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## Assessing quality in higher education: new criteria for evaluating students' satisfaction

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The aim of this research is to present a new quality assurance model (5Qs) and to examine the major factors affecting students' perception of cumulative satisfaction. The model includes behavioural dimensions of student satisfaction. The factors included in this cumulative summation are technical, functional, infrastructure, interaction and atmosphere of higher education institutions. This study concerns students in higher education institutions in Istanbul Turkey. The questionnaire contains a total of 39 items (attributes) of newly developed five quality dimensions (5Qs). A total of 1641 complete and usable questionnaires was received. Frequency analysis, factor analysis and reliability analysis were used for analysing the data collected. Inspection of scree plot and eigenvalues enabled the analysis to reduce the 39 quality attributes to seven factors. The results can be used by higher education institutions to re-engineer and re-design creatively their quality-management processes and the future direction of their more effective education quality strategies.

**Keywords:** quality model; citizens; students; higher education; university; management; satisfaction; behavioural dimensions

### Introduction

The challenges in achieving higher education excellence are many and difficult to deal with as for any other industry. Vazzana *et al.* (2000) identify three main areas of quality improvement in higher education: curriculum, non-academic functions and academic administration.

Student survey, student feedback and measurement are also important elements in quality improvement for quality management applications and student satisfaction (Bayraktar *et al.*, 2008; Houston, *et al.*, 2008; Kanji, Malek, & Wallace, 1999; Harvey *et al.*, 1997; Harvey, 2003; Williams & Cappuccini-Ansfield, 2007). Indeed, student feedback on their experiences has emerged as one of the central pillars of the quality process.

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Students, so long taken for granted, have been recognised as the principal stakeholders in higher education and their own voice on their experiences is now being heard more clearly by institutions and governments. (Williams & Cappuccini-Ansfield, 2007, p. 159)

In higher education there are problems of structure, personalities, students, academic staff, university staff and management. All this creates a complex situation in which higher education is assessed as to how well students are satisfied, what is valued by students, how students perceive the quality of education and how these can be improved.

The aim of this research is to examine the major factors affecting students' perception of cumulative satisfaction. A conceptual model including behavioural dimensions of student satisfaction has been used. The factors included in this cumulative summation are technical, functional, infrastructure, interaction and atmosphere of higher education institutions. The model was adopted from Zineldin (2006), originally having been developed for the healthcare industry and then revised for education. The revision was done in order to examine the relationships between students, academic staff and administrative staff as well as to assess student satisfaction.

### **Higher education institutions in Turkey**

The Turkish higher education system is a highly centralised system in which the government exercises close and strict control through the Higher Education Council (Yuksekk Ogretim Kurulu (YOK)). The system was formed to meet and solve Turkey's workforce needs rather than to train the mind (Oktik, 2000). There is a strong demand for higher education in Turkey, where the only way to enter a university is to pass the nationwide university entrance examination held annually. The number of applicants for the year 2009 was 958,628, while only 786,677 were able to register onto a programme and nearly 5% were enrolled at private universities (OSYM, 2009). This shows the high level of competition to enter a higher education institution. According to a YOK strategy report (YOK, 2006), the number of students has increased 3.8 times in postsecondary programmes, 1.7 times in undergraduate programmes, 2.6 times in graduate programmes and 2.1 times in total over the last 12 years.

The Higher Education Council was established in 1981 and reshaped and unified the higher education sector by centralising all the universities to one council (YOK, 2009). In 1981, there were only 27 state-owned universities. This number has increased almost four times, reaching 102 in 2011, of which 54 are private universities (YOK, 2011b).

The reason for the expansion of universities is a response to student demand or due to the change from élite to mass higher education as a result of social, political and economic pressure (Oktik, 2000). The opening of the

new universities throughout the country increased the student capacity and also broke the previous élitist domination of the metropolitan universities (Oktik, 2000). During the expansion phase some of the new universities were not properly planned or organised. According to Oktik (2000) in the rapid expansion, academic goals and the main purposes of universities were sometimes neglected while these institutions were endeavouring to respond to the huge demand for student places. It is clear that with this sudden increase in the number of universities Turkey faced a greater problem, which was low quality of education due to poor university staff.

