Total Quality Management in Higher Education

Case Study:

Quality in Practice at University College of Borås

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Thesis for Graduation in
Master of Science in Industrial Engineering
06/2008

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Acknowledgement

This is a 15-credit thesis within Quality Evaluation and Improvement at University College of Borås, which is done from 2008.3.10 to 2008.06.4.

We hereby would like to thank all people who somehow helped us to achieve this result. First, we would like to thank Dr Maria Fredriksson our supervisor in University of Borås for her helps and accessibility during this project and the whole education period. We appreciate the Institution for Engineering School for its support and friendly environment they made which let us enjoy every moment of our studies.

We shall thank all people (Björn Brorström, Iréne Arvidsson, Christina Kaspersen, Susanne Jämsvi, Tina Ottosson) who take time, attention, and great helps in order to reach the right information during this project.

In the end, we would like to thank our family and friends who supported us during the whole education and this thesis.
Abstract

The overall objective of this thesis work is to highlight the general principles of TQM involved and to point out how this approach has been and can be used to improve the quality of an academic institution. This work has been specified for higher education of University College of Borås, and it will cover the whole of institution, administrative structure, rather than academic area, specific program, department, or services.

This objective is conducted towards an evaluation and assessment of the current quality work of this university. In fact, the way in which this university is working with quality issues now, will be compared with a TQM approach and the weaknesses and strengthens of the quality work of this institution will be recognized.

After reviewing the current situation of this university college in the context of quality and identifying possible existing problems, the authors will offer some recommendations and suggestions for improvement. For this purpose, in the theoretical frame of reference, a specific TQM approach will be developed and some detail descriptions of terms involved in this approach will be reviewed.

In order to reach to the objectives of this thesis work, researcher will use primary data in the form of interviews, and secondary data from literatures, scientific articles, and books and WebPages. In addition, the researchers will use abduction methodology within this research.

In conclusion, authors are aim to provide a complete documentation in its kind in the field of quality and Total Quality Management, which can facilitate this university college to improve the quality of its higher education.

Keywords: Quality, Total Quality Management (TQM), Higher Education Institutions (HEIs), University College of Boras (UCB).
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1. Introduction

This chapter will cover some backgrounds to the research area, which will also serve to form the purpose of this thesis work. In addition, it also consists of defining research area, purpose of the thesis, delimitation. Finally, this chapter will describe the structure of the thesis. The purpose of the chapter by itself is to provide precise information about the whole task.

1.1 Background

In fact, the vital role of quality in higher education in a highly competitive environment has approved, and administrators and educators of Higher Education Institutions are continually seeking for ways to have more effective and meaningful educational instruction, Babbar (1995, pp. 35-55), example of these investigators is University College of Borås board and its administrators.

UCB administrators have started to establish quality sector to improve the quality, standards of their higher education, and to make their educational system more effective. Recently, one philosophy has emerged in the concepts of quality and management, named as Total Quality Management.

TQM has been successfully implemented in some Higher Education Institutions (HEIs), and it has improved the quality of higher education in those institutions. Since, this institution has decided to do an assessment of its quality work and this task has defined in the form of this thesis work, the researchers found that this evaluation could be done in the form of a benchmarking with TQM philosophy. Therefore, the aim here is to compare the quality work of this university with the principles of a TQM approach.
1.2 Research Area

One of the primaries and the most important of service industry in the public sectors of communities is education. It is the quality of education that forms the enduring wealth and security of both societies and their people, Babbar (1995, pp. 35-55).

During last two decades, the preservation of high quality and standards in education has become a major concern for higher education institutions and governments; consequently, the demand for explicit quality evaluation and assurance processes has been increased rapidly.

At the same time, the enormous funds, which governments assign to this sector, make it very important for those who manage education to ensure that education imparted in schools, universities and institutions of learning successfully (ibid).

Furthermore, some other environmental forces make the need for more effective and better quality of education more essential, Nina and Maureen (2006, pp. 123-142). These include a growing environment in the number of students, increasing the competition between higher education institutions, more expectations from students, and more flexibility in programs both in undergraduate and graduate level.

In fact, the vital role of quality in higher education in a highly competitive environment for HEIs has approved, and administrators and educators are continually seeking for ways to have more effective and meaningful educational instruction (ibid). Therefore, answer to the following question does seem to be considered as an objective for HEIs, how we can make educational systems more effective and provide high quality and standards in education?

One of the emerging philosophies in quality and management concepts is Total Quality Management, TQM. TQM has been applied to business and industry; and recently has been introduced, experimented and implemented in higher education institutions to provide high quality and standards for both industry and higher educations.
A concise study of TQMs’ principles shows the point to which it can be implemented in HEIs, and many objectives of TQM are well suited with the work of HEIs in response to external quality assessment and audit.

However, TQM continues to be considered by many as unsuitable mean to the culture of HEIs, still many universities and colleges apply TQM as a tool to improve the quality of higher education. For instance, U.S., U.K., Australia, and New Zealand institutions have adopted TQM in their higher education, and there are some successful stories in this circumstance Bolton(1995, pp. 13–18).

Examples of success in TQM can be obtained from reports on cases at: Fox Valley Technical College, U.S. (Spanbauer, 1989); Oregon State University, U.S. (Coate, 1990); Wolverhampton University, U.K. (Doherty, 1993); Aston University, U.K. (Clayton, 1995); University of Central Queensland, Australia (Idrus, 1995); and Otago Polytechnic, New Zealand (Idrus, 1995).

However, these HEIs were successful in implementation of TQM, each of them has used their own definitions, methodologies and tools for this purpose and still there is no one unique approach for implementation of TQM. Therefore, finding one unique definition, new methodologies and even tools in this circumstances, which are more effective and applicable in every institution, is desirable even more than before.

1.3 Purpose of the Thesis

One of the primary objectives of this research is about an assessment of the quality work of the University College of Borås. In fact, the Committee for Evaluation and Self-assessment has specified this work in order to get an overall picture of the current quality work of university.

This committee was appointed by the university board in order to do an internal assessment of the quality work of the university each year. Accordingly, this thesis work is aimed to see where the quality work at this university stands today.
This evaluation and assessment will be in the form of comparing of a TQM approach with the quality system of this university. This means that there will be some investigations about how this institution work with quality, then findings will be compare with a specific approach to find the weaknesses and strengthens of the quality system of this university.

This evaluation and assessment in the form of benchmarking with a TQM approach will lead to highlighting the general principles of TQM. It will also motivate the question of how this approach can be use to improve the quality of an academic institution, which is the overall objective of this work.

In conclusion, the researchers are aimed to provide a complete documentation in the context of quality and a particular TQM approach, which will facilitate this university college to satisfy its stakeholders, including students, employees, management board, authorities, different national and international unions and agencies as well as achieving the university’s visions and strategic goals.

1.4 Delimitations
The main limitation for this project was about finding some relevant documents regarding the quality work of the university college of Borås, since founded documents were published in Swedish. In fact, finding relevant English documents was the main concern for researchers.

However, a translator was appointed to assist the researchers in this context, due to some limitations for her; she could not continue until the end of the work. Therefore, the authors have to be restricted to the available data and interviews in order to show the already existing quality system in this university.

Moreover, considering time/credit frame of this thesis work, there was an agreement for the number of interviews for this work.
1.5 Thesis structure

This thesis work will cover following chapters respectively:

Chapter 1: Introduction. This chapter will start with some backgrounds about the work. It will continue by introducing research area, and continuously will explain the purpose of the thesis. Finally, it will describe delimitations and thesis structure.

Chapter 2: Theoretical Frame of References. In this chapter the start point is about some basic definitions. Then it will continue by introducing a TQM approach and description of its consisting components, and eventually a model will be developed for the implementation of this particular approach.

Chapter 3: Methods. The start point of this chapter is about description of the research method. Then there will be some discussion about whether this investigation is qualitative or quantitative. This chapter will continue by some discussions about the reliability and validity of this work. Finally, data collection and information gathering of this work will be clarified.

Chapter 4: University College of Borås. This chapter will start by an introduction to the UCB, and it will continue by reviewing the quality system of this university college and the way they work will be discussed afterward. Then the result of investigation done by researchers will be described.

Chapter 5: Analysis and discussion. This chapter will begin by analyzing the result of investigation discussed in previous chapter. Accordingly, findings will be summarized, and problems found as a result of investigation will be clarified. In the next part of this chapter, recommendations and suggestions for improvement will be described. This part is based on what it has been discussed in theoretical frame of reference and analysis of findings.

Chapter 6: Conclusion. This chapter will be consisting of conclusion of the whole work. Hereby, the whole work will be reviewed precisely and the final conclusion will be described at the end.
2. Theoretical Frame of Reference

In this chapter, the theoretical frame of reference is discussed. Defining some basic concepts such as Quality, Total Quality Management will cover the frame of this chapter. However, these notions should be clarified in the context of higher education, which is mainly in focus in this work. Therefore, providing a comprehensive understanding of all named concepts in the context of higher education will be the issues under discussion in this chapter as well as some other terms.

In addition, after defining a specific TQM approach a model for implementation of TQM will be discussed.

2.1 Quality

The starting point for this work will be surely the definition of the quality and accordingly its definition in higher education. In the context of quality, there are abundant definitions; however, still some gurus are looking for a unique definition, which can cover different perspectives. Some of these definitions are as follow:

- “The degree to which a set of inherent characteristics fulfills the requirements, needs or expectations that are stated, generally implied or obligatory” (ISO 9000:2000).
- “The lack of quality is the losses a product imparts to the society from the time the product is shipped” (Genichi Taguchi).
- “Quality should be aimed at the needs of the customer, present and future” (Edwards Deming).
- “Fitness for use” (Joseph Juran).

Mikel Harry from Six-Sigma Academy defines:”quality is a state in which value entitlement is realized for the customer and provider in every aspect of the business relationship”.

In addition to these definitions, Bergman and Klefsjö (2003) have defined quality as:”The quality of a product is its ability to satisfy, or preferably exceed, the needs and expectations of the customer”. Each of these definitions comes from different perspectives and emphasizes on
different issues. For instance, Crosby has defined quality as “conformance to requirements” that has a producer perspective, and Deming’s and Juran’s definitions have a user-based perspective.

Although, almost all of these definitions are used for manufacturing products and services, since no one has yet satisfactorily defined or measured quality, the marketing of quality remains problematic (ibid).

Nevertheless, here the definition of quality may be differing from those described above, since we have a higher education perspective to the concept of quality. In section 2.2, there will be some discussions about quality in higher education.

2.1.1 Quality Dimensions

It is worth here to describe the dimensions of the quality, briefly, and to some extent to distinguish the quality dimension in higher education. In fact, many offering contain both hardware component and a service component, while quality dimensions of goods and services have been developed separately. There are some of quality dimensions for goods:

- Reliability, in the context of the quality, refers to the occurrences of a problem for a specific product and the probability of which that problem may occur.
- Performance refers to the important criteria of product for the customer such as useful life, and speed.
- Maintainability, that points out how difficult or easy it is to recognize, concentrate, delimit, and solve a problem.
- Environmental Impact is a measure of the influences of a product on environment. Emissions of a product and its recyclability are important in this dimension.
- Appearance, which relates to aesthetic appeal and aspects created at design time such as color and shape.
- Flawlessness, which means that the goods are not destroyed by errors and defects at the time of purchase.
• Safety that means the good does not have any damage to person or property and take in place some protective actions against destructions.
• Durability is mostly concerned about the usage, storage, transportation of that product without being destroyed or being failed.

In addition, there are some of the quality dimensions for services:

• Reliability in the context of quality dimension for services means the fitness to operation, which is including the accuracy of information and procedures and commitment to what you have pledged.
• The main concern of credibility is the capability of relying on suppliers.
• Access is related to facilities for making contact with the suppliers and availability of suppliers.
• Communication points out to be in touch with the customer in an explicable manner.
• Responsiveness refers to being interested in assisting the customer.
• Courtesy refers to the fact that how suppliers behave to their customers.
• Empathy, insists on understanding the customer’s condition.
• Tangibles refer to the appearance of equipment and physical environment of service execution.

However, clarifying a list of quality dimensions can help us in product planning. Each product and service must meet its own special customer needs and expectations. The most important aspect is to consider that the importance of different dimensions may vary with the product.

Nevertheless, the quality dimension, which is taken into consideration in higher education, is the service quality. In fact, in the context of quality of higher education we must keep in mind that students are not the products and the education is the product, and the quality of services, which HEIs provide for their students to improve their knowledge and education, are playing the vital role in higher education, Bergman and Klefsjö (2003).
2.1.2 Quality and Success

In this section, the discussion will be how the quality can causes success in every business or organizations tasks. According to Bergman and Klefsjö (2003), quality will bring many profits to every organization or business which some of them will be discussed here.

First, good quality will increase customer satisfaction and customer loyalty. Moreover, it causes cost reduction due to waste and rework and leads to higher productivity.

Furthermore, another objective of the quality work is to increase the productivity, and in higher education, productivity will have significant effect on their ability to offer more services, since the amount of financial support coming from governments is going to decrease. Therefore, in today’s higher education market, it is very important for HEIs to have productivity, and they must have plan for reducing different kind of waste and reworks and as a result reducing the cost of education.

In addition, improved quality increases the level of success and prosperity in an organization. This success can be appeared as being in a stronger market position, making the lead times shorter. Besides, employee turnover and sick leave rates will decrease and the organization will have the ability to provide more job opportunities for people and more opportunities for capital release.

Finally, improved quality leads to improved profitability and the higher ability in attending competition, while poor internal quality leads to different problems in production, longer lead-time and at last customer dissatisfaction. When customers are dissatisfied, profitability decreases. High internal quality is a necessity for Just in Time, Bergman and Klefsjö (2003).

2.2 Quality of Higher Education

In fact, main concern in this work is about definition of quality of higher education that has proved to be even more difficult rather than manufacturing products and services. There is no doubt about the point that quality plays an important role in today’s higher education, Owlia and Aspinwall (1997, pp. 527-543). Feigenbaum (1994, pp. 83-4) believes that in “invisible”
competition between countries the quality of education is the main and important factor, and this is because quality of products and services is defined by the action, decision-making, and thoughts of managers, engineers, workers, and teachers in the quality work. Like other businesses, in today’s market, education and in particular higher education has entered to commercial competition, which is due to economical forces, Seymour (1992).

