was considered and its terms translated into terms that are meaningful and could be accepted in a higher education environment.

The investigation included the quality systems of other universities (Moreland and Clark, 1998) particularly a university in the UK and one in Turkey that have implemented an ISO quality system as part of their Quality Management (QM).

2. Main Tasks

The main objective of the research work presented here is to build on the work of References 1 and 2 and to ascertain the benefits of considering a quality system based on one of the ISO 9000 systems i.e. 9001, 9002. etc. The main tasks were to:

1. introduce the proposed generic model in sufficient details so that analyses are feasible, and to develop a quality manual to complement it,

2. identify the requirements of an ISO based quality system and translate these into terms acceptable in higher education sectors,

3. analyse the applicability of the generic model and ISO requirements in a given university,

4. identify areas where there is a gap,

5. determine standards of performance in all academic areas of a given HEI operations in relations to its ability to deliver quality education and training.

3. Definitions

Here quality is the delivery of education and training to agreed standards that can be defined and verified. The term quality however implies "fitness for purpose" as agreed by all concerned. There are standards that would apply to a university as a whole while others would be applicable to specific areas (Ziarati and Salt, 1992).

With regard to the ISO 9000 the following should be noted (Ziarati and Salt, 1995):

- ISO 9000 - Quality management and quality assurance standards, guidelines for selection and use.

- ISO 9001 Quality system – Model for quality assurance in design /development, production, installation and servicing (design, development and delivery of educational products/services). This is the Part 1 and contains 20 items.

- ISO 9002 Quality system – Model for quality assurance in production and installation (development and delivery of educational products/services). This is the Part 2 and contains 18 items.

- ISO 9003 Quality systems – Model for quality assurance in final inspection and test (marketing of educational products and services). This is the Part 3 and contains 12 items.

- ISO 9004 includes the guidelines for the quality management and quality system elements.

3.1 Other Terms

- Quality is conformance to requirements that are measurable.
- QM is that aspect of overall management function that determines and implements the quality policy.
- TQM is a management philosophy aiming to harness the resources of an organization in the most effective and efficient way for the achievement of its stated objectives.
- Customers – students/parents that purchase services.
- Clients – individuals/organisations which receive services.
- Community – people working in the organization.

4. Rationale for Consideration of ISO 9000 in Education Environments

The ISO 9000 systems were developed for the Manufacturing industry. Their implementation in the education sectors is relatively new. Different educational organisations have translated the terms and items used in the ISO terminology and systems into terms and statements that are acceptable to them. Some have gone for full implementation (Moreland and Clarck, 1998) and taken steps needed to satisfy the certifying body. Some have only used the requirements as guidelines for developing their only quality system (Ziarati and Salt, 1992). This paper is primarily concerned with the application of ISO 9000 in the higher education sector.

Ziarati (1997) identified the main characteristics of TQM. According to him a system for establishing a TQM should have the following characteristics:

- An integrated management system – offering a vision for management development and long term commitment.
- A quality assurance plan with a time scale with specific support systems.
- A quality assurance system with clear procedures and provisions for training.
- A system for collecting and analysing of information.
- Clear means for employee participation and people involvement.
- A system for continuous improvements through quality control mechanisms and benchmarking techniques.
- A system for measuring costs and identifying the cost of conformance and the cost of non-conformance.

Reference 6, while clearly states that TQM is a philosophy and hence not a defined system, nevertheless provides a systematic TQM model for consideration. A summary of the main components of the model is presented below:

1. Create and nurture TQM and cultural environment based on the above.
2. Identify the objectives of each component of the organisation.
3. Define jobs and, staff responsibilities and tasks
4. Establish action plans for implementation and improvement projects.
5. Identify deficiencies and supplement by providing support.
6. Measure and compare with stated standards and chosen benchmarks.
7. Evaluate and iterate.

What is significant is that Reference 6 expresses no objection in adapting an ISO 9000 based system as the quality assurance system within a TQM approach.

There are many management systems in higher education which have incorporated TQM principles and have embraced major changes particularly in the UK (March et al; 1994). However, the applications of the ISO viz., ISO 9000 in some academic institutions (Moreland and Clark, 1998; Ziarati and Salt, 1992), are considered interesting developments. Moreland and Clark (9) provide an interesting account of the development and implementation of ISO 9000 certified quality assurance systems in three educational institutions, a university, a college of further education and a primary school. A recent study concerning the work reported in (Moreland and Clark, 1998) is being reviewed by the research team at Dogus university and a report is expected soon.