Quality assurance of higher education is a multi-faceted concept with different culturally determined connotations (Ursin *et al.*, 2008). Quality assurance and standardisation have emerged in the sector as a result of concerns about the quality of the newly established higher education institutions and have gained popularity, especially following the Sorbonne and Bologna declarations (Bayraktar *et al.*, 2008; YOK, 2006; Mizikaci, 2003). Some of the quality efforts date back to the 1990s and some leading universities such as Middle East Technical University, Bosphorus, Marmara and Istanbul Technical University are, for example, accredited by ABET (Accreditation Board for Engineering and Technology) to be recognised internationally as a measure of quality assurance (YOK, 2006; TUSIAD, 2003). In 2006, seven Turkish universities participated in the European Universities Association (EUA), which aims to spread and promote quality culture among the participants (YOK, 2006; Bayraktar *et al.*, 2008). The future policies and planning of Turkish higher education are now defined by the European integration programmes and agreements (Mizikaci, 2006). To become compatible with the European Higher Education Area, structural changes are required in curricula leading to the introduction of innovative teaching and learning processes as well as changes in legislation (Mizikaci, 2006). Turkish higher education institutions have been involved in the Bologna Process. The Bologna Process derives its name from the Bologna Declaration which was signed on 19 June 1999 by ministers in charge of higher education from 29 European countries. It is an intergovernmental European reform process aimed at establishing the European Higher Education Area (EHEA) by 2010. This EHEA is envisaged as an open space that allows students, graduates and higher education staff to benefit from unhampered mobility and equitable access to high-quality higher education (YOK, 2011).

Total quality management (TQM) applications have been popular among Turkish higher education institutions since the late 1990s (Bayraktar *et al.*, 2008). According to Bayraktar *et al.* (2008) this has been an era of massive introduction of private universities into Turkish higher education. Even though there was a huge demand for universities, it was still a strong challenge for private institutions to attract students who were not used to paying for education. Hence, the need to attract students with the quality of education plus quality of service, the quality of environment and the quality of

the atmosphere. Quality of services was the main competitive weapon for the private institutions.

Based on recent YOK regulation, accepted in September 2005, all higher education institutions in Turkey are required to establish an Academic Evaluation and Quality Improvement Committee to monitor their educational, training and research activities, along with their administrative services, to improve their quality and to get approval and recognition of their quality levels from independent 'external examiners' (Bayraktar *et al.*, 2008).

All the policies and plans are intended to increase the technical and functional quality of higher education institutions. However, the 5Qs model is an instrument that assures a reasonable level of relevance, validity and reliability, while being explicitly change-oriented. In this article, the 5Qs model will be used to help set the quality strategies for higher education institutions.

### 5Qs model

In the literature, service quality is commonly attributed with two dimensions: technical quality and functional quality (Gronroos, 2000). Technical quality refers to what the customer buys and whether the service fulfils its technical specifications and standards. Functional quality describes how the service product was delivered and the quality of customer relationship with the company. Although technical and functional qualities are the important in measuring customer satisfaction, they often reflect the concerns of managers. Thus, Harvey *et al.* (1997) developed a student-driven satisfaction approach reflecting the requirements and concerns of the students instead of the senior management.

The interaction process between the provider and the receiver of a service is influenced by the atmosphere in a specific environment where they cooperate and operate (Ford *et al.*, 1998; Zineldin, 2000,2004). The atmosphere of a university can affect the perceived service quality and student satisfaction by improving it or by making it worse, which will also affect the quality of education. Service quality in education does not only depend on the quality of academic staff but also includes the administrative staff, assistants, buildings, classrooms, laboratories, technical apparatus and machines used in education. It can be said that education quality and student satisfaction are more detailed than just dividing the quality of service into technical and functional quality (Harvey *et al.*, 1997; Harvey, 2006; Kane *et al.*, 2008; Williams & Kane, 2008).

Most academic studies of the services sector have looked only at the link between services quality and satisfaction. Few studies have been conducted to investigate the link between the technical and functional quality dimensions and the level of student satisfaction in the higher education sector. None of the identified studies has examined how atmosphere, interaction and infrastructure might impact on overall student quality perception and

satisfaction. The importance of such factors is presented and explained in this article.

Zineldin (2000) expanded the traditional technical–functional quality models into a framework of five quality dimensions (5Qs) (Figure 1).