Freeman believes that this competition is firstly because of the improvement of the global education market, and secondly is due to the reduction of the governmental funds that encourage organizations to look for some other financial sources, Freeman (1993). Therefore, identifying what does the quality mean in higher education as the first phase of quality work seems to be essential. However, still there is no one unique definition about the quality of higher education, there are plenty of these explanations that in somehow have industry perspective.

Furthermore, Cheng and Tam (1997, p. 23) suggest, “Education quality is a rather vague and controversial concept” and Pounder (1999, p. 156) argues that quality is a “notoriously ambiguous term”. Nevertheless, some other gurus in the context of quality in higher education prefer to correct those definitions coming from industry and use the revised version of definition of quality in higher education.

For instance Campell and Rozsnayi (2002, pp. 19–20), have defined the concept of quality of higher education in several ways related to industry:

- **Quality as excellence**: this definition is considered to be the traditional academic view that holds as its goal to be the best.
- **Quality as zero errors**: this is defined most easily in mass industry in which product specifications can be established in detail, and standardized measurements of uniform products can show conformity to them. As the products of higher education, the graduates, are not expected to be identical, this view is not always considered to be applicable in higher education.
- **Quality as fitness for purposes**: this approach requires that the product or service has conformity with customer needs, requirements, or desires.
• **Quality as transformation:** this concept focuses firmly on the learners: the better the higher education institution, the more it achieves the goal of empowering students with specific skills, knowledge and attitudes that enable them to live and work in the knowledge society.

• **Quality as threshold:** defining a threshold for quality means to set certain norms and criteria. Any institution that reaches these norms and criteria is deemed to be of quality.

• **Quality as value for money:** The notion of accountability is central to this definition of quality with accountability being based on the need for restraint in public expenditure.

• **Quality as enhancement or improvement:** This concept emphasizes the pursuit of continuous improvement and is predicated on the notion that achieving quality is central to the academic ethos and that it is academics themselves who know best what quality is at any point in time.

Despite of these different definitions on quality of education, quality of output and reputation in academic research are most likely to be valued in HEIs. However, quality systems adapted from business and industry operations need to be reoriented, and reinstalled for higher education conditions to turn the focus from the management-based to the education-based practices, according to Mizikaci (2006 pp. 37-53).

In this circumstance, Tribus (1994, pp. 37-40) believes that we must keep in mind some differences between education and businesses, which some of them are as follows:

• The school is not a factory.
• The student is not a "product".
• The education of the student is the product.
• Successful completion of the product requires the student to participate as a worker, co-managing the learning process.

According to Kwan (1996, 25–35), the differences between education and industry are in four ways, objectives, processes, input and outputs. For industries, the measure in which they use as
an indicator of the effectiveness of organization is the profit, while the objectives in education are not simple.

In fact, the objectives of every higher education institution should cover the answer to this question precisely, that what should a good education provide for learners? Tribus (1994, pp. 37-40) believes that the objectives of every school, or university, should be to give each student, opportunities to improve in knowledge, know how, wisdom, and character.

The first concept enables students to understand, and the second one facilitates them to do, accordingly the third one enables students to set priorities, and finally the character provides the possibility for them to cooperate, to persevere and to become respected and trusted members of society.

2.2.1 Customer of Higher Education

However, it is important to identify the customer of higher education; on the other hand many higher education institutions think that it’s really big challenge to do so, Lawrence and Robert (1997, pp. 279-91). According to Owlia and Aspinwall, (1998, pp. 501-18), “From different customers of higher education, students were given the highest rank. The remainders, in rank order, were employers, society, faculty, and families”. The philosophy behind ranking was that since needs/expectations of different groups of customers may differ or even oppose each other, giving a priority to them is essential.

Michael and Sower (1997, pp. 104-120) claim that no university or college wants to have a specific definition of customer in higher education, while they see it even worse to define students as customer of higher education. This point serves a sticky problem for administrators and HEIs. Most faculties do not agree with the point to define students as customer of education, since it refers to assumption that “customer is always right”.

Michael and Sower (ibid) believe that quality of education does not mean necessarily to give students whatever they want. In fact, their point of view comes from the point that students are mostly engage with short-term satisfaction and students are just concern about passes the classes and graduates, which is in the contrast of real learning and long-term purposes of education.
According to Venkatraman (2007 pp. 92-112), customer in higher education must be regarded as stakeholders, which in this case we take into consideration both internal stakeholders like employees and external stakeholders such as students and society.

### 2.3 Total Quality Management

However, defining the concept of quality is considered as an initial objective for HEIs, but it seems that concentrations are mostly in achieving this objective, rather than to focus for finding specific definition. Therefore, this question will come to mind, how can we gain the quality of higher education?

Over the past few decades, the quality gurus Crosby (1979), Deming (1986), Feigenbaum (1983), Juran (1986) and others have developed and advocated certain instruction in the area of quality management. Their approaches into quality management provide a good understanding of quality management principles.

However, quality issues are considered as a basic part of the activities of an increasing number of private as well as public companies, organizations and institutions. Based on this thought, one philosophy has emerged in the concepts of quality and management called Total Quality Management, (TQM).

There are different opinions about TQM, some people see it as an absolute mean to reach competitiveness and some others see it as a management vogue, however there are some reasons for these differences in perspectives, Becker (1993, pp. 32-3), Ghabadian and Gallear (1996, pp. 83-106). Hellsten and Klefsjö (2000, pp. 238-44) believe that these different ideas have formed because the gurus who are seen as fathers of TQM, do not like the concept.

Beside there are different names for almost the same idea, and finally there are many vague descriptions and few definitions of what TQM really is, this reason is the most severe one. In the other word, they definitely believe that there are many descriptions of the total quality management notion in literature, but few definitions.
Therefore, defining of what TQM really is does seem to be a tough job by itself. For instance, Okland (1989) says TQM is “an approach to improving the effectiveness and flexibility of business as a whole”, and some other definitions in this context are:

- A set with improvement tools useful in an organization
- TQM is a management philosophy
- TQM is a program for changes based on a company’s culture
- TQM is a management system

Recently, one definition has been introduced in this context from Hellsten and Klefsjö (2000, pp. 238-44). They see TQM as a management system, which is consisting of three interdependent components: values, methodologies, and tools and the aim is to increase internal and external customers’ satisfaction with a reduce amount of resources. Since, in this work, we have management system view and this work will be based on this approach, this view of TQM will be discussed in the next section in more detail.

Nevertheless, the origins of TQM in business and industry, and its successful implementation in most cases as a universal remedy have jointed to bind its acceptability to HEIs, and many articles have been written on the subject. In fact, there are many advantages that product-oriented businesses and service oriented organizations like HEIs both can rely on to pursue Total Quality Management program, Ramona and Sower (1997, pp. 104-120).

However, for introducing a TQM approach in an organization or institution we prefer to classify it in two phases. The first phase can be defining of what TQM really is, and the second phase is about the implementation of this approach. In fact, without having a comprehensive understanding of the whole concept its implementation is not recommended, and it will cause failures. Therefore, in the following sections, the researchers will try to define the concept of TQM thoroughly from a specific perspective, and then a model for its implementation will be described.
2.3.1 Management System View of TQM

In this section, most effort is to define the concept of TQM from a specific perspective and its related terms, and the aim is to provide a comprehensive understanding of this concept. Hellsten and Klefsjö (2000, pp. 238-44) believe that despite of many efforts for defining TQM, the absence of a clear definition is still obvious. In paper titled “TQM as a management system consisting of values, techniques and tools”, they have discussed that the concept of quality has mostly clarified as some form of “management philosophy”.

This management philosophy is based on a number of core values, which differ between authors and can change time to time, see Cameron and Sine (1999, pp. 7-25). Some of the most common ones of these core values are customer focus, continuous improvement, process orientation, everybody’s commitment and so on.

However, what they call here as core values almost named principles, dimensions, elements or cornerstones of TQM in literature. They believe that this term will emphasize that statements found for core values should work together to form the culture of the organization, which also means that they are basic notions. Hellsten (1997), and Cameron and Sine (1999, pp. 7-25) have presented a more detailed discussion about core values connected to organizational cultures and TQM.

Although, often TQM has been exemplified by quality award’s models such as Malcolm Baldrige National Quality Award in the USA (NIST, 1999) or the European Quality Award established by the European Foundation for Quality Management (EFQM), the relation between these concepts is considered as being diffuse by Hellsten and Klefsjö (2000, pp. 238-44). They also believe that these award models and their criteria have had more effects on the implementation of TQM than the academic articles.

However, the number of core values differs between authors and quality award’s models, see table 1, Hellsten and Klefsjö (ibid). In one literature study Hellsten (1997) has shown that in most descriptions of TQM there are some common values such as focus on customers, management commitment, everybody’s commitment, focus on processes, continuous improvements, and fact-based decisions.
For instance, Bergman and Klefsjö (1994) have defined some core values close to these values, where they have called them “the cornerstones of TQM”.

Based on these facts, Hellsten and Klefsjö (2000, pp. 238-44) have defined TQM as something much more than core values, and to them it is a management system. A system in the sense of Deming, “A network of interdependent components that work together to try to accomplish the aim of the system”, Deming (1994, p.50), which one of the components is core values. Two other components are methodologies and tools that support the core values.

In fact, definition provided by Hellsten and Klefsjö emphasizes that the concept of TQM, as a whole thought, is a combination of values, methodologies and tools, where they have jointed to accomplish higher customer satisfaction with less resources consumption, see figure 1. This whole concept can be taken to mean as a management system.

Their interpretation from this system view is that techniques and tools support the values and together they form a whole. They strongly believe that this definition provides a comprehensive understanding of what TQM really is and assists organizations and institutions to implement it successfully.

Moreover, since some organizations only select parts of the system, while there is no attention to how the values are supported and whether it is fitted to the culture, they have represented that

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<th>Malcolm Baldrige National Quality Award</th>
<th>European Quality Award</th>
<th>The Swedish Quality Award</th>
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<td>Customer-driven quality</td>
<td>Results orientation</td>
<td>Customer orientation</td>
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<td>Leadership</td>
<td>Customer focus</td>
<td>Committed leadership</td>
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<td>Continuous improvement and learning</td>
<td>Leadership and consistency of purpose</td>
<td>Participation by everyone</td>
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<td>Valuing employees</td>
<td>Management by processes and facts</td>
<td>Competence development</td>
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<td>Fast response</td>
<td>People development and involvement</td>
<td>Long range perspective</td>
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<td>Design quality and prevention</td>
<td>Partnership development</td>
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<td>Long-range view of the future</td>
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Table 1. Core values defined by different agencies
this system view will decrease the risk of those selections. However, they have recommended that the work of implementation should be done in specific order and steps by steps, for superior outcomes.

In the following parts, there will be more detailed discussions about some core values, methodologies and tools, which have been described above. In fact, among the existing core values, methodologies and tools the most important ones from authors’ perspective and those that authors think that might be applicable in higher education will be elaborated here. However, there is a need for further research in this context and there should be more investigations about how the chosen values, methodologies and tools can be employed in higher education sector.

Figure 1. Components of Management System View of TQM
2.3.1.1 The Core Values of TQM

As we know, quality issues are considered as an integral and common part between private and public companies and organizations. TQM is “a constant endeavor to fulfill and preferably exceed customer needs and expectations by making the costs lower, continues improvement, focusing on the processes, involving and committing everyone in an organization”, Bergman and Klefsjo (2003).

In implementing the TQM in an organization or manufacturing company, leadership is the main issue. The top management must consider the goals of the company, those actions that must take in place, quality financially, and resources (such as management resources) that are necessary for achieving the vision of the company, in all aspects of quality. Hence, for improving the quality of an organization, commitment and knowledge of the leadership is the first step. After that, a culture must be existed based on some core values, which are:

- Customer focus
- Decisions based on facts
- Process focus
- Continuous improvement
- Commitment of everybody

Figure 2. Display of Core values in Total Quality Management
These core values are interrelated, and effective and appropriate methodologies and tools must support them.

**Customer Focus** means that organization must know what customer requires exactly, and try to fulfill customer needs and expectations by producing the right product and service. Both external and internal customers must be satisfied with the organization. Although in total quality management the strong focus is on external customers, the satisfaction of internal customers who are employees of the company must not be forgotten. In quality, progression satisfaction of employees is essential because in this case they do their job better and feel happy and motivated with their performance.

**Decisions Based on Facts** is about how an organizations’ top management make their final decisions, and are these decisions based on relevant facts. For instance, in a university for developing a program, there must be sufficient knowledge about both student needs and society needs. Therefore, the need for a systematic data collection about the needs, requirements, reactions, and opinions of the customer and society is unavoidable.

In fact, for quality improvement and variation reduction we need to collect, structure, and analyze relevant numerical data and verbal information, hereby it does seem very important to use different quality control tools such as Pareto Diagram, Control Chart, and Histogram and Management Tools such as Affinity Diagram, Interrelationship Diagraph, and Process Decision Program Chart.

**Process** in an organization is “a set of interrelated activities which are repeated over time”. Within every process, there are some well-defined inputs such as information and material and they will transform into outputs in the forms of goods and services for customers by allocating minimized resources. Consideration of the process suppliers is another necessary performance to make optimal results in processes, which are satisfying customers. Three kinds of processes are available:

- Main processes are focusing on fulfilling the requirements of external customers by developing the product, production, and distribution.
- Support processes are focusing on providing resources for main processes and satisfying internal customers like recruitment and information processes.
• Management processes are focusing on making decisions through organizational targets and improving aspects in other processes.

**Continuous Improvement** in quality of products and services of the organization is necessary because, the demands of external customers of an organization increase during the time. Furthermore, there are always some technological promotions as well as running new business activities, therefore organizations and businesses should all improve the quality of their products and services continuously.

Moreover, for attending in completion and being survived, a company must improve the quality of its products continuously. Continuous improvement emphasizes on improving products, processes, and methodologies while consumption of resources are minimized and fewer budgets are allocated to achieve higher quality.

In order to have a success in quality issues it is necessary to provide a situation that brings up participation of all parties due to customer satisfaction with a continuous quality improvement. On the other words, the commitment of everybody in organization should be more in focused.