An analysis of recent developments in quality assurance and control in selected countries including the UK and Turkey (Gözaçan and Ziarati, January 2000; Gözaçan and Ziarati, July 2000; Balolu, 1990; Bilgen, 1993; Gopal et el, 1998; Hertling 1996) have been carried out, as part of the current research programme, through a range of approaches including the use of questionnaires and interviews (UK and Turkey only). In addition recent developments in the management of higher education in newly industrialised countries such as Malaysia, South Korea and Hongkong (Gopal et el, 1998; Hertling 1996; Nyham, 1991) are currently being analysed. There are clear signs that these countries are becoming interested in ISO as a procedural quality assurance system for their education sectors.

According to Dalin and many others (Dalin, 1978; Goddard and Leask, 1992; Handy, 1985) the introduction of any new system of management, i.e. through the ISO 9000 quality systems, requires a thorough understanding of the organisation and management of change. To this end, a review of the work on the introduction of contemporary management systems in other organisations and their impact needs to be fully reviewed. The following is a summary of the literature review on this very important area of the research being conducted here.

Sivanci (1996) has put particular emphasis on the role the students play in quality higher education. He believes that to improve quality the right customer focus is essential. He has argued that there is a similarity between a manufacturing organisation and the flow of students through colleges and universities.

Fram and Camp (1995) in their study of finding and implementing best practice in higher education, show the influence of students in improving the quality of education.

The question of how a quality system developed for the manufacturing industry can be applied to the education sector has been raised before (Sivanci, 1996). However, the argument put forward by Sivanci is of particular value here viz., that there is a similarity between manufacturing (goods coming in and value is added as the components are progress through the shop floor) and the student's admission and progression through the HEIs. This is because Kanji and Malek (1999) reported in 1996 that there had been little progress in linking the TQM process to an ISO based quality system. He states that the issue of whether ISO 9000 standards or its derivatives are suitable for application in educational establishments must be

clarified first before any further progress is made. James (1996) also supports Kanji's view that although there has been a growing interest from individuals who see positive benefits of applying the ISO 9000 standard in HEIs, the progress on the quality management approach has been insignificant. Some people even have gone as far as accusing their government of a ploy to control academic institutions by encouraging them to introduce ISO 9000 standards in the academic departments Hertling (1996 citing the work by James & Tannock , 1991).

The encouragement, in the UK, if any has been based on the work of researchers such as Rooney (1991) who are the prominent supporter of the application of ISO 9000 in educational institutions. They claim that they have not seen any case of failure of ISO 9000 in higher education. They reject the assertion by Buckingham (1991 – first name of the author not available) that ISO 9000 standards are "straight jacking" and that such standards are misleading because the translation of the standards when applied to educational institutions causes "confusion and consternation". Rooney (1991) says that ISO 9000 does not impose a bureaucratic standard, as it is just a set of arbitrary requirements, and it is the interpretation of the requirements that creates the bureaucratisation levels.

Kanji in another paper (1999) concluded that there are ways of linking ISO 9000 with TQM process. He proposed an approach to improve quality by examining the organisation's processes in terms of process definition, process improvement and process design.

Many prominent researchers are of the opinion that TQM as a 'stand alone' process has shown to have a potential for improving quality in educational institutions (Daniel, 1961). Kanji (1999) also believes that ISO standards have a role to play although he does not state how the two can be integrated. In a seminar given by Ziarati (1998), the link between the two has been made clear. Ziarati says that the ISO 9000 can be the basis for the introduction of TQM. Unlike others he states that TQM is a philosophy or an approach and not a single or a defined system or process.

The quality, he states cannot be defined by simply referring to the ISO standard definitions. He states that the grade as well as main dimensions of quality should be taken into consideration when defining the quality of a product or service particularly when comparing one product or service with another. The grade, he says, is easy to establish; "do we want a 2-star or a 4-star university?" i.e. should a university, for instance, aim to be a 2-star or a 4-star institution? Either way, the institution can be "fit for its purpose. The question he raises viz., does a good procedural quality system (ISO 9000) lead to an improved product and/or service.