The dimensions are revised for education, as follows:

- Q1. Quality of object: the technical quality (what customers receive). It measures the education itself; the main reason why the student is studying at the university.
- Q2. Quality of processes: the functional quality (how higher education institutions provide the core service). It measures how well education activities are being implemented.
- Q3. Quality of infrastructure: measures the basic resources, which are needed to perform the education services.
- Q4. Quality of interaction: measures the quality of information exchange (for example, the percentage of students who are informed about the course, examination results), financial exchange and social exchange.
- Q5. Quality of atmosphere: the relationship and interaction process between the parties are influenced by the quality of the atmosphere in a specific environment where they cooperate and operate. Especially in poor developing countries lack of friendly atmosphere contributes to poor quality of education; in order to avoid this, the atmosphere indicators should be considered critical.

## Methodology

This study provides a theoretical and conceptual base to understand the complex and multidimensional nature of the quality of higher education and student satisfaction in Turkey. As the empirical research setting, this study concerns people who are students in higher education institutions in

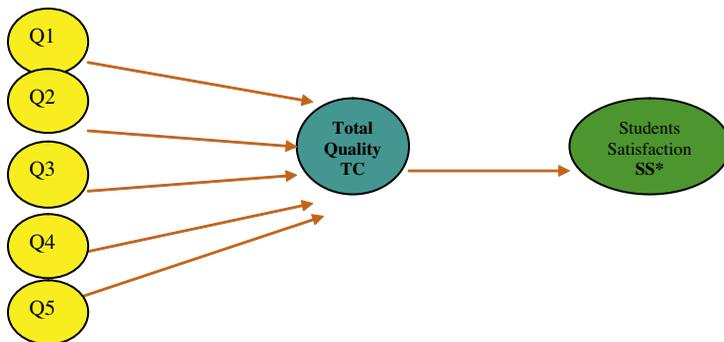


Figure 1. 5Qs: a multidimensional TQM-based model of higher education attributes and students' satisfaction (HS).

Istanbul, Turkey. The reason for choosing Istanbul is that it is the largest city with the highest population and has the highest number of private universities (16 of 38) as well as a significant proportion of state universities (23 of 93).

A questionnaire was distributed which was taken from previous research by Zineldin (2006). The questionnaire contains a total of 39 items (attributes) of the newly developed five quality dimensions (5Qs), which were identified to be the most relevant attributes for higher education institutions. The questionnaires were translated into Turkish to facilitate a better understanding and to increase the respondent rate and quality of data. A total of 1641 complete and usable questionnaires was received. Frequency analysis, factor analysis and reliability analysis were used to analyse the data collected. Factor analysis (Malhotra, 2007), using principal component analysis

Table 1. 5Qs model attributes and corresponding factors.

Factors	5Qs model attributes (components)
Factor 1	(Q atmosphere 1, .690) Responsiveness of assistants to your needs (Q atmosphere 2, .621) Ability of information about your study performance (Q atmosphere 3, .704) Politeness of the professors (Q atmosphere 4, .737) Politeness of the assistants (Q atmosphere 6, .617) Responsiveness of professors to your needs and questions
Factor 2	(Q infrastructure 8, .672) Physical appearance of classroom (Q infrastructure 9, .788) Cleanliness of classrooms (Q infrastructure 5, .744) Ease and speed of usage of computer labs (Q atmosphere 8, .624) Pleasantness and appeal of classroom
Factor 3	(Q object 1, .617) Sense of well-being that you felt in the university campus (Q object 2, .706) Ability of the university to treat you the way you expected (Q object 4, .676) University concern for your particular needs (Q object 5, .627) Performance of services on time
Factor 4	(Q process 1, .784) Waiting time for registration (Q process 2, .602) Waiting time for exam results (Q process 3, .797) Speed and ease of admissions (Q process 4, .659) Time between admission and getting registered
Factor 5	(Q interaction 6, .703) Waiting time for refund, if due (Q interaction 7, .617) Instructions about billing procedures
Factor 6	(Q atmosphere 7, .611) Availability of accommodation on campus
Factor 7	(Q infrastructure 7, .656) Physical appearance of classroom

and varimax rotation with Kaiser normalisation, was used to identify key points emerging from the questionnaire. This revealed the major points where institutions need to improve and how students perceive quality in private higher education institutions.