Therefore, all the employees in a company must feel committed and responsible for doing the job in a good manner. For improving quality, it is a positive point to care of participation of all involved people and make them satisfied with their job condition.

Designation of responsibility and authority must be effectively in focused, in order to achieve the participation and commitment of all interested parties. In this context, we need to change vicious circles into good ones, see figure 3, Bergman and Klefsjö (2003). Currently, providing more job opportunities is not just the main concern, and creating meaningful and goal oriented tasks within great responsibility is desired.

High quality achievement due to job satisfaction not only is an important target but also is a vital means, indeed. To sum up, in the quality work, the participation of everybody is important and this includes everyone within the company and all suppliers of material and components. This means that instead of having the suppliers, which offer lower price, in today’s business, they
preferably select to institute their connection with small number of suppliers; this will assist them to increase commitment, responsibility and quality awareness.

![Diagram of A Vicious Circle and A Good Circle](image)

Figure 3. A vicious circle and a good circle, linked to effect of delegating responsibility and authority.

### 2.3.1.2 The Methodologies of TQM

**Quality Function Deployment**

In fact, the main goal for increasing quality of a product is fulfilling customer’s needs and expectations and attracting more customers. By focusing on customer’s needs and different competitors, quality function deployment was introduced by Shigeru Mizuno and Akao during the late 1960s.

Quality Function Deployment (QFD) is a methodology that steadily identifies customer needs and expectations on service specifications and design parameter and transfers these needs to service characteristics and additional to the service process. Moreover, it is an efficient methodology for communication and participation. In this case, it needs group members to work
together in order to achieve a fundamental basis for continuous and integrated service improvement.

To achieve and implement QFD, we have to follow four steps. First is doing a market analysis in order to understand customer requirements and expectations. Second is identifying and at the same time estimating the same time the competitors’ ability to fulfill customers’ expectations.

Third is recognizing key success factors of organization’s product on the market. Finally, the fourth step is transferring these key factors in to product and process characteristics in relationship with design, improvement, and manufacture. The objective of QFD is to interpret the expectations of customers into product and process specifications by continuously permitting the wants be replicated at every level of product improvement process.

In fact, the four phases of QFD are product planning, product design, process design, and production design. In product planning phase, the needs of customers are transmitted to product’s characteristics. Product design points out the optimal way of design, which exceeds the objective ideals. In the phase of process design, the attributes of production functions and procedures for process control and development are recognized. Production design refers to designation of production instructions.

Another important concept in Quality Function Deployment is that in order to get successful in business objectives, satisfaction of both internal and external customers is necessary. For instance, in an organization or company for product development, fulfilling the wishes of internal engineers, manufacturing workers, suppliers, business stakeholders, and end customers is vital.

Nevertheless, QFD in higher education institutions aims at satisfying all stakeholders’ needs. Since external stakeholders of a higher education institution are first students, presenting high quality of training attracts more students and at last causes prosperity for that institution.

However, this methodology in higher education emphasizes on satisfaction of internal customers such as professors, workers in different departments of for instance a university, and client customer which is society, Bo Bergman, Bengt Klefsjö (2003).
**Policy Deployment**

Another concept which is applied in organizations and introduced in Japan is Policy Deployment. As a matter of fact, policy deployment includes systematic planning, utilizing, and observing management systems for improving organization presentation. Policy Deployment works on strategic objectives and daily control of the business to manage continuous improvement and reach business results. Akao (1991), figure 4, has established a general policy deployment movement.

![Figure 4. A general Policy Deployment movement by Akao](image)

Besides, policy deployment combines planning and implementation in a company in an efficient way. Many organizations use management by control strategy. Management by control considers problem solving rather than planning. Problem solving is necessary for short-term endurance, but it is not enough for long term development.

Long-term improvement needs systematic management processes for scheduling, organizing, and performance monitoring indeed. Management by control focuses on problem solving,
opinions and sense, while policy deployment focuses on planning, deploying facts and data, and complete communication.

Moreover, policy deployment emphasizes on teams and learning, whereas management by control considers individual work and training. Therefore, Policy Deployment is more efficient than management by control in most of the organizations.

To sum up, organizational learning, which is vital for competitive advantage, is prospered by using both Quality Function Deployment and Policy Deployment. Quality Function Deployment gains information on external customer needs and the processes and capability of the organization by customer research, investigation, and planning.

Policy Deployment provides the systematic feedback processes essential to continue learning until it becomes time to duplicate the Quality Function Process, depending on the forceful of the industry. Sometimes, policy Deployment maybe introduced without a strategic planning. Quality Function Deployment or other strategic planning must have a controlled process for employment and management commitment in order to be useful, Bergman and Klefsjö (2003).

In higher education institutions, like other organizations implementation of Policy Deployment and QFD complete and speed up reaching the goals. Hence, implementation of both Quality Function Deployment and Policy Deployment in higher education institutions is complementary.

**Process Management**

Originally, process comes from “processes and procedure” which means advancement and move ahead. Process is a network of activities with a recognized beginning and end, using the resources of an organization, with a purpose of creating value for internal and external customers repeatedly. Each process has got characteristics.

Moreover, it has got supplier and customer. An organization is formed by different kinds of processes: individual process done by individuals, vertical processes related to a department or unit, and core processes that cut through the company across several functions or departments.

In all organizations, we have main processes, which have the duty of fulfilling external customer, support processes, whose task is providing resources for main processes, and management
processes whose task is to make decisions on the goals and strategies and implement development in other organizational process.

There are several steps for process management methodology. The first step is organizing for improvement. This step considers the process owner and a team who work for process improvement. Second step is understanding the process which shows the customers, suppliers, work flow, and interfaces of a process. In this stage, mapping the process is efficient, because in this case different activities are identified.

The third step is observing the process that emphasizes on control and measurements of the process. Fourth step is continuous improvement of the process by applying feedback from measurements.

As a matter of fact, for efficient improvement, three aspects of processes must be continuously developed. These three aspects are quality, efficiency, and adaptability. Quality of process clearly refers to the process qualifications in fulfilling customers. Process efficiency points out to the efficient utilization of resources in organizations, and adaptability considers adaptation of process with changes.

Important roles in process management are process owner, process manager, and competence supplier. Process owner is responsible for process resources. Process manager is responsible for operation of the process in the case of quick decision making in critical time. In fact, process manager assists process owner. Competence suppliers provide the processes with competence, Bergman and Klefsjö (2003).

**Benchmarking**

Generally, benchmarking is introduced an effective methodologies for continuous improvement of quality. Benchmarking was understood to be the act of imitating, but it refers to innovation and learning from the others more than imitation, Dattakumar and Jagadeesh (2003 pp. 176-209).

Benchmarking is a process for self-evaluation and self-improvement through the organized and mutual comparison of practice and performance with competitors in order to identify own strength and weaknesses, and learn how to improve and adapt with changes, Camp (1993, pp.
A lot of businesses and institutions apply benchmarking; hereby they have been using this as an important method for improvement.

For instance, benchmarking was applied in higher education in North America and England in the early 1990s. The method was applied to the management of services like library, facilitates, estates, energy and treasury, but the useful technique applied by the other education institution rapidly. In higher education institutions, benchmarking is used to compare the performance of universities with their international competitors and learn from them, Dattakumar and Jagadeesh (ibid).

**Deming Cycle**

Dr. Deming that is one of the famous gurus in the context of quality drew the diagram shown below on the blackboard during his first meeting with the Japanese union of scientists and engineers.

![Deming Cycle](image)

Although, this diagram is known as the Deming Cycle, he called it Shewhart Cycle. This diagram graphically describes the action steps that we use every day to manage our lives and our businesses, and is considered as a methodology in the frame of TQM references. Nowadays this cycle is almost an active part of the quality work in every organization and institution. This diagram shows there are four steps in order to complete one action that according to Brassard (1996), each of these steps are defined as follows:
- We **PLAN** what we want to accomplish over a period of time and what we are going to do to get there.
- We **DO** something that furthers the goals and strategies developed in number one (Plan).
- We **CHECK** the results of our actions to make sure there is a close fit between what we hoped to accomplish and what was actually achieved.
- We **ACT** by making changes that are needed to more closely achieve the initial goals or by developing procedures to ensure continuance of those plans that were successful.

In fact, this cycle emphasizes the importance of continuous improvement in every action and clearly reveals that which step or steps might went wrong in every action.

### 2.3.1.3 The Tools of TQM

#### Seven Management and Planning tools

The seven management and planning tools help managers in planning the process and project effectively and efficiently. As a matter of fact, seven management and planning tools are not new. They were used in post- World War 2 operation research work and also Japanese leaders have used these tools, figure 5, Bo Bergman, Bengt Klefsjö (2003).

![Seven Management and Planning Tools](image)

Figure 5. Seven Management and Planning Tools.

In fact, the seven management and planning tools complete each other. In this case, the output of one tool is the input for another tool. In fact, we use a combination of seven management and
planning tools. This incorporated approach will help each manager to save time by planning effectively. Useful planning can avoid expensive and time consuming rework when a weakly and unsuitable planned implementation fails, Brassard (1996).

These seven management and planning tools are:

- Affinity diagram/KJ method (Jiro Kawakita method)
- Interrelationship digraph
- Tree diagram
- Prioritization matrices
- Matrix diagram
- Process decision program chart (PDPC)
- Activity network diagram

Some of these tools will be described in more detail.

**Affinity Diagram:** this tool collects bulky amounts of language data such as opinions, issues, and ideas and classifies them into groupings based on natural relationship between each item. It is a creative rather than a logical process, see figure 6. The main base for affinity diagram is brainstorming. It is used when we want to ignore old solution for problem solving and we want to know how the others think about the problem, Brassard (1996).
**Interrelationship Digraph:** this tool puts a central idea or problem and works out the reasonable or chronological links between related items. It is also a creative process and based on brainstorming. Multidirectional thinking is used in this tool. It is used when the problem is too complex and it is thought to be the root cause for many other problems. Besides, it is used when there is enough time to complete the repeated work pieces including making interrelationship digraph, adjusting, and evaluating it again, Brassard (1996).

**Tree Diagram:** this tool maps out in increasing detail the full range of paths and tasks that needed to be accomplished in order to achieve a primary goal and every related sub goal. It is used when the implementation is complex or there are serious consequences for missing main tasks, see figure 7.

![Figure 7. An example of Tree Diagram](image)

**Prioritization Matrices:** this tool prioritize tasks, product, or service characteristics by using a known weighted criteria and a combination of tree and matrix diagram. The main usage of this tool is when decision making is important for the survival of organization. It is used when the options have got strong interrelationships, see figure 8, Micheal Brassard (1996).
Besides, it is applied when limited resources such as money, manpower, and time are available for implementation. In the case of using tools, the first steps is designing a criteria matrix, and compare relative importance of each criterion with other criterion and score based on the comparisons. After that, the criteria in the company will be compared with each other using the designed criteria matrix.

Seven Quality Control Tools

In fact, for improvement in every aspects of work in an organization, we need data and after data collection, data analysis. Besides, participation of everyone is necessary in improvement work. Therefore, DR Kaoru Ishikawa introduces the seven quality control tools for quality improvement. These tools are data collection, pareto charts, stratification, control charts,
histograms, cause and effect diagrams, and scatter plots. Sometimes, flow charts are introduced as the eighth tool, see figure 9, Bergman and Klefsjö (2003). There will be more description about some of these tools, which the authors think may be applicable in HEIs, in the following parts.

![Figure 9. Seven Quality Control Tools.](image)

**Data collection**

It is necessary to collect related data and be aware of the aim of data collection. In this case asking and answering two questions will guide the procedure of the work. First question is about the problem related to quality, and second is about the facts that are related to illumination of the problem. The main point in data collection is gathering useful, efficient, and related data to quality problems, as long as collecting unrelated data is nonsense, Bergman and Klefsjö (2003).

**Histograms**

In the case of having large amount of data, we must divide the measurement axis into different parts, and let the number of values in each class be represented by a rectangle. The area of this rectangle is made proportional to the fraction of observations in class, see figure 10, Owlia and Aspinwall (1996, pp. 161-71). In this way the sum of the areas of all these rectangles is equal to unity. By using the histogram, we can depict how a product or process characteristics change, Bergman and Klefsjö (2003).
Figure 10. An example of Histogram.

Pareto charts

The Pareto charts are used when we want to decide in which order problems must be solved. In fact, pareto chart makes serious problems visible. When the most serious problem is solved, we can go to the next problem, see figure 11, Bergman and Klefsjö (2003).

Figure 11. An example of Pareto Chart

Cause and effect diagrams

Cause and effect diagram, which is also, called Fishbone diagram and Ishikawa diagram focuses on finding the root causes of quality problem. Cause and effect diagram was introduced by Dr Kaoru Ishikawa in 1943 in Japan.
The construction of Fishbone diagram is like a fault three. In the case of using cause and effect diagram, first we consider and explain main causes of the problem. Then, we break each cause and describe it in to more details, see figure 12.

An efficient cause and effect diagram must have many bones. As a matter of fact, quality problem is usually caused because of lack of correct management, not experienced operator, usage of inappropriate tools. Moreover, machine and material problems, not accurate measurement devices, and environmental effects on the final products are main reasons for quality problems, Bergman and Klefsjö (2003).

**Important Notes in Application of Quality Control tools and Methodologies**

According to Bunney and Dale (1997, pp. 183–189) for using and applying Quality Management Tools (quality control tools) and methodologies, the some notes must be taken into consideration by every organization to achieve good results, these some of notes are:

- Identifying stages of improvement, introducing appropriate QMTs for suitable function, considering available resource are important factors in AQMT.
• Recognition of the combination of appropriate tools for specific application, along with adequate training is essential for implementation of QMTs.

• To overcome difficulties regarding to the status improvement process, QMTs should be used to solve well-defined problems.

• Understanding of tools within well-suited group of people relating to their positions will cause QMT to become a part of daily activities within the organization.

• Providing adequate training to the right people at the right time, along with well-defined QMTs is vital for successful improvement process.

**ISO 9000**

In fact, ISO 9000:2000 is described as a quality management system to direct and control an organization with regard to quality. A quality system is a tool for controlling and improving the quality of the company’s products and processes. The system must be documented, because documentation of the system is a foundation for quality audit.