Gözaçan and Ziarati (April 2001) developed a 3-Dimensional (3D) quality model where each Dimension (D) has its own pre and post interfaces. The first D is represented by a generic model (Requirements-Resources-Representation-Review, the 4Rs) as depicted in Figure 1. The second D is the twenty requirements (or 18 requirements of the ISO 9002) of the ISO 9000 standards. These standards have been translated into HEI quality language and terms. A summary of these is given in section 5 below. Both the first D and the second D have their respective quality manual, which would have similar contents but the elements and the procedures have yet to be merged together (see section 6 of this paper).

The third D is the management system completed with its own manual. The 3Ds would provide an opportunity to integrate quality assurance and control mechanisms with management sub-systems and ensure compatibility and opportunity for further developments.

5. ISO 9000 Application in Education

To apply one of the ISO 9000 quality systems in an education environment, it is necessary to list the requirement headings for one of the ISO systems. Then, each heading needs to be interpreted for application in education environment.

The following is the 18 requirement headings for the ISO 9002 and equivalent headings interpreted for application in the education sector. It should be noted that the interpretation by the authors, has been carried out in line with the requirements of the 4R model described later in this.

ISO 9000 Terms Used in Manufacturing	vs.	ISO 9000 Terms Used in Education
1. Management Responsibilities		1. Management Responsibilities
2. Quality system principles		2. Quality Elements
3. Contract review		3. Contracts with customers and clients
4. Document control		4. Document control
5. Purchasing		5. Purchasing
6. Purchaser supplied product		6. Client admission and support
7. Product identification and traceability		7. Student and programme records I
8. Process control		8. Curriculum design, development and delivery
9. Inspection and Testing		9. Assessment and testing of clients
10. Inspection, Measuring and Test Equipment		10. Validity and consistency of assessment and testing methods.
11. Inspection and Test Status		11. Students and programme records II
12. Control of Nonconforming Product		12. Diagnostic procedures for client failure
13. Corrective Action		13. Corrective procedures for client failure and programme improvement
14. Handling, Storage, Packaging and Delivery		14. The physical university environment
15. Quality records		15. Quality records
16. Internal quality audit		16. Internal quality audit
17. Training		17. Staff Training
18. Statistics Techniques		18. Statistics

6. Quality Manual

Any quality system needs to have a manual, for instance all ISO systems have one. The manuals for ISO systems are usually based on a standard set of contents and hence are not discussed in this paper.

The manual for the 4Rs model is composed of five main elements. The following gives the main requirements (these have been developed to be compatible with the ISO requirements):

Element 1 – General

Policy, Objectives
Quality Assurance Principles
Organisation Outlines
Procedures Outline
Standard Procedures Index.

Element 2 – General Standard Procedures

Organisation Details
Administration Control
The General Programmed Systems Activities
Works Procedures and Instruments

Element 3 – Non-Standard Procedures

Detailed Non-Standards Procedures and Works Instructions
Special Cases
Non-Standard Projects

There are two other elements, elements 4 and 5, developed as par of on-going programme of research and are not requirements of ISO systems.

Element 4 - How in Theory

University Quality Strategies. A university-wide, standards based document which relates a University's quality system to ISO 9002 headings. This document for instance, in relation to the first ISO heading viz., Management responsibility, would contain all the job specification, recruitment process, etc.

Element 5 - How in practice: An Introduction to the Quality Assurance Manual

There will be a number of Element 5 documents. Each Element 5 document will contain a considerable amount of generic information to assist Programme Teams. For example, information about 'Student Support Systems' may include Counselling, Learning Support Networks and Tutorial Programmes, and 'Programme Support Services' may include the Libraries, Reprographics and Administration systems used by Programme Teams.

Each Element 5 will contain information relating to the Programme operated by the Programme Team. This obviously varies depending on the nature of the Programme, but it will contain a Programme specification or location of Programme submission documents, a programme timetable, Programme Team list, standing agenda items, current calendar for a 'Programme Team Meetings' and a document location list. The document location will give the location of items such as Syllabus, Schemes of Work and a 'Programme Team Minutes'.

Element 5 also will contain the systems used by the programme Team. For example, the system they have chosen for obtaining feedback from students and entry requirements specific to the programme. It may also contain systems, which are unique to a department, e.g. for ordering consumables.