### **Analysis and results**

The quality of education and student satisfaction questionnaire had a general reliability (Cronbach's  $\alpha$ ) that relates to the variation of 94.1%. Factor analysis reduced the 39 variables associated with the 5Qs model to a new set of seven salient variables following inspection of scree plot and eigenvalues (factors with eigenvalues greater than 1.0 were retained).

Table 1 shows the factors and corresponding quality attributes related to the 5Qs model.

#### ***Factor 1: Quality of atmosphere***

The highest loading to the first factor was given to the politeness of the research assistants. The second highest loading was the politeness of professors. The third highest loading is the responsiveness of assistants to students' needs, while the lowest loading was given to the responsiveness of the professors to students' needs and questions. It can be seen that the students' biggest concern is the behaviour of the research assistants, which is very interesting as the research assistants are usually expected to be the link between the student and the professor.

In addition to the factor analysis, frequency distribution was also done for these attributes. When each factors' components were analysed together with the frequency analysis results, the percentages of satisfied and highly satisfied results were seen to be all above 50%. Thus, the quality of atmosphere is given the highest priority. When the frequency analysis regarding the components of factor one is analysed the responses show that students are satisfied with these components.

#### ***Factor 2: Quality of infrastructure***

The second factor was the quality of infrastructure at universities in Turkey. The highest loading given in this factor was the component related to cleanliness of classrooms; the second highest loading was related to cleanliness of toilets. The third highest loading was related to the physical appearance of classrooms. There was one more component, which was related with quality of atmosphere but it was related with the pleasantness and appeal of classrooms. This indicates that the students' second biggest factor for perceiving quality is cleanliness of classrooms, cleanliness of toilets and the physical appearance of the classrooms. The highest-loaded component also

has the highest total of ‘good and very good’ answers (67.9%), which reinforces the importance of cleanliness of classrooms. The second highest percentage was given to the cleanliness of toilets as it was 61% where this attribute was the second highest loaded component.

### ***Factor 3: Quality of object***

The ability of the university to treat you the way you expected had the highest loading and the university’s concern for your particular needs component had the second highest loading. Students are also concerned about whether the universities meet their expectations. The ‘quality of object’ factor has an average of 40.6% positive answers and 27.7% negative answers. There are two components in this factor where the total of bad and very bad answers were higher than the good and very good answers: the university concern for the students’ particular needs; and performance of services on time.

### ***Factor 4: Quality of process***

The highest loading for factor 4 was given to the component related to speed and ease of admission; the second highest loading was given to the component related to waiting time for registration. Time between admission and getting registered had the third highest loading. Usually the greatest concerns of universities when trying to apply TQM are with the quality of process but, as seen in this analysis, the students perceive quality of process as the fourth most important factor in their education. In this factor, the average for quality of process answers are 40.93% positive and 29.05% negative.

### ***Factor 5: Quality of interaction***

The fifth factor is the quality of interaction. The highest loading given to this factor is related to waiting time for refund of the fullbright students, if due. The second highest loading was given to instructions about billing procedures. Usually, the tuition fee is paid by the parents of students so this may be the reason as financial concerns are not the main factors for students’ perception of quality. Waiting time for refund (interaction 6) has 25.6% of dissatisfaction ratings and 28.7% of satisfaction ratings. Instructions about billing procedures (interaction 7) has 22.9% dissatisfaction and 29% satisfaction ratings.

### ***Factor 6: Quality of atmosphere II***

Even though quality of atmosphere was mentioned as the first factor, it came up once again to stress its importance in higher education institutions. There

Table 2. Most critical components for student satisfaction and quality in higher education institutions.