The international organization for standardization, which is responsible for ISO 9000, has different names in different countries. For instance, the term ANSI is used in USA, JISZ9000 in Japan, and BSEN ISO 9000 in Great Britain. ISO9001, ISO9002, and ISO9003 contained needs for quality systems in different contract situations.

These three groups of standards can be classified as requirements standards. ISO 9001 was the most comprehensive part; including ISO9000 family makes a distinction between the requirements for quality management systems and requirements for products.

**The ISO 9000:2000 standards:** the quality management system in ISO 9000 series is based on “eight quality management principles”. These eight principles are customer focus, leadership, involvement of people, process approach, system approach to management, continual improvement, factual approach to decision-making and mutually beneficial supplier relationships.

• **Customer focus:** in fact, main purpose of a company is satisfying customers with different needs. In this case, the organization can prosper and reach to its business goals.
- **Leadership:** leaders have vital role in conducting the organization through objectives.
- **Process approach:** Involvement of people: all the people in an organization must be involved in quality work. In this case, their ability and talents will be used effectively for gaining success and benefit in the organization.
- **Process approach:** in an organization, an ideal result will be achieved when all activities and resources managed as a process.
- **System approach to management:** in a system identifying, managing interrelated processes can help the organization to reach its goals in an effective way.
- **Continual improvement:** organizational continual improvement is an important principle in surviving the organization among competitors.
- **Factual approach to decision-making:** important decisions in the organization are made in the case of analyzing and interpreting related and useful data and information.
- **Mutually beneficial supplier relationships:** an organization and its suppliers are dependent and a relationship, which improves the benefit for both supplier and company, will lead to success in achieving company goals.

An organization should establish, document, maintain and continuously develop a quality management system according to the requirements in the standard.

Process identification, the sequence of these processes, process control, checking the availability of resources and information, and analyzing, measuring, and monitoring of the processes are special requirements for implementing a system according to standards. Also the standard is built on the four main areas. These areas are management responsibility, resource management, product realization and measurement, analysis and improvement.

**European Association for Quality Assurances in Higher Education**

During the last decade, ENQA (European Association for Quality Assurances in Higher Education) has been established in order to increase the European higher education institution’s co-operation to improve the quality assurances in higher education. It has accomplished its overall objectives in the following area:

- To promote the trade of information and experiences, especially on development methods and successful implementation stories.
• To promote and recommend standards, suggest new approaches and procedures for quality assurances in HEIs.
• To accomplish requirements for know-how from European Ministers of Education, national and regional public authorities and other bodies associated with the European Higher Education Area (EHEA).
• It will enhance the quality assurance activities in multinational level in higher education.
• It will increase the effectiveness of the peer-review systems, their promotion and development for quality assurances and accreditation agencies.
• It will provide and improve the cooperation of higher education institutions with other relevant European stakeholder organizations.
• It will corporate in the establishment of the EHEA.

However, ENQA has provided an opportunity to develop and construct an effective contribution for quality assurances in European institutions. In fact, this association was developed to advance the objectives of Bologna Process. They believe that quality assurances in higher education is not only the main concern by European institutions, and in the concept of quality and standards there is a widespread interest and thereby all institutions from all over the world are taking actions in this circumstances.

This worldwide concern about the quality and standards in HEIs is due to the rapid growth in the higher education market and the cost that it will serve to the both public and private sector. Consequently, ENQA believe that if the European institutions are willing to have the most dynamic and knowledge-based economy in the world (Lisbon Strategy), they will need to follow up the quality of its programs and awards more seriously and it will need more effort from those who pursue that vision.

Moreover, they have to situate the resources of assuring and signifying that quality. Altogether, due to internationalization both inside of the Europe and outside of it, some quick actions must be in place to the response of the initiatives and demands. They have mentioned that in order to achieve the objectives of ENQA and to develop the quality assurances of higher education in European countries, the commitment of all those involved in the establishing these proposals and guidelines is vital.
The proposals and guidelines, which have been established by ENQA, emphasize on a number of principles that have described in details, however some basic principles will saturate the whole principles. These fundamentals according to Standards and Guidelines for Quality Assurance in the European Higher Education Area are as follows:

- the interests of students as well as employers and the society more generally in good quality higher education;
- the central importance of institutional autonomy, tempered by a recognition that this brings with it heavy responsibilities;
- the need for external quality assurance to be fit for its purpose and to place only an appropriate and necessary burden on institutions for the achievement of its objectives.

The EHEA (including 40 states) has distinguished it’s multiplicity in political systems, higher education systems, socio-cultural and educational traditions, languages, aspirations and expectation. This provides a unit approach to quality, standards, and quality assurance in higher education inappropriate. The establishment of ENQA is focused preferably on the generic principle to the specific requirement, in both guidelines and standards.

However, they have demonstrated that this emphasize will be accepted in a broader context on its first illustration and it will also provide a more robust basis to bring up different higher education communities across the EHEA. Although, the generic principle will lead to the consequence that guidelines and standards are most likely focus on what should be done rather than how it should be accomplished.

Conversely, the ENQA has highlighted that achieving conformity for these guidelines and standards is not the same as accomplishing the Bologna objectives of a quality assurances dimension for the EHEA. The ENQAs’ work is mostly relying on the recommendations and their implementation to secure the quality culture among the HEIs and external quality assurances agencies, Guidelines for national reviews of ENQA member agencies (2006).

So forth we have tried to define the concept of TQM, and now the next step here is to provide a model of TQM. In our point of view, this model will clearly describe where an organization stands today in the context of quality, what they need to do, and how they shall work with TQM.
In fact, the proposed model is a combination of a TQM model defined by J. Motwani & A. Kumar (1997, pp.131–135), and Deming Cycle, which will be discussed in next section.

2.3.2 TQM Implementation in Higher Education

In previous section, the discussion was about defining of what TQM really is and its components, however there were several applicable and useful points that can be used by every institution in this definition to improve the their quality work. Now the second phase of a TQM approach i.e. implementation phase will be described. For the implementation of TQM a model will be presented in order to make the TQM applicable for every organization.

TQM Model for Higher Education

As we know, TQM has been used primarily in the industry but there are some reasons that TQM should be applied in educational institutions. First, necessitate for change do not be accepted by the institution most of the time. Second, is the hazard to the faculty’s individual autonomy therefore in TQM we need to have customer involvement and teamwork, Fisher (993, pp. 15-19). Finally, existing process will be improved by TQM. It cannot promote radical change Fisher (ibid); Marchese, (1993, pp. 10-13). When the applicability of TQM in education is accepted, the procedure of its process should be addressed.

In fact, many institutions have reviewed the applicability of TQM in higher education and there are some proposed models to prove its applicability. J. Motwani and A. Kumar (1997, pp.131–135) have suggested five step model that they believe is applicable to every institution. This model has five phases: deciding, preparing, starting, expanding and evaluating.

TQM model proposed by J. Motwani and A. Kumar (ibid) is well defined and is clearly describing what should be taken into consideration for TQM implementation. However, by looking at these phases and going back to the Deming cycle we will find similarities between them. To us the founded similarities means that we can put the phases defined by TQM model into Deming cycle, then the new created model will have more efficiency.
In fact, one may claim that Deming cycle is for continuous improvement and proposed TQM model is for improving the quality. Therefore, combination of this model and cycle with some changes will offer model for continuous improvement of the quality, even though TQM is about continuous improvement for quality by itself, see figure 13, next page. For this purpose, the phases defined by the TQM model will be set up in Deming cycle with some changes. The proposed model here will be a four-step cycle, which its components are as follow:

**Plan** step in Deming cycle is divided by two parts, first part is called Studying. This part is about doing a research of what TQM really is and top management should fully understand the concept, its objectives and they must accomplish their plan. The next part in plan step of this cycle is named preparing, and is about performing an internal assessment of the quality work and defining values, methodologies and tools. Furthermore, there must be some clearly defined objectives and visions.

**Do** step in Deming cycle is about starting and in another word plan and implement solutions. In this step, there must be some training to all levels about terms like Quality, TQM, Core Values, Methodologies and tools, and distribution of some customer surveys to both internal customers and external customers is desirable. Furthermore, Quality Council must be formulated and some quality improvement teams should be formed. Finally, some measures must be established and the university board should perform a benchmarking in order to recognize and reward improvements.

**Check** step in Deming cycle has been regarded as evaluation step. This step has to do with evaluation of the plan and do steps. Here, the most effort should be set up for checking the actions that we have done and making sure that we are in a right direction to achieve our objectives.

**Act** step in Deming cycle is divided by two parts. In the first part, if there were found some problems according to checking step, changes must be applied to the system. Accordingly, those solutions and actions done well should be standardized. This will prevent from un-willingness changes within the defined systems.
Figure 13. TQM model for implementation in higher education

- **A**: Research TQM
  - Top Management Support

- **P**: Prepare
  - Perform Internal Quality Assessment
  - Define Values, Methodologies, Tools
  - Set Visions and SMART Goals

- **D**: Start
  - Form Quality Improvement Teams
  - Formulate Quality Council
  - Establish Measure
  - Provide Education to Key Personnel

- **C**: Expand
  - Use Defined tools, Methodologies
  - Provide Training to all levels

- **B**: Evaluate
  - Evaluate the Application of Tools
  - Check the Methodologies
  - Check the whole Program
  - Identify the Problems
  - Prepare for Changes

- **7. Reflect**
  - Reflect on Problems
  - Make Changes
  - Gather Data for Next Decisions
  - Prepare for Continuous Improvement

- **6. Standardize**
  - Standardize and Establish
  - Well-Done Activities
3. Method

This chapter explains the method used in project for data collection and research. Moreover, in this chapter the authors will try to give a comprehensive view to those thoughts and conditions, which are necessary for result presentation. In fact, this chapter is a reference for scientific method necessities.

3.1 Research methods

The work directly depends on the author’s understanding towards the problem. How the authors see the problems related to quality goes back to the literature studies and data collected in interviews and meeting.

Research phase

The author’s opinion has got effects on the results of research. The researcher’s attitude based on old experiences and using literature studies has got effects on the result of research that she has done. This matter is called hermeneutic, Johansson-Lindfors (1993). Using both the research and theory improves the knowledge that applied in the project a lot. Therefore, using hermeneutic approach helps in organizing the project effectively. However, some effective methods can be used in doing a research such as induction, deduction and abduction, two most common ones will be clarified here and the authors will try to motivate the one they have used.

Induction and Deduction

Induction method refers to reaching from general to specific in research work. In fact, experiences play important role in summarization of inductive method. Using measurements and quantitative methods is common is induction. Induction starts with and unclear issue. Then a comprehensive view of the unclear matter will be created, Bengtsson (1995).

Deduction method points out reaching from general principles or theories to conclusions of each individual phenomenon, Patel and Davidsson (1994).

In fact, deduction means that the researcher moves toward from available literature and present problems to consequence results about specific event. In this case, one hypothesis inspection can
be done during the experimental studies. The main goal of deduction is analyzing quality of the company products and then comparing the analysis with the theory.

Given that, this research is in the form of case study, and in case studies the most common methodology is abduction, according to Alvesson and Sköldberg (1994), this methodology will be used for this thesis work. Therefore, the empirical application of TQM will be developed and the theory will be adjusted.

3.2 Qualitative Research

In research method, both qualitative and quantitative research is useful. In fact, election between qualitative and quantitative research depends on the quality and status of the problem.

The base of qualitative research is on study items and non-quantified data like thoughts and principles.

Generally, the focus would be on different ways of information collection in order to get a deeper understanding of the study items. Qualitative research emphasizes on interviews, meeting, and observation. In the case of using these approaches, a deep understanding about the matter will be gained, Marshall and Rossman (2006).

In fact, qualitative research trust and apply four methods to assemble and gather the data and information. These four methods are participation in location, direct observation, deep interview, and analysis of documents and material culture. These methods organize the necessary part of the investigation. Several secondary and special methods of data collection enhance them.

Four choosing the methods of research and applying effectively, we use Brantlinger’s useful explanation of seven parts of critical statements for qualitative inquiry. The first part refers to researcher’s views of the nature of research. The second part shows researcher’s location relative to participants. Third element is about the direction of researcher’s look.

The most important divisions are fourth and fifth parts which relate to the objectives of the research and main audience of study. The sixth part points out the researcher’s political location.
At last, seventh part refers to the view of the researcher about herself and the participants towards the exercise of organization. Assumptions made in these seven kinds outline how the special research methods are considered and executed during a study.

Quantitative research focuses on collecting a large number of data items that can be quantified. The quantitative research provides information that can be measurable and conclusions and results can be gained on the basis of these.

In the research and study working, using both qualitative and quantitative research methods may be applied. In fact, qualitative and quantitative methods complete each other in an effective way. Therefore, we have to use and analyze the results produced by both qualitative and quantitative methods in the work of investigation.

However, this work was mostly qualitative and the researchers rely on the existing documents and interviews with some chairs of committees and councils.

### 3.3 Reliability and validity

The meaning of validity is to design indirect questions and interpret the answers of respondent in the own view. In order to achieve high validity, interview questions must be planned so that they are in agreement with the survey’s aim and what is intended to be measured is measured and nothing more, Bell (1995).

Reliability explains how measurements methods resist against the unwanted effects. In most cases, reliability of interviews and questionnaires depends on personal status, comfort factors, and formulation factors, Bell (1995).

An effective way to reach high reliability in interview is choosing appropriate questions, enough time allocated to each question, and a comfortable environment. Besides, we must try to avoid of errors in making questionnaire, because these errors can decrease the reliability of questions in interview. Choosing accurate and understandable questions in information gathering phase helps us in increasing reliability and leads to gaining effective information and data related to usage, Bell (1995).
However, in this work the authors have tried to increase the validity and reliability of the work based on the following facts. The questions for interviews have designed in advance and the authors’ supervisor has checked them. In addition, these questions were given to the interviewees few days before the meeting to give enough time to them, and the selected interviewees were appointed in the top position, they were the chairs of different committees. In the meeting session, enough time has been assigned for each question. Finally, after interviews the researchers have collected the answers and provided answers were given back to the respondents for final approval of what it has been discussed.

3.4 Information Gathering

In the step of data and information collection, there are two groups of data known as primary and secondary data. Primary data is related to data that is gained by different techniques such as interviews and questionnaire distribution. The sources of secondary data are literature studies, newspaper, magazines, related articles, and internet.