Programme teams have a major responsibility for Quality Control on their programme. They are involved in setting targets, they deliver programme and they review their success in attaining these targets. The systems in the manual would be designed to help the programme Team to deliver this. Programme Teams should bear in mind the following stages in assuring quality:

(1) Decide what needs to be done and when
(2) Do it according to the time set
(3) Review and record what has been done and check timing

6.1 Quality Assurance Manual element 5 Headings

The Quality Assurance Manual Element 5 will have a number of Headings. Some headings will be mainly information for Programme Teams while others require Programme Teams to decide what system they will use or to give information. Those headings with an asterisk * require input from the Programme Team.

A calendar of events should be developed for scheduling and initiate actions planned.

Briefly the headings are as follows:

A – How to use this Manual

* This section will outline the document control system and how to incorporate amendments to the Manual. It is very important in a Quality Assurance system that all controlled documents are kept up to date and all amendments carefully recorded. It will also include a list of definitions of university/educational terms.

B – The Quality Policy

* This is the Quality Policy of the organisation, which is a requirement for all Quality Assurance Manuals.

C – Document Location

* It is essential in any Quality Assurance system that all documents relating to the system are in stated locations. The documents for our Quality System will primarily be those relating to the operation of a programme; their location must be stated and they must be available to the Team, e.g. filing cabinet in Programme Team Leader's Room.

D - Organisation

* This section sets out the organisation of the university and its governors and their relationship to the external bodies (higher education council in Turkey, YÖK). It also will show the organisation structure of the university. The structure of individual programme Teams will be added by the Team.

E – Duties and Job Descriptions

* The section will give the duties and job descriptions of academic staff, which apply to all staff. Each individual should have their own job description, which will specify certain responsibilities in addition to the general duties. These will not be kept in the Manual but in a specified location, e.g. by head of departments.

F – Programme Specification/Submissions

* This section will be concerned with planning and preparation for a programme. For many university programmes a detailed submission document will be prepared for internal validation purposes, and this document would either be placed in this section of the Manual or its location specified on the document location list. To assist Programme Teams to do this, a programme specification form will be developed which programme Teams would fill in the section, which are appropriate to their programme. These specifications or submission documents should be reviewed each year, and a Check List should be included for programme Teams to use for this purpose if they so wish. Full-time student programmes would have certain entitlements in their curriculum and to assist Programme Teams (of such programmes) to ensure these, a planning Check List will be developed.

G – Schemes of Work

* This section will give a suggested format for Schemes of Work. They will be kept in a specified location, not in the Manual.

H – Course Records and Examinations

* This is an information section about registers, records and examination systems.

J – Work Experience Placements

* This section will give the Work Experience Placement system run by the university. If a programme has no work experience this section will be removed or if a different system is used by a programme team for organising work experience that will be in their manual.

K - Marketing

* This section will be for information, explaining the role of the Marketing and how Programme teams can obtain assistance in this area.

L – Student Admissions

* This section will give information and advice about the admission and pre-admission procedures for students.

M – Equality of Opportunity

* This section summaries the university's Equal Opportunities Policy and Code of Practice.

N – Timetables

* This section will contain blank timetable forms. A Programme timetable must be kept in the Manual and with the Programme Team records.

O – Induction

* All students must have an induction programme. A list of suggestions for such a programme will be developed. Course Teams decide the induction programme appropriate to their programme and include it in their Manual.

P – Health and Safety

* This will be information section on university's Health and Safety Policy and Procedures.

Q – Student Contract

* All full-time students will have a Student Agreement and all students should have a student handbook, which outlines their programme in an appropriate way. Programme Teams must decide what Student handbook they wish to issue, and include an example in their Manual. A Model Handbook will be developed.

R – The Course Team

* This important section outlines the membership of the Programme Team, calendar of 'Programme Team Meetings', agreed Programme, etc.

S – Course Support Services

* This section will be a source of information for Programme Teams, and they should add any systems which operate in their own Faculty of Department, eg for obtaining laboratory/workshop materials for classes.

T – Student Support Systems

* This will be an information section about services available to help students. Programme Teams will need to be aware of these and make their students aware of them.

U – Non-Attendance Systems

* This section will give the safety net system for following up non-attending students. Most Programme Teams will have a system of their own operating already. This section also includes the important Early Leavers Log, which must be completed by all Programme Teams.

V – Student Feedback Systems

* It is essential to get feedback from students on all Programmes. Programme Teams decide which method they wish to use (which could be one of their own) and that method is the one in their Section 5 document.

W – Identification Systems

* This section identifies various elements of the system.