Rank	Dimensions of 5Qs	Attribute	Critical percentages (%)
1	Quality of infrastructure #9	Cleanliness of classrooms	67.4 good and very good 14.6 bad and very bad 17.4 average
2	Quality of infrastructure #10	Cleanliness of the toilets	61 good and very good 21 bad and very bad 17.99 average
3	Quality of infrastructure #3	Skill of professors attending your class	60.8 good and very good 11.1 bad and very bad 27.8 average
4	Quality of atmosphere #3	Politeness of the professors	58.6 good and very good 14.7 bad and very bad 26.7 average
5	Quality of infrastructure #6	Professional appearance of professors and assistants	56.4 good and very good 13.7 bad and very bad 29.7 average
6	Quality of atmosphere #6	Responsiveness of the professors to your needs and questions	56.3 good and very good 14.1 bad and very bad 29.3 average
7	Quality of infrastructure #11	Cleanliness of the food court	55.9 good and very good 18.3 bad and very bad 25.8 average
8	Quality of infrastructure #8	Physical appearance of classrooms	55.8 good and very good 18.8 bad and very bad 25.2 average
9	Quality of atmosphere #4	Politeness of the assistants	55.2 good and very good 17.2 bad and very bad 27.3 average
10	Quality of object #3	Sense of security from physical harm you felt in the university campus	54.3 good and very good 18.7 bad and very bad 26.7 average

is only one component included in this factor, which is availability of accommodation for students on the campus. Most private universities do not have campuses big enough to include dormitories or any other accommodation. Availability of accommodation on campus is not the same for all universities; this is the reason the ratings are as wide-ranging as 30.8% negative and 35.9% positive.

### ***Factor 7: Quality of infrastructure II***

This factor is a supporting factor for factor 2. It again stresses the professional appearance (outfit) of other university personnel as this is the only component included in factor 7. Almost all private universities have good infrastructure related to physical appearance compared to state universities. The ratings are 14.3% negative and 50.5% positive.

### **Discussion, conclusion and implications**

The aim of this research was to examine the major factors affecting students' perception of cumulative satisfaction. A conceptual model including behavioural dimensions of student satisfaction has been used. The factors included in this cumulative summation are technical, functional, infrastructure, interaction and atmosphere of higher education institutions.

It was very interesting to see that the first and most important factor for students in Turkey is quality of atmosphere of higher education institutions. It is clear that 15 out of 39 attributes related to quality of education and student satisfaction were not more than average, which means neither satisfied nor unsatisfied. Only three of 39 attributes had a tendency towards negative responses. This indicates that student satisfaction tends more towards the positive than the negative in higher education institutions in Istanbul.

When each topic of the 5Qs model was analysed it showed that quality of interaction and quality of atmosphere II is perceived as neither negative nor positive as their percentages were close to each other and the perceptions of quality of atmosphere, quality of infrastructure, quality of object, quality of process and quality of infrastructure were highly positive. Thus, quality of atmosphere, quality of infrastructure and quality of object are the three most important factors in the quality of education in Turkey. The three components with a tendency towards negative ranking were: university concern for your particular needs (object 4); performance of services when they were supposed to be performed (object 5); and availability of student parking (infrastructure 5).

Table 2 shows the most critical components where students perceive good quality which then results in high student satisfaction.

The most important component of quality was perceived as cleanliness of classrooms and, second, cleanliness of toilets. The third critical

component is the skill of the professors attending the class, which is very interesting as the traditional perception of quality in education had this factor as the most important concern. The fourth component is politeness of professors. The fifth most important component is physical appearance of professors and assistants. This was the second interesting result, as it stresses the importance of appearance when quality is the concern. The sixth critical component is responsiveness of the professors to students' needs and questions, which means that the students now need, expect and want responses to their questions immediately and this is one of their criteria for perceiving quality in education. The seventh critical component is the cleanliness of the food court and the eighth critical factor is physical appearance of classrooms. The ninth component is the politeness of assistants and the tenth and last critical component is the sense of physical security the students felt on the university campus.

A model of strategy to improve students' satisfaction in higher education institutions in Turkey is to influence factors such as quality of atmosphere (Q5) and quality of infrastructure (Q3), which are the first two most important factors.

This study proposes a 5Qs model to measure the students' satisfaction of higher education in Turkey. The model encompasses technical, functional, interaction, infrastructure and the atmosphere qualities and services. The results can be used by the higher education institutions to re-engineer and redesign creatively their quality-management processes and the future direction of their more effective education quality strategies.

This model is just a short-term initial improvement step. In order to see long-term benefits from these improvements, the quality should be measured continuously and improved.

This research focused on components of quality and service measurements. For a better strategy, the cost measures, performance of academic staff and assistants, and salary distribution should also be measured in detail.

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