Primary data

Primary information can be collected in three ways: observations, opinion investigation, and interviews, Dahström (1996). Using interviews and observation is more common than opinion investigation. Depending on the data needed, the questions in the interviews are different. For instance, for a statistical study the questions must be limited into few alternatives for answering. Qualitative surveys are suitable with open questions and consequence questions. In this case, designing a question for writing the own interpretation about each question can lead to better results.

Interview

Interview is the situation of asking question similar to communication among three types of operators: interviewer, interviewee and possible spectators.

In Depth interviewing
Qualitative researchers use and trust on deep interview more than the other methods of data collection.” Kahan and Cannell explain interviewing as “a conversation with a purpose”. A qualitative interview is characterized on its width instead of its depth. As a matter of fact, Interviewing differs in terms of a former construction and in the scope the interviewee has in answering to questions.

Interviews are divided into three groups according to “Patton”. These groups are the informal conversational interview, the general interview guide approach, and the standardized open-ended interview. Qualitative in depth interview are similar to conversation rather than formal procedures with recognized answers. In this case, the interviewer introduces some facts and common issues to reveal the participant’s views, but on the other hand respects how the participant structures the answers.

Moreover, systematization in asking questions must be considered when many interviewees are participated in the interview or the explanation and analysis of the results is critical for interviewer, Marshall and Rossman (2006).

Generally interviews produce large amount of data quickly when a lot of people take part in. The most important aspect of interviewer’s approach is considering the participant’s attitudes helpful and precious. Besides, the prosperity of interviewing depends on the interviewer’s role in moral issues, meaning her ability in effective communication and interaction.

Although interviews are effective and useful in gaining information and finding some facts, they have some limitations and weak points. For instance, maybe interviewee does not tend to answer all the questions asked by interviewer, or because of lack of profession or unfamiliarity with local language, interviewer made some mistakes in making questions and could not show her main object in questioning.

Interviewers must be skillful at listening and question designing. Large amount of data can be gathered by interviewing, but analyzing all of them takes a lot of time. Therefore, important issue is the quality and useful application of collected data.

However, due to lack of time for the interviewees the researchers could not answer to all of the questions, which some of those missed question were important to be asked.
Nevertheless, the researchers send back answer to the questions asked in the interview session to the respondents, in order to increase the reliability of their work. In fact, the respondents approved what was written by the interviewers.

In conclusion two sources of data has used in this work. From primary data, interview was used and from secondary data literature studies, the researchers used related articles, and internet.

3.5 Methods criticism

On the way of identifying aims and problems to reach solutions, results, and conclusions, there are a variety of stages in which occurrence of mistakes is not avoidable. However, it is possible to follow these types of errors and prevent them from happening in some cases, Lekvall and Walbin (1993).

Some types of errors are:

- Wrong aim: if the aim of project is not understood correctly and accurately, the works from the start point up to end will be nonsense.
- Wrong direction and contents: this problem is occurred when somebody does not concentrate on questions relevant with the goal. Moreover, this error will happen when denoting the survey information is incorrect.
- Inference errors: these types of errors increase when the sample of people for making survey or research is not chosen in a correct way.
- Measuring errors: these mistakes happen when utilized measurement methods have got influence on results. These errors happen when interviewee is not honest in answering questions or the kind of questions on environment are not appropriate.

In fact, all the interviews aimed at raising the validity and quality of work, and they are used as the foundation for more outcomes and investigations.

As long as interviewee must be able to express his opinions in a comfortable way, interviewing must be organized and executed in closed locals.
4. University College of Borås

This chapter is the empirical part of this project; where first there will be a brief review about higher education in Sweden and then an introduction of the University College of Borås. In order to find out the problems within the quality work of this university and then come up with an approach to the quality work, some suggestions and comments for further improvement, it is important to have a holistic view of this university.

This overview will be including the university history and foundation. Then there would be a summary to the visions and goals of the university. Then it’s time to go through the quality work of the university, and to give a picture and description of the quality work of this university. Finally, there will be the result of investigation done by the researchers, which in chapter five will be analyzed.

4.1 Higher Education in Sweden

In fact, at the beginning of the twentieth century a strong growth in higher vocational education was started. Statistics shows that a quick increase in the number of students and scholars has occurred by 1940. Between years, 1975 and 2000 university colleges were founded in order to make higher education in Sweden more accessible.

In Sweden, higher education is in focus on three functions research, education and co-operation with the rest of society. The government is playing an important role in higher education is Sweden, where almost 46 percent of finance for education is coming from government and they decide which University Colleges will become Universities.

Although, the difference between universities and university colleges is just about offering Research Education, which university colleges cannot offer Research Education. However, they have the same rights for basic education, master education and doing research.

4.2 University College of Borås History

In this section, the history of the university college of Borås and its foundation will be reviewed. In fact, before offering university level courses by this university, the school of weaving was
established at Borås in 1866, however this school became the Textile Institute in 1948. Then, the west Sweden school of nursing was set up in 1940.

In 1970 university level, Courses from Gutenberg University offered in Borås, and then the Swedish school of library and information science was established in 1972. Finally, Högskolan I Borås, University of College Borås (UCB), was founded by 1977.

Currently, UCB has 11,500 students and 600 employees, and the Campus is located at the city center of Borås. This university is also recognized to be a modern university. This university is consisting of six different schools, which offers different programs including several multidiscipline programs. These diverse programs provide students with large employment opportunities on the current market. The University College of Borås’s schools are as follows:

• Library and Information Science
• Business and Informatics
• Fashion and Textiles
• Behavioral Sciences and Teacher Education
• Engineering
• Health Care and Caring Science

In addition, this university is consisting of two other center that are Library and Learning Resources, and Central Administration center. In the following parts, there will be a brief introduction of these schools and programs offered by them, University College of Borås (2007).
4.3 University College of Borås: Visions and Goals

In this section, there would be a review to the vision and overall objectives of this university college. A vision should be formulated well and should be a challenging one. It must also be a desired future state for the organization. In fact, a vision should be what an organization wants to be identified by, and is where they want to go. Furthermore, a well-defined vision has some more characteristics; it should be Visualizable, Desirable, Clear, Flexible, Communicative, and Stable, Maria Fredriksson (2007).

According to this introduction, the strongest vision for this university college, the future of this institution, is to become the University of Professions. To them this vision is also a mean of becoming a university instead of being University College; in another word, having rights to postgraduate education in all areas represented is the purpose, the difference between university and University College. However, they believe that this vision should be accomplished in co-operation with Business Enterprise and Public Administration. They express their vision as follow:

“With knowledge in our hands for professionalism, UCB have a clear vision of creativeness in professional educational positioning which in co-operation with trade/industry business world and the public sector carries out a high international quality and society –related affairs.”
Furthermore, their strategy in this context is to develop a new type of university. However, if some asks about the goals of the University of Profession, is about the integration of knowledge based on practical experience with knowledge based on academic studies, and creating an arena for the development of new knowledge, University College of Borås (2007).

Defining a vision for an organization is essential, and it will assist them to move towards their vision stronger. However, one may claim that visions are rather far and are not measurable some times, and they call them as long-term goals. Therefore, defining some short-term goals is needed for the organization as well, which in this context this university college has also defined some strategic goals or short-term goals; however, the researcher could not find these strategic goals in English.

4.4 Quality System at University College of Borås

Systematic effort in order to assure the quality in all kinds of operations at the University College of Borås has been going on since the beginning of 1990. The first version of the quality program was established 1992. The quality effort and the program lay-out at the university are shortly presented in this quality program which was established 1995. It is worth to mention that the quality effort has been a great concern for UCB’s board, namely the principal, prefects and other departments’ heads from the beginning. On the other words, the quality efforts have been an integrated program among the board’s missions.

The quality program, which the board of this university college established 1995, contains also long-term visions for the quality development within different units of the operations along with the ambitions which the university have for the quality development/improvement in a three-year-perspective.

An evaluation of these improvements was implemented 1998 as the result of the board’s decision. The idea was that this evaluation would act as one of the start-points for the new quality project for the period of 1999-2001. The scope of the project somehow changed due to the invitation of the National Agency of Higher Education for entering the first round of evaluation of the universities quality efforts.
To sum up, the quality effort at the university college of Borås starts with an overall framework that applies to the teaching methods. It comprises the central goals as well as the local presumed visions, intentions and aims e.g. the strategic plan that concerns a superior role towards the other frameworks in terms of quality. This concept in general is defined as Quality Effort that means:

“Simple expressions to systematically carry out the activities, to take all aspects of the activities under consideration and to create routines suited to the purpose. It also means that each co-worker is aware of his/her own importance/significance in the common strives towards a high quality of the main task, which the teaching method has namely education and research.”

It is worth to mention that there is a tool named: Policy för kvalitetsarbete vid Högskolan i Borås/Policy for quality efforts at the university college of Borås as guidance and working tool.

Responsibility for development and follow-up of the university college’s quality assurance system is among UCB board’s tasks. There is an organisation consisting one quality council, four committees and the principal as a chairman as a support to the overall quality at the university.

In addition, there is also a quality coordinator for the overall quality efforts in terms of teaching methods and positioning along with the coordinator/head of the unit in order to evaluate the committees responsibility area.

This coordinator, quality council and its consisting committees’ mission is to coordinate and initiate development efforts assigned from the principal so to speak. The current follow-up task is being carried out by the different functions of the administration office.

However, each institution and division is prepared based on its own evaluations and its specific action plans for quality efforts as a part of the activity plan, which is being performed in advance to each year. The person who is responsible for this matter is the prefects and head of the divisions.

There is also a Centre for Learning and Teaching Method (CLU) in order to contribute to a good quality and development of the pedagogical activities within the teaching methods/positioning at this university college, University College of Borås (2006).
4.5 Investigation

This section is about the investigation that has been done by the researchers and their findings about the quality work at the University College of Borås. It has been discussed in the last section that quality work at this university is in the frame of concept named as Quality Effort.

Although, different department, divisions, and board of directors are responsible for the quality improvement in this institution, Quality Council and its consisting committees and Quality Coordinator are specifically working and involving the quality work when it comes to setting goals, implementing and proposing improvement systems, and evaluation and assessment of the quality work. Each of these committees and council or quality coordinator are working with different quality issues.

In fact, in order to find out where the quality work at this university stands today and what are recommendations for possible improvement in quality work, the authors have to start from this council and its committees and the quality coordinator. Therefore, the researchers decided to interview with the chairman of this council and also the chairman of all committees. Though, it has been discussed that this is the delimitation of this project that there is no possibility for doing more interview with more people involved the quality work, and this is due to lack of time/credit.

Since, selected interviewees are the chairman of each committee or quality council, and they appointed in the top position of their related council and committees, the validity of information’s collected by the researchers has been increased. Nevertheless, in the following sections collected data from both documents and interviews related to these committees’ tasks regarding to the quality work of this university will be discussed.

4.5.1 Quality Council

In the interview to the chairman of quality council the following questions has been discussed. Accordingly, the answers given by interviewee have been recorded.

1. What are the strategic goals of this university college?

Answer: in fact, this university has defined 18 strategic goals and above all of these goals the aim is to become a university of profession instead of being identified as a university college.
Another way of expressing this overall objective is that this university college is willing to keep its autonomy in research education, which is the distinction between universities and university colleges.

2. What are the approaches of the university college to reach these goals?

Answer: we have set up a plan of action in order to achieve our objectives for a period of 2007-2009. As a part of this action plan, there is an investigation about allocating resources in order to develop strong disciplines in specific areas of studying. For instance, they are trying to develop strong disciplines in seven or eight areas, where they can have right to exam for research education in PhD level.

In this context, we must try to put our resources in right areas of study where we can develop and have strong discipline. Moreover, we would like to improve our procedures and methods in these areas. However, this is the government, which makes final decision in this context. In addition, they are trying to develop new research profiles that two of these research profiles are Library and Information Science, and Textile.

Despite of the fact that there are good operations, and internal resources in research activities, still it is necessary to put more resources in those research profiles.

3. How far is this institution from these goals? (What are the barriers?)

Answer: one of the barriers is that they have to prove high quality in education. In fact, it is not only a question of high quality in specific discipline or profile; it is also about the quality in all areas. However, if things turn out in the way which university is willing, reaching to these objectives is not so far, and there would be the possibility for them to exam for PhD research education in 2010-2011.

4. What are the main concerns with quality council, and what are the main tasks of this council?

Answer: the quality council has developed a quality policy for this university college. The purpose with quality council is to guarantee the quality in all kind of operations of this university, including education, processes, research processes and in administration processes. In
In fact, they prepare documents regarding how to plan and evaluate the education, how to plan for research proposals, and how administration is working with processes.

In addition, the quality council will evaluate the quality work and decisions made by boards of directors and other divisions, in the context of quality, from another perspective, which is very important. However, the committee for evaluation and self-assessment is responsible for this task.

5. What does Quality Effort mean and how does it work?

Answer: this concept is defined in order to address the concept of quality matters in all kind of questions. In fact, this concept has defined to prepare the university for the evaluation is going to be done by National Agency for Higher Education in coming year, probably.

6. Does this university college have any quality improvement team, how does it work, what are the main tasks of this team, if there is any?

Answer: however, there is no special quality improvement teams, the chairman of all committees are joint together and make a team to address quality questions in all areas and suggest quality improvement approaches. In addition, when it comes to the quality issues in different departments each of them are working in rather different ways to improve their quality, and it is the consequences of de-centralization. For instance, there is quality improvement team in school of Engineering, while the school of library and information science is working in another way.

7. How can this university college be more students orientated?

Answer: we hope that we are student orientated; however, we are trying to develop our services to students and expand our relation with students. In addition, there is a question of the relation between students, teachers, and staffs, which is about daily activity and meeting between students and employees. This relationship between students and employees is very important to us, because if it is not working well then there would be problem.

8. How is this university college in cooperation with trade and industry world?

Answer: since, there are some middle size companies in Borås, we have to prove that we have interesting areas of research and we have prepared well-educated student that they can rely on
them and employ them. In fact, we are trying to find more contacts with trade and industry, and in some special disciplines, we are more successful because of our good reputation, like in textile industry.

9. How can administration be made more effective and responsive while avoiding or reversing staff expansion (use its resources efficiently)?