X - Complaints

* This will contain the complaints procedure and also a student appeals system. Programme Teams may wish to insert their own established student appeals system.

Y – Qualification Result

- A way of presenting results compared to national results.

Z – Contracts with Customers and External Agencies

* This section will stress the importance of reviewing any contracts, which are made with customers, especially for specifically designed Programmes/Courses.

7. Basic Structure of Quality Procedures

Title
Purpose (why?)
Scope (for what and to whom does it apply?)
Procedures (How will it be done, by whom and when?)
Audit (who is responsible for the internal audit? When the audit will take place?)

7.1 Procedures – The Six-Step Format

1.	Purpose	Outline the objective or intention of the document
2.	Scope	Outline the sphere, department, group of people to which the procedure applies
3.	References	Provide details of other documents which have bearing on the activities within the procedure
4.	Definitions	Define any words or actions contained in the procedure, which are not readily understood.
5.	Procedure	Detail the actions of those people involved in the activities covered by the procedure. It should identify, where possible, who does what, and where the activity is carried out.

6. Documentation — List of any documentation Referred to within the procedure and generated as a result of implementing a procedure. A copy or example of each document should be attached to the procedure as an appendix. To facilitate control, all documents relating to a given procedure should carry a Reference number which links that document to the procedure.

8. Action Plans

To establish whether ISO 9000 or the 4Rs model requirements can be applied in a given HEI, it is crucial to write down their presence or absence in relation to the requirements set either by the ISO system or 4Rs model, in an actual institution. The following are examples of enquiries prior to developing an action plan for a given HEI.

8.1 Enquiry 1– Applying the 4Rs Model Requirements to an Existing University

- Ascertaining client, customer and community needs (strategy exists).
- Ascertaining external bodies requirements (YÖK only)
- Curriculum negotiations, development and review (informal only)
- Marketing and marketing effectiveness evaluation (effectiveness not determined)
- Ensuring adequate and appropriate resources – human, material and time (developing)
- Pre-enrolment (not formal as yet)
- Enrolment (exists)
- Contract with client (not formal as yet)
- Induction of client (developing)
- Client assessment; initial, ongoing and final (standardised)
- Planning and delivery records (improving)
- Equal opportunity (not formally stated)
- Ensuring and monitoring Health & Safety (not formal yet)
- Pastoral care (not complete)
- Course review (developing)

8.2 Enquiry 2 – Applying the ISO 9002 requirements

1. Management Responsibilities (not fully stated)
2. Quality System Principles (see Priority Action 1)
3. Contracts (job specifications not issued by all units of the University)
4. Document control (random)
5. Purchasing (a system is being considered)
6. Client admission and support (see Priority Action 1)
7. Student records (developing)
8. Curriculum design, development and delivery (see Priority Action 1)
9. Assessment and testing of clients (see Priority Action 1)
10. Validity and consistency of assessment and testing methods (see Priority Action 1)

11. Students and programme records (developing)
12. Diagnostic procedures for client failure (localised)
13. Corrective procedures for direct failure and Programme improvement (developing)
14. The physical University environment (developing)
15. Quality records (developing)
16. Internal quality audit (none)
17. Staff training (developing)
18. Statistic (further developments are being considered)

9. Conclusions

The work here has reported on the development of an innovative quality model (4Rs) based on the needs of the main stakeholders and external requirements, and resources required to respond to the stated needs and requirements. The model also includes processes concerning the implementation tasks as well as the need for review and evaluation. The elements of the model have been constructed from the work of others (Moreland and Clark, 1998; March et. Al 1994; Nyham, 1991; Ziarati, 1995; Handy, 1985; Sıvancı, 1996; Fram and Camp, 1995; Blandford and Shaw, 2001).

An attempt has been made to identify the requirements of ISO 9002 and their applicability in higher education environments (Ziarati and Salt, 1992; Kenji and Malek, 1999).

The quality manual for the 4Rs model has been developed to enable and complement the processes elucidated (Figure 1.) The manual has been designed and written such that it abides by the ISO requirements and terminology and hence can be further developed to complement the ISO 9002 quality system requirement in clearer terms.

The proposed third dimension is intended to include management practices and procedures. Its inclusion would ensure all management functions are linked to the procedures and processes contained in the other two dimensions and that further integration is feasible.