Answer: in fact, we have started to define processes and procedures that can make our administration more efficient. In my opinion, we have an efficient administration, however things can be done better and we can improve our efficiency all the time.

10. What is the definition of quality in higher education?

Answer: In my opinion, the quality of higher education is a matter of well-educated and inspiring teachers, and is a matter of improving the efficiency of the teaching methods, hours spending in classes etc.

11. For whom is this university college working?

Answer: we are active and working for students, in fact without students there is no university college. However, employees are also important for this university to take care of them.

12. What are best ways of measuring the quality improvement of higher education?

Answer: student satisfaction is one important factor to measure the quality improvement. The number of employed students after graduation, the rate of employment, is another way of measuring the improvement, because it shows that we have educated our students well. In addition, we can see the effect of improvements in the number of applicant.

In fact, the quality council is consisting of four committee in order to support and advice the council. In the following parts, there will be an overview to these committees and their tasks regarding to quality work.

**4.5.2 Committee for Sustainable Development**

In fact, this committee is responsible for improving the quality issues related to Sustainable Development. However, there are a few definitions for Sustainable Development one that has
been used by different authors is “Sustainable Development is development that meets the needs of the present generation, without compromising the ability of future generations to meet their own needs”, WCED (1987). University College of Borås is defining SD as “SD is of kind that would satisfies the current need without causing any risk in terms of creating obstacles to satisfy the needs of the next generations to come.

In fact, nowadays most organizations are looking for ways which they can improve their performance in terms of sustainability. Accordingly, a committee with the mission to contribute to SD was assigned by this university college. The committee for sustainable development at UCB aims to conduct the activities of the university in a sustainable manner. Not only have they persisted to reach sustainable development objectives, but also they want to be certified by International Organization for Standardization, ISO 14000.

However, the committee for SD was not active for a while they have established the policy for SD at UCB in spring 2005. In addition, in order to reach SD objectives and to be certified by ISO 14000, this university has started to use a tool called “Environmental Management System”. This tool will assist the university college to contribute to a durable/lasting development while striving after fulfilling the national environment quality goals, which are:

- Environmental drift growth and welfare
- An appropriate well-being of the future most important resources
- Children-and youth policy for an aging society

The committee for SD has some defined tasks, which are:

- Prepare the missions to the quality council
- Initiate the missions to the quality council
- Initiate suggestions as possible solutions within the committee’s responsibility area
- Responsibility for bringing about and updating the policy documents for the committees responsibility area.
This committee has started to work a few years ago; however, they were not so active for a while. The chairman of committee for sustainable development has been appointed a few months ago. In the interview to the chairman of this committee the following questions has been discussed. Accordingly, the answers given by interviewee have been recorded.

1. How does UCB conduct its activities to reach sustainable development?

Answer: we are working in direction to set up an environmental system, which is also related to our objective of being certified by ISO 14000. In order to reach this objective there are people in each department who are responsible for environmental issues, and they have received resources that they need. In fact, each department has a twenty percent full time job to work on environmental issues. All the departments’ representatives together with committee for SD will work to create an environmental system.

In addition, we are trying to take into consideration SD in our course plans and program design, since there are some regulations, which say that all the universities must address SD in their education and in all levels and areas. The ambition for this university in this context is that every student graduated here must know how SD is related to his education.

In fact, there is a board called FOU, which are looking to all the course plans and program design to assign SDs’ issues on them, and they will follow up the results of possible changes. In a long time perspective, the committee for SD shall look at the work done within the area. The main task will then be to look at SD with a quality perspective.

2. How far is this university college from sustainable development objectives? (What are the barriers?)

Answer: there would be some barriers and discussions about how sustainable development should be part of the education and course plans, and this is due to the need for some extra work for departments. In fact, all departments shall redesign their course plans.

Furthermore, regarding different departments there would be different questions that shall be solved. However, some departments have started to work towards this objective actively like school of engineering, but things can be always be better and we can improve continuously.
In addition, there should be some changes in the ways we act or behave, if we are going to be certified by ISO 14000.

3. How sustainable development can assist this university college in order to improve the quality of its higher education?

Answer: since SD is part of the society and nowadays everybody should be involved on this, taking into consideration SD to the course pals will affect the quality of education. In addition, the idea here is that if we are going to be certified we shall try all the time to improve in special issues, continuous improvement.

Continuous improvement is a part of the thoughts within the framework of ISO 14001. If we decide to follow up ISO 14001, we need to work with continuous improvements. Therefore, SD is part of the quality work of this university college.

4. What is the definition of quality in higher education?

Answer: a good education should educate students where after graduation they can start a good career. In another words, good education has been defined according to the demands of the society, authorities, regulations and Swedish National Agency for Higher Education. Universities and University colleges are also responsible for creating educations according to results from research etc.

5. For whom is this university college working?

Answer: students are mainly in focus, however we try to provide good environment for our employees as well, and take care of them as well. This will encourage our employees to improve their own knowledge related to their tasks, which will affect to their relation with students as well. Since the university is part of the society and we are living to this environment, both society and environment are also important stakeholders for us.

4.5.3 Committee for Equality and multiplicity

This committee is dealing with quality issues regarding equality and multiplicity. In fact, Equality, diversity and equal handling are concern for University Collage of Borås. Confrontation between people with different backgrounds and different experiences gives rise to
a diversity thought, beliefs, ideas and the interaction between people, which is enlightening and developing.

The overall objectives of this committee are to treat the employees and students with respect, and in fact, all assessments of each work and study efforts shall be treated with an objective/impartial view. However, one of the primary tasks of this committee is to help and propose short-term goals and strategic plans according to the university’s visions.

The advanced plan defined by this committee is also to fight against discriminating, harassment of any kind. In fact, there are some governmental laws and local guidance principles which university has taken into consideration in order to move towards this plan.

Local guidance principles:

- Planning for equality and diversity concerning employees at the University College of Borås
- Plan of action regarding the accessibility/approachability at the University College of Borås
- Plan of action for equality and diversity concerning employees at the University College of Borås
- Plan of action for equality in treatment of the students at the University College of Borås
- Questions and answers regarding equality on treatment
- Registration form in case of harassment/discrimination

In addition to some laws and guidance principles, this committee has specified its visions or long-term goals so to speak in two categories, equality and diversity regarding to the employees and students. There will be an overview to these visions as well here.

**Equality and multiplicity for employees:**

Focus on competence and diversity shall prevail on out new recruitment. This university strives to have groups of personnel, which are not homogeneous, i.e. not a group of only men or only women, not only within a specific age etc. Suitable knowledge and competence shall be assessed in accordance to the related tasks while recruiting.
They believe that all people with relevant competence shall be able to have the same opportunities to perform in terms of promoting to the higher position. In fact, all co-workers shall be evaluated and taken care of at this university college.

However, evaluating employees positively and looking them as resources, would lead to a fact that the whole organization would develop in general and detailed terms. Therefore, UCB evaluate employees’ competence, looks out for their knowledge/experiences and their further improvement.

Discriminating and harassment shall be resisted and fought against no matter if they are regulated in law or not. They believe on zero-tolerance when it comes to discrimination and harassment.

This committee strives to increase the awareness of importance of equality and diversity in such a structural way. To them equality and diversity shall be integrated in all processes within our organizations and activities and permeates in all processes in the organization. It is of crucial importance that the matter of equality and diversity becomes a part of the teaching method’s structural capital.

**Equality and Multiplicity for Students:**

The university college of Borås strives to make groups of students with irrespective of sex, background, culture, ethnicity, belonging, religion or any other beliefs, age, sexual disposition, functional disability and partly after equalizing the imbalance division of certain educations/programs as well as the ethnicity. In fact, they try to have a wide recruitment within all programs, and they are looking, evaluating and taking care of Students’ differences.

By evaluating individuals’ differences positively and by considering them as potential resources in our learning organization, the diversity, experiences, knowledge, thought and ideas would contribute to a significant development of the organization.

Everybody shall be aware of questions and wonderings that concerns diversity and equality at the university college of Borås and the society. Students shall be given the opportunity to acquire knowledge, understanding and insight regarding equality and diversity.
In addition, the following questions has been addressed in interview with the chairman of this committee. Accordingly, the answers given by the respondent has recorded.

1. What are the strategic goals of this university college?

Answer: The strongest vision for this university college is to become a university of profession. This professionalism should be taken into consideration in all levels, from university level down into department level, program level, and all issues. For instance, there is learning and teaching center at this university, which they work with pedagogical educational development. In fact, they educate staffs and teachers and teach them different teaching and learning methods and procedures. This center is putting many efforts to discuss how they can use certain aspects as part of part of professionalism. However, this vision is rather far and not measurable so to speak.

The university college of Borås has defined some other short-term goals that are achievable and there are some measures to see how far we are from our goals. For example, as a short-term goal we would like to have widening participation.

This means that students with divers’ background, even those without academic background, from different nationality and by different languages shall have the possibility to be educated or continue their education at this university. This widening participation should be looked at for employees as well.

2. What are the approaches of this institution to reach these goals?

Answer: When it comes to professionalization, we invite some experts from outside of the university either from other universities or from industry. They will have lectures, seminars, workshops and so on in this context. They will educate us in all levels to know how as a university of profession we shall act.

In addition, as it has mentioned there is learning and teaching center at this university, which they work with pedagogical educational development. In fact, they educate staffs and teachers and teach them different teaching and learning methods and procedures, and prepare them for professionalism. That is the reason why many of the teachers and lecturers here are aware of this vision defined by the university.
However, when it comes to widening participation the university will recruit both students and employees based on their relevant qualifications. There are some programs running in order to take into consideration students without academic backgrounds. Moreover, being rather a small university may lead to attracting students who do not know whether they are fitted for academic studies or not.

3. How far is this university college from those goals? (What are the main barriers?)

Answer: answer to this question may be rather not a good idea, since some goals have not been defined well enough or they have not been defined quantitatively. For instance, becoming university of profession is almost relevant and we may not be able to measure that when we are there.

However, one barrier in this context is about defining the academia and profession. Academia to me is about innovation, working in a systematic way and at the same time, the profession is not always about innovation and in profession, each branch has its own logic. In fact, I feel we did not get quite enough the knowledge that profession has, and we are trying to use the same logic as we use in academia, which might not be a right way to go.

On the other hand, when it comes to recruitment I do not see special barrier and we have been successful almost to move towards our objective.

4. What are the main tasks of the Committee of Equality and Multiplicity?

Answer: our main task is to prepare questions for quality council, and we prepare documents including plan of actions and strategic goals. Plan of actions are activities that university must consider and try to act them out in the coming year.

We also are partly involved in defining some short-term goals, which are achievable in a shorter period of time than visions. In this context, we have enough knowledge and we employ some experts that assist us. However, we are not responsible for implementation of those defined actions, although there are some actions that can be done by this committee. In fact, we are advising committee.

5. What are the goals of the Committee of Equality and Multiplicity?
Answer: the ambition for this committee is to make everyone at this university aware of the importance of the issues regarding to equality and multiplicity. We think that actions are coming from awareness. In order to reach this objective we plan to set up some seminars and lectures to teach our staffs the importance of equality and multiplicity. We have been successful in this context.

6. What does the centre of learning and teaching do? How does the centre of learning and teaching work for improving the quality of learning and teaching methods?

Answer: this center is working with pedagogical educational development. Their task is to teach staffs about teaching and learning methods. There are some courses offered by this center that are obligatory for getting post here, and some seminars and lectures are also assigned by this center. In addition, this center is working as a consultant, which others can get help from us regarding pedagogical issues.

They go to different departments to provide knowledge about specific questions like evaluation systems, and Bologna process etc. This center also assists teachers who want to offer distance courses, and they are responsible for teaching and learning platforms. In fact, this center together with the committee for equality and multiplicity are working as a unit to improve the quality of education in issues like teaching, learning, and equality in recruitment.

4.5.4 Committee for Evaluation and Self-Assessment

This committee is responsible for evaluation and assessment of the quality work of this university college. In the interview to the chairman of this committee the following questions has been discussed. Accordingly, the answers given by interviewee have been recorded.

1. What are the strategic goals of this university college?

Answer: however, some times the strategic goals defined by university are rather vague; all of them have been classified in the direction of our vision, university of profession. Some of these strategic goals are as follows:
Profile and cooperation within the university and also the region should be taken into consideration.

- We shall develop our research area within proficiency, or be profession research orientated so to speak. We shall not only be academic institution; instead, we shall cooperate with professional experts to develop our institution towards the objectives of professionalization.

- The term of profession should be considered in all of the aspects of this university. In fact, we need to have a professional discipline in all levels.

- We shall define our research area based on the needs of society and industry. For instance, we (in school of Textile) have defined a research profile in smart materials Textiles, which is needed for this region and Swedish textile industry.

- We need to develop suitable pedagogic in our education.

2. What are the approaches of the university college to reach these goals?

Answer: regarding developing the research profile this university has defined a board of director, FOU. In fact, identifying special boards for different issues is the way that university works. As another example, there is a board or center for learning and teaching, which is working with the pedagogical development of education.

3. How far is this university college from those goals? (What are the main barriers?)

Answer: in fact, within different defined goals the university is standing in different levels. For instance, in developing research profile, we have been working well enough, and in pedagogical development, we have been successful, however there are real potential for more improvement.

One of the barriers for development and improvement in this university is about communication and information in the sense of quality. In fact, the concept of quality, which is about continuous improvement, may not been fully understood by those involved in the quality work. However,
there are much information and many documents how we shall improve regarding different issues and, but not everyone is working according to those documents.

4. What are the main tasks of the Self-assessment and Evaluation Committee, and how does it work?

Answer: first, we shall act as a support to the quality council and accept assignments from them. This year we got three assignments from them, one doing an evaluation of what quality work at this university stands today, the next one is to plan for quality audit for the coming year. Another assignment we got is about the optimization of the policies appointed by the university and also redefining the strategic goals more specific.

For doing these assignments we have different procedures. For instance, for optimization of the policies the quality coordinator and our group will work together in meetings and within some discussions we will define what to do and what information should be clarified. Then we will discuss it with quality council to make changes needed and finally they will approve it.

For quality audit, we have defined a questionnaire in a quality audit manner, from which we will have a session/meeting the 29/5-2008 with people (3-6 persons) involved from every department at the university college. They will sit in groups and answer the questions according to how well implemented the different Quality aspects are in their own department.

Within these questions we will try to find out how far are they from defined objectives and strategic goals defined by the university college and themselves and how do they work, or do they work or just is about some existing documents.

Finally, for the evaluation of the quality work, which this thesis is part of that, we will try to go through different committees and responsible people for quality issues and within questionnaires and interviews we will try to find where we stands today in different issues regarding quality.

5. Why does the university college assess the quality work?

Answer: in fact, we shall assess our quality work to find out if we are working well enough or we are working as we can. Furthermore, this assessment will bring new thought and reveal problems, if there is any, in this context.
However, the main reason for assessing our quality work is that Hogskoleverket, the board of directors for reviewing the educational system in Sweden, has asked every university and university college to work with quality. In another word, working with quality is a requirement for every institution. Therefore, before that this board will come and evaluate our quality work we must know by ourselves where we are in this context.

6. Who are assessing the quality work, except the self-assessment and evaluation committee?

Answer: as it has mentioned before, Hogskolevercet will assess our work. We have some student representative in our assessment work, which they assist us to find out how we are working within quality issues in practice.

However, we could have the opportunity to be assessed by some external audits such as ISO 9000, and it will bring many profits for us such as working with processes. In addition, we would like to involve students more in this context.

7. How often do they try to do the assessment of the quality work in this university college?

Answer: earlier the evaluation was performed each two or three year, however nowadays we do the assessment within each year. In my opinion, it is a good start and this will lead to bringing some new thought in this context.

8. Is this institution co-operating with quality assurances and accreditation agencies? If possible, please name and explain to what extent they co-operate?

Answer: in fact, the only cooperation we have is about ISO 14000 for environmental issues and the objective is to be certified in the future but today it is “only” a statement from management. This means that we will start working for an implementation, but it is not yet clear when this objective should be fulfilled, and we do not have other kind of cooperation with quality assurances and accreditation agencies.

9. How do they measure the quality improvement in this university college? (By satisfied stakeholders, by benchmarking, by the number of educated students, by the number of applicants, by the number of publications, is it qualitative or quantitative, etc.)
Answer: however, we try to measure our improvement by different factors, but the most common ones are the number of applicant and educated students. In addition, we are looking to the number of students who are employed after their graduations. Sometimes we also consider the number of our publications as a measure of improvement in research.

10. What is the definition of quality in higher education?

Answer: quality of higher education in my opinion is a matter of satisfying different stakeholders, and is also a matter of mutual cooperation between departments and institutions in a fair competition environment. It will also is about how do we educate our students.

11. How far is this university college from desired quality? (What are the main barriers?)

Answer: however, there are many documents regarding quality issues in this university college, but when it comes to practice it is hard for some to work towards quality improvement and some see it time consuming. Therefore, take into consideration these notes and considering above definition, we can work better in this context.

12. For whom is this university working? Are the customers of this institution only students or do they include employees, industry, society, and environment as well?

Answer: this institution is mainly working for its students, and we think that the existence of this institution is because of the students.

13. What kind of assessment would you prefer to use in the quality work, why? (Self-assessment, external audit, benchmarking, etc)

Answer: in my opinion, the assessment of the quality work should be a combination of internal evaluation and some external audit and assessment as well. Furthermore, benchmarking is an important tool for assessment as well.

Finally, there were some questions regarding to management system view of TQM. In these questions, the interviewers tried to find out if this approach is applicable or is well suited for this university or not. The respondent found this approach interesting for implementation, and she adds that it might be applicable as well. In addition, she has identified some values,
methodologies, and tools, which in her opinion can be taken into consideration for this university.

4.5.5 Internationalisation Committee

In fact, this committee is responsible for dealing with quality issues regarding internationalization. Internationalization is of vital importance for the university college of Borås according to the university’s strategic plans.

The future students shall be educated in such a way to be well prepared for the global employment opportunities. It demands an increasing co-operation with foreign universities and international organisations.

This is considered to be of high value for both employees and students through the experiences gained by this co-operation. Furthermore, the universities’ international ranking would be strengthened which is to be considered as a measure of teaching method/positioning quality.

University’s international co-ordinator is appointed to those who work strategically as well as operatively with the university’s international exchange program, but the internationalisation effort is more that what mentioned above.

All departments and divisions has the mission to increase the international contacts/network and international exchanges e.g. all mater programs are to be taught in English and all syllabuses are to be in English according to the strategic plan of the University College of Borås irrespective of which language the course/program is being taught. Reaching this goal demands quality-securing routines that can support the common quality effort at University College of Borås.

As a part of the school’s quality and exchange of foreign contact, is the fact that the quality committee has replaced by international committee of foreign contacts.

The committee’s tasks are to:

- Prepare the missions to the quality council
- Initiate the missions to the quality council
- Initiate suggestions as possible solutions within the committee’s responsibility area
• Responsibility for bringing about and updating the policy documents for the committees responsibility area.

However, the researchers have tried to set an appointment for interview with the chairman of this committee, they could not succeed, and after a while due to lack of time they put by from interview with him/her.

4.5.6 Quality Coordinator

Quality Coordinator at this university college is under the direct supervision of the principal. His/her task is to create an insight of the quality assuring and quality development at UCB through the direct consultancy of the principal. He/she has some other defined tasks, which are:

• Gathering and spreading the information about the terms of reference of the quality efforts
• Reviewing and harmonizing the guidance principles which rule the operation at UCB
• Contributing to the implementation of the current guidance principles
• Initiating solutions that promote the quality efforts at UCB
• Acting as an administrator in the university’s requests for quality assurance in terms of teaching methods and positioning
• Acting as a secretary in the quality committee

In fact, quality coordinator must be always aware of what is going to happen next, and she is in front in working for quality. In interview with the quality coordinator following questions has been asked and answers given by her have been recorded accordingly:

1. What are the strategic goals of this university college?

Answer: The idea of activity is to be a profession university college that in cooperation with the economic and industrial life and the public sector manages education and research with high
international quality and with great public relevance. UCB will characterize of nearness between academic and practice and a systematic cooperation work with all partners. The devise for UCB is “science for profession”.

If the teachers at UCB respect those goals and work in the direction of these goals, they also will reach the objectives. In the Strategy for education and research for UCB, you can find eighteen strategies that can be conclude under those four:

- UCB shall be an arena for the students’ interests and the working life’s needs.
- UCB shall be an arena for research among specific profession areas.
- UCB shall be an arena for change of competences, cooperation and regional development.
- UCB shall be an arena for increased multiplicity in the Swedish education system.

2. Do you think they have defined their goals SMART (Specific, Measurable, Accepted, Reasonable, Time set)?

Answer: I don’t think that the goals have been formulated out of SMART though the strategic goals are in the direction of the vision. It is even so that not all of UCB’s goals are specific and measurable but we can see some of them as defined out of thoughts of SMART.

3. What are the approaches of the university college to reach these goals? Do they have special methodologies to reach their goals?

Answer: all departments do cooperate with professions, for example, students of teaching go to schools and nursery students go to hospitals during education period to work practically. There are persons from the professions that take place in the board of decision making and counseling, to be correct, two in each board. Persons from the professions do also teach at UCB, some of them do come each semester and some of them come just once a year.
4. How far is this institution from these goals? What are the barriers for them to reach their goals?

Answer: The university college has not done any formal evaluation of effectiveness but my opinion is that some of the departments have already reached them. They have a good cooperation and students are satisfied with education but. In other parts they have not taken all those steps. In this case, the university has to work more. Here the university college has to make more to reach the goals. To become a university with permission to examine on doctors level is still a target for all of us.

5. What are the quality plans defined by this institution?

Answer: Except the intentions in the comprehensive vision and the strategies you find the plans in “Policy for quality assurance at UCB” that tell us that the university college’s quality work

   a. shall be integrated with all activities
   b. characterize of an ongoing improving work in all levels and within all processes
   c. be pervade by transparence

To add there is an organization that support such work for example that there are routines for the systematic quality assurance work.

6. What are the approaches defined by this university college in order to improve its quality? Do they have a systematic improvement approach?

Answer: The Council of quality management does every year an inventory of the quality assurance work at UCB. Next time it will take place in two weeks. Then groups of 3 to 4 persons from each department come together and, out of a questionnaire, they value their quality assurance work. In that inventory, they ask these questions: Where are we now? Where will we be in the future? When will we be there? Then, they do self-assessment each third year for each department. This routine is for all the departments not just for each program or each course.
7. How does this institution measure its quality improvement?

Answer: The board of research and education quality has some new routines for measuring quality in courses and in programs. Then there are evaluation from the Swedish National Agency for Higher Education’s each sixth year. That is for all the programs, all the subjects, and even for the evaluation and quality system. UCB also do alumni evaluation each third year. Moreover, each department makes course evaluation and program evaluation. Every course shall be evaluated and UCB have a policy for this, which says that student shall have feedback from it every time.

The number of applicant and graduated students are a sort of quality measurements. Also they consider the number of publications by the university as another measurement.

8. What is the definition of quality in higher education?

Answer: quality in higher education is

   a. When students get the education, they expect.
   b. When the industrial and economical world and the public sector get the employers they expect.
   d. When this is worked out in a democratic way where all participants feel participation.

9. How far is this university college from desired quality defined by you?

Answer: Parts of the university college have already reached the parts of the desired quality. For instance, the university has many competent teachers, several education programs with good quality and even unique.
10. For whom is this university college working? Are they working only for their students or do they consider employees, industry, society, and environment as well?

Answer: Of course, the students always are in the centre. In fact, all of the employees are here for educating and satisfying students and if they shall do that with good quality the employees must be secure and feel good with their situation. However, UCB works for becoming a university of profession all other stakeholders also always are in focus.

11. What is valued by this university in your opinion?

Answer:

- Cooperate with the professions,
- Do research together with the professions,
- Cooperate with other universities in other countries – teacher and student exchange,
- Make the student pass their exam (economic perspective).

12. You have clarified some values for this university, how do they approach to these values (Do you have any special program to reach these values)?

Answer: Quite good question I think. I think the Bologna process can be an example on such a program. UCB’s unit Center for introduction and validation with “Invandrarakademin” is another example. All the research that already has been done at UCB and also the recruit of students in other countries are more examples.

13. What kind of tools do you think have been used or can be used by this university college?

Answer: I will not say that UCB consciously use TQM or SIQ’s values but the intention of those tools are expected. The tools UCB uses are worked out of The Swedish National Agency for
Higher Education’s instructions and also from ENQAs Standard and Guidelines for Quality Assurance in the European Higher Education Area.

5. Analysis and discussion

The concept of quality and its related notions like Total Quality Management has been elaborated so forth in this project. In addition, there was an investigation about the quality work at this university college and how they work within different quality issues, however some problems were found as a result of this investigation. Now it is time to analyze problems founded and give some recommendations in order to improve the quality system and work of this university.

In fact, it has been discussed that overall objective of this project is to highlight the general principles of TQM involved and to point out how this approach has been and can be used to improve the quality of an academic institution. Therefore, the researchers have tried to compare the quality work of this university college to the general principles of TQM, from definition to the implementation.

5.1 Analysis

University College of Borås has defined its strongest vision to become a university of profession. Moreover, they have defined some short-term goals, which are towards their vision. One of the strongest points that this university is stand for is about focusing on their vision and this vision has not been changed from quite a few years ago.

In order to reach these goals and vision they have started to improve the quality of their institution in different issues. Some policies and guiding principles were published by this university. Within these policies and principles, they have identified different responsible peoples and the activities, which should be done by these people.

In fact, different boards of directors, quality coordinator and quality improvement teams were appointed to work towards these policies and this quality movement and within different quality issues. Quality improvement team in this university in the highest level is consisting of the
chairman of different committees, quality coordinator and the chairman of the quality council, however some other improvement teams have been appointed in departments’ level in some departments.

In addition, this university has defined a plan of action including activities that the university must follow to reach its objectives. Within these movements, they try to evaluate and assess their work regularly and in all issues. However, they are working hard and good enough in the direction of their objectives they believe that things can be always better and in other words, they are seeking for continuous improvement.

Finally, they believe that some departments, programs and committees have been successful to achieve objectives defined by the university college as a result of these movements and this quality system. For instance, the committee for equality and multiplicity has been successful to achieve its objectives towards improving the equality, and Swedish school for Textile has been successful when it comes to profession.

Although, some people say that quality work in different departments differ and this is while not necessarily all work within the concept of quality. These departments try to improve their education system in their own way and they use their own terms in this circumstances.

Nevertheless, this institution is persisting to evaluate and audit the quality work of its institutions regularly, which one committee has been appointed for this purpose. They believe that by this internal assessment and audit they will be able to find possible problems and resolve them, which is regarded as a tool for continuous improvement in this university.

Accordingly, the committee for evaluation and self-assessment offered this project in order to uncover some possible problems that might prevent them to have this continuous improvement.

The overall findings about the quality work of university college of Borås in this investigation are as follows. First, not all people working in the context of quality are familiar good enough with the concept and its related terms and issues. There is a need for this institution to define the concept of quality i.e. quality of higher education.

Furthermore, there are some responsible groups of people for doing tasks in the context of quality, while not all know about their tasks good enough. In addition, some tasks have not been
clearly defined for those who are responsible for. Some more detailed problems were found as a result of this investigation, which will be discussed consequently.

There were questions about the goals and visions of this university college. However, there are some defined goals and visions by this university; some think that a number of these are rather far and not measurable. Furthermore, not all the people involved the quality work have a good picture of what are the objectives of the university college.

According to findings, some of the responsible people for the quality work of this institution think that employees can be considered as external customer as well.

However, in designing programs at this university, decision makers try to finalize their decisions based on collected data and analyzing them. They collect some data to identify the needs of society and students, and then they design programs based on the needs of both the society and students as well. This fact reveals that in some cases, they have a systematic data collection, and they are successful in making decisions based on relevant facts in this context.

Although, there are some discussions about other decisions that the university college board make within each year. It does seem that there are only some meeting, evaluations and surveys, which they use in order to make final decisions for achieving their objectives. In fact, there is no systematic data collection.

The existing documents and interviews show that there is lack of well-defined processes in this university college. In fact, there are some documents, which define certain activities but the relation between these activities and the purpose of the actions is not clear.