A methodology for identifying omissions and deficiencies of the overall proposed quality system in relation to the ISO and the 4Rs model has been suggested. This aspect of the research work requires further consideration and what has been reported here is merely to demonstrate the potential for further development.

Substantial work needs to be carried out to determine the standards of performance of a given institutions of higher education and relate these to a particular quality system or element of it.

10. Acknowledgement

Authors would like to thank Dr Sonia Blandford of Westminster Institute of Education and Professor Shirdokht Ziarati for their contributions and support.

11. REFERENCES

BALOĞLU, Z. (1990), *Türkiye'de Eğitim: Sorunlar ve Değişime Yapısal Uyum Önerileri*, İstanbul: TÜSİAD.

BİLGEN, H.N. (1993), *Çapraz ve Demokratik Eğitim*, Ankara: T.C. Milli Eğitim Bakanlığı.

BLANDFORD, S., SHAW, M. (2001). *Managing International Schools*, Routledge Falmer, ISBN 0-415-22885-9.

BUCKINGHAM, *Times*, November 1991.

Characteristics", Learning Package on Quality.

DALIN, P. (1978). *Limits to Educational Change*, London, Macmillan.

DANIEL, D.R. (1961). "Management Information Crisis", *Harvard Business Review*, 39, 111-121.

FRAM, E.H., CAMP, R.C. (1995). "Finding and Implementing Best Practices in Higher Education", *Milwakee,* Feb 1995.

GODDARD, D., LEASK, M. (1992). *The Search for Quality: Planning for Improvements and Managing Change*, London: Paul Chapman Publishing Co.

GOPAL, K. KANJI, ABDUL MALEK A. TAMBI, (July 1998). "Total Quality Management and Higher Education in Malaysia", *Total Quality Management*, Abingdon.

GÖZAÇAN BORAHAN, N., ZIARATI, R. (2001, April). "3D Modelling of Quality Assurance and Control System for Higher Education Sector", *Doğuş University Report.*

———————————————. (2000 January). "Developing a System of Quality Assurance for Higher Education Sector in Turkey", *Doğuş University Journal,* No: 1, pages 18-27.

———————————————. (July 2000), "Developing Quality Criteria for Applications in the Higher Education Sector in Turkey", *Doğuş University Journal,* No: 2, pages 20-38.

HANDY, C. B. (1985), *Understanding Organisations*, London: Penguin.

HERTLING, J (1996) "*The Chronicle of Higher Education*", v43, n13, pA39 (2).

KANJI, G.K., A. MALEK (1999) "An Innovative Approach to make ISO 9000 standards more effective, *Total Quality Management*, 9, pp. 67-78.

KANJI, GOPAL K., ABDUL MALEK BIN A. TAMBI, (Jan 1999). "Total Quality Management in UK Higher Education Institutions", *Abingdon.*

MARCH, JUDITH K., PETERS, K.H., ADLER, H.L. (1994, April). "Peer coaching: Empowering teachers while accomplishing management goals", *Government Union Review*, Reston.

MORELAND, N., CLARK, M. (1998, May). "Quality and ISO 9000 in educational organization", *Total Quality Management*, Abingdon.

NYHAM, B. (1991), *Developing People's Ability to Learn, task force, Human Resources, Education Training Youth, Eurortecnet, European Union* ISBN 90-5201-022.

ROONEY, O. *Times*, August 1991.

SIVANCI, M. (1996) "Are Students The True Customers of Higher Education?" *Quality Progress,* v29, n10, p99 (4).

ZIARATI, R. (1995), "Learning Organisation", *Keynote Paper, European Action Programme for Education and Training, LEONARDO CONFERENCE*, Birmingham, UK.

———————— . (1996), "An Overview of Current Education Development and their Influence on Education and Training", *Keynote Presentation, BTEC Conference*, London, UK. [A section of the Paper on Quality Assurance and External Examination was forwarded by DFEE to selected universities and Government agencies for comments].

———————— . (1997), "Quality Dimensions and Total Quality Management.

———————— . (1998), *Total Quality Management*, Staff Development Seminar, Doğuş University, Istanbul, Turkey.

ZIARATI, R. and J. SALT (1992), "Developing a System for External Activities – A Competitive Edge", *PICKUP National Conference for Higher Education*, Nottingham University, UK.

———————— . (1995), "Implementing ISO 9000 in FBT Holding" *PERA Programme, Department of Trade and Industry* (dti), UK.