Furthermore, as a part of plan of action in this university, there is an investigation about allocating resources in order to develop strong disciplines in specific areas. Although, improving the methodologies and consumption of resources are founded to be some concern for this institution. For instance, some responsible people for the quality work think that this university college can use Bologna process as an approach.

One of the principles of this university is that every department should be involved the quality work, and they are all responsible for what they do and the way they act. In fact, they all try to be committed to the university plans. However, collected data show that there are some
departments, which are not so active in this context. At the same time, some people who are responsible for quality issues in this university, and are part of the council or committees are not fully active.

Moreover, it does seem that even those involved and responsible for quality work of university have not been educated in this context. In fact, lack of knowledge about the concept of quality and its related issues has been found within some people involved the quality work.

So forth, the discussion was mainly about oral problems founded within this investigation, which in the recommendation part we will refer to defining values. Although, the researchers have found some other problems, which they are mainly related to methodologies and tools that university uses in order to improve quality of its higher education.

In fact, no well-defined methodology was founded in this university and in their quality work. Here come some relevant problems founded by the researchers. Existing documents and interviews show that this institution is lack of systematic planning for improving institutions' management.

In addition, according to findings there must be a systematic way to facilitate university for controlling the strategic goals of the university and actions done more regularly. However, this systematic way should also take into consideration the point that there should not be more workload for employees and staffs.

Although, there are many documents regarding activities should be done, towards objective of the university and the needs of different stakeholders, still lack of some well-defined processes that show the connection between these activities and objectives are visible.

The university board and top management are always looking for continuous improvement and they have plan for their activities. Although, there are some actions done towards their plans and they check what they have done, but it does seem that there is no record on well-done actions.

According to existing documents and interviews, it does seem that for analyzing verbal information and numerical data there is no such a structured way. However, there are some meetings and many discussions for analyzing all kind of data and information. This may lead to wrong analysis and consequently some inappropriate decision may be make.
At this institution, different departments have special procedures and methods for improvement. The overall objective of all of them should be the same and towards the objectives of the university. These diverse procedures may lead to different results, which not necessarily are the same as what the university wants to achieve.

In another word, within one institution it might be more effective if all departments use the same frame of reference for their improvement, although this does not mean they must all follow the same methodology or the same processes.

Another finding in this investigation is that group of chairman of different committees, quality council, and quality coordinator form a quality improvement team for the whole university, and some schools have their own quality improvement teams like school of engineering. In our point of view, appointing a technical and supportive quality improvement team is differing from these improvement teams, while they must have the whole responsibility for the quality work of university.

This university has started to use ISO 14000 as a tool for moving towards environmental issues. Furthermore, in all meetings appointed for discussions about quality issues, brainstorming is a tool in order to uncover problems as well as suggestions for problem solving. According to this investigation, there is no evidence proving that some other practical tools have been used by this university i.e. some appropriate and more structured tools for collecting ideas, data and analyzing, and prioritizing.

Evaluation and assessment of the quality work at this institution is about internal assessment, which not necessarily will lead to identifying the problems and recognition of areas for improvement. In fact, self-auditing has many advantages but some external audits can facilitate and motivate this institution for more improvement.

According to above discussions the following points were founded regarding to the quality system of the university.

1. There are some defined visions and goals; however, they could be defined better.
2. There should be some overall awareness about the goals and visions defined by the university.
3. The concept of quality has not been fully understood by those involved the quality work of university.
4. Commitment of all people involved the quality work is desirable.
5. There is a need for participation of more people in quality work, and they must be active in this context.
6. The tasks of different groups must be clarified, and there should be some well-defined goals and objectives for them.
7. Well-done activities should be recorded in order to let others to know. This will prevent overdo activities and making the same experiences by different groups of people and at different timetables.
8. Lack of some well-defined processes is visible in the quality work of university.
9. Although, there are many documents and activities defined for improving the quality of higher education at this university, still there is no a systematic way of improvement.
10. In some departments there are some quality improvement team, other departments have different procedures for improvement. That might be a vise idea to implement a unique approach in all departments.
11. Quality work should be conducted in a way, which will not lead to more work for employees and staffs.
12. Some well-defined methodologies must be classified by the university, and requirement of different stakeholders will be translated to university objectives in all areas.
13. Some more practical quality tools must be used by those involved quality work. This will facilitate the university to have more structured data collection and analysis.
14. There is a need for some external audits. Assessing the quality work of university by some other quality assurances and accreditation agencies not only will facilitate the university in the context of quality, but also it will motivate them to work more straight forward.

5.2 Recommendations

This section will cover some recommendations identified by researchers according to analysis of what they have found. It has been discussed previously that these recommendations will be in the frame of TQM. In chapter two, we have defined two phases for introducing a TQM approach.
Accordingly, we will describe our recommendations in these two phases, which are defining the concept of TQM and implementation of TQM by using this definition.

In fact, in our point of view for introducing a new approach to the quality system in every organization or institution, the approach must be well defined by the researchers, where everybody involved the quality work in the organization can follow it up.

**Phase One (Defining a TQM approach)**

The start point for the implementation of the TQM in this university college can be defining of what TQM really is. The researchers found that it might be a wise idea to have a management system view of TQM, which has described in chapter two. Although, here we will discuss the components of this approach according to the UCB objectives and quality work, and is about recommendations for improvement.

According to this definition of TQM, some core values must be defined by the organization. Therefore, the following values founded to be suited by the researchers, however still further research in this context is needed:

**Customer Focus:** some are looking for just external customer, in TQM we must look upon internal customer as well, and then we must identify their needs. Therefore, it might be a good idea to define a value called customer focus. This not only will take into consideration both external and internal customer, but also it will assist university to identify what students and employees really need.

**Decisions Based on Facts:** the university may try to use a systematic data collection in order to make its final decision in all areas. This is while at the same time they must fully understand the needs of different stakeholders identified by the university.

**Process Focus:** there should be sets of well-defined inputs such as information, which will transform to some outputs within processes in order to introduce good services for customers. Furthermore, within every process the allocated resources should be minimized.

**Continuous Improvement:** there is a need for improving the processes and methodologies running in the organization while minimizing consumption of the resources must be taken into
consideration. In fact, continuous improvement should be taken into consideration in all facets of operations.

**Commitment of Everybody in Organization:** Designation of responsibility and authority must be effectively in focused, in order to achieve the participation and commitment of all interested parties. In another word, in university there should be personal, active and visible commitment, which will assist this institution to create a culture for itself.

It has been discussed that another important component of TQM is methodology. Hereby, the researchers found some methodologies that can assist the university to follow up its quality work in the frame of TQM reference.

**Quality Function Deployment:** they must steadily identify their customer needs and expectations on service specifications and design parameter and transfers these needs to service characteristics and additional to the service process.

**Policy Deployment:** there is a need for systematic planning, utilizing, and observing management systems for improving institution presentation. They need to work on their strategic objectives and try to control their plan of action to manage continuous improvement and reach their objectives in a systematic way.

**Process Management:** this university needs to have network of activities with a recognized beginning and end, using the resources of institution, with a purpose of creating value for internal and external customers repeatedly.

**Benchmarking:** Through the organized and mutual comparison of practice and performance with competitors, university may define some processes in order to identify its own strength and weaknesses.

**PDCA cycle:** using this methodology will assist this institution to have a continuous improvement. However, this university college has specified some plans and accordingly they are doing some activities. Moreover, within each year, they will evaluate what they have done and many documents will be gathered, but there is no establishment of well-done activities within each evaluation. In fact, act step in this cycle is missing part in yearly action of university.
The most visible part of a TQM approach is defining some practical tools for improving the quality. However, defining some appropriate tools for specific tasks and using them by the right people and at the right time are important factors, which must be considered by those who wish to use these tools.

The following tools have identified to be useful for this university:

**Seven improvement tools:** it is necessary for every organization to improve in every aspects of work and in order to reach this they need data collection, and afterward data analysis. Moreover, participation of everyone is necessary in improvement work. For data collection and analysis of these data, this institution can use some tools that some of the applicable ones are:

- **Data Collection:** in fact, the university board must try to gather useful, efficient, and related data to quality problems, as long as collecting unrelated data is nonsense, by asking relevant questions.
- **Histograms:** when there are large amount of data, organization must divide the measurement axis into different parts, and let the number of values in each class be represented by a rectangle.
- **Pareto Charts:** university board should decide in which order problems must be solved it is important for organizations to prioritize solving their problems.
- **Cause and Effect Diagrams:** Within every quality problem, there are some root causes, which identifying them is necessary. This tool can identify these root causes.

**Management and Planning Tools:** Here comes some of the management and planning tools, which the researchers think can be used by the university board in order to work within the quality in a more structured way. In fact, these tools are used to decisions made by the management be based on relevant facts and also help them to prioritize the tasks should be done by university.

- **Affinity Diagram/KJ Method (Jiro Kawakita Method):** however there are some brainstorming within all meetings running for quality work at this university, if they can use a more structured tool like Affinity diagram collected data can be used more efficiently.
• **Interrelationship Digraph:** this tool can facilitate the university board and other people involved quality work to find out the cause of complex problems in quality work.

• **Tree Diagram:** this tool will assist university college to maps out in increasing detail the full range of paths and tasks that needed to be accomplished in order to achieve a primary goal and every related sub goal.

• **Prioritization Matrices:** this university college can use this tool in order to prioritize the tasks and services that shall be done.

**Quality Assurances and Accreditation:** In fact, being certified by a quality assurances and accreditation agency will bring many profits to every organization. For instance, this institution can use guidelines and principles identified by ISO 9000, European Association for Quality Assurances in Higher Education to improve its quality system.

**Phase Two (Implementation of TQM)**

So forth, recommendations were according to the definition of TQM. It means that the university shall be familiar with these values, methodologies and tools in order to be able to implement TQM. Now the implementation of TQM will be discussed. In chapter two, in the second phase of a TQM approach we have described a model for implementation of TQM. In fact, in this section we want to put our findings and analysis in this model and suggest recommendations for quality improvement.

We have already introduced a tool called PDCA or Deming cycle for continuous improvement, now we will show one of the applications of this tool in the form of implementation of the whole TQM. However, a TQM model for implementation has been transferred to this tool.

According to this model for a successful implementation of TQM we shall plan for proposed concept i.e. TQM. First part of this step, study, is about doing a research of what TQM really is and top management should fully understand the concept. This part was included in this project, however they shall establish their objectives from TQM and they must accomplish their plan.
Then in next part, preparing, performing an internal assessment of the quality work and defining values, methodologies and some quality tools should be done, which was also part of this work. Furthermore, university must clearly define its objectives and vision.

Defining goals and visions in every organization in necessary, this is while some do not define goals and objectives of their organization as it should be. There are many goals and visions defined by this university; however, it might be helpful if they would try to redefine them.

In fact, the goals defined by an organization or institution should be about what they want to achieve. It is also given a period of time and a responsible person to reach them, and are quantifiable and clear. In fact, all the goals defined by the organization should be SMART, which means they should be Specific, Measurable, Accepted, Reasonable, and Time set, Maria Fredriksson (2007, Lecture).

It might be also helpful to define notions used for a SMART goal, before identifying the goals. These definitions are as follow:

- **Specific**: Use words containing a direction, as increase, diminish, improve or develop.
- **Measurable**: It is important to devote sufficient time to agree on suitable measures in, for example, number of units, money or time.
- **Accepted**: Those who shall fulfill the goals should set them.
- **Reasonable**: There must be sufficient and realistic prerequisites to reach the goals.
- **Time set**: The time point should be decided in agreement with those who are involved in the future work.

Nevertheless, next step in this model is about starting and in another word plan and implement solutions. In this step, there must be some training to all levels of employees and staffs, and distribution of some customer surveys, to both internal customers and external customers, is desirable.

Furthermore, Quality Council must be formulated and some technical and supportive quality improvement teams should be formed. Finally, the management board may establish some specific measures in order to facilitate the university to measure its improvement.
The third step in this model or cycle has been regarded as evaluation step. This step has to do with evaluation of the plan and do steps. Here, the most effort should be set up for checking the actions that we have done and making sure that we are in a right direction to achieve our objectives.

Finally, in the last step that is divided by two parts, in the first part, if there some problems were found according to checking step, changes must be applied to the system. Accordingly, those solutions and actions done well should be standardized. This will prevent from un-willingness changes within defined systems.

6. Conclusion

UCB administrators have started to establish quality sector to improve the quality, standards of their higher education, and to make their educational system more effective. In fact, improving the quality of institution is towards their defined visions and goals. This university has identified some guidelines, approaches and policies to improve its quality in different issues, however the concept of quality work at this university was named Quality Effort.

Furthermore, different boards of directors such as Center For Learning and Teaching Method (CLU), quality coordinator, quality council and its consisting committees and quality improvement teams were appointed to work towards these policies and different quality issues.

In addition, this university college has defined a plan of action including activities that the university must follow to reach its objectives. Within these movements, they try to evaluate and assess their work regularly and in all issues. However, they are working hard and good enough in the direction of their objectives they believe that things can be always better and in other words, they are seeking for continuous improvement.

This project was aimed to evaluate the current quality work of UCB. This evaluation was conducted based on a TQM approach i.e. the quality work of this institution was compared with a defined TQM approach and its implementation. Consequently, problems founded by researchers were formulated in this approach, and recommendations and suggestions were given to this university college to work towards this approach and eventually reach its objectives.
In fact, there are some points that university may try to emphasize on them in order to improve its quality. First, they must all know the concept of quality, and all people involved in this work should be committed. Then they need to classify their visions and SMART goals. Some values, methodologies and practical tools can be addressed and used by this institution, in order to facilitate this university college to move towards its objectives in a more structured and systematic way.

In addition, one comparison between a TQM approach defined by the researchers and quality work in this university shows that in implementation of this approach they have done some steps discussed in TQM model and they need to work on some other steps. Training the key personnel and people involved the quality work and establishment of well-done activities are examples of what this university college may work on.

In conclusion, the authors have tried to address and highlight general principles of a TQM approach and different terms related to the concept of quality and most of them have been described in details. The researchers hope that this document could provide a comprehensive understanding of the concept of quality in practice for this university college. In addition, they wish that this institution could use this document as a self-training document to educate responsible people in the quality work.
References

Books


Scientific Articles and Published Papers


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