Education and Science

Vol 41 (2016) No 184 251-265

The Assessment of Service Quality Perception in Higher Education

Mustafa Yavuz [1], Deniz Gülmez [2]

Abstract

Increasing number of higher of education institutions in Turkey brings competition which also features the quality. Service quality in higher education is increasingly spotlighted in recent years. It is important that quality of all services provided by higher education institutions must be in a certain level and respond to the needs. Service quality, in effect, draws on total quality management and customer service as well as on marketing research. Fundamental to service quality is the belief that an organization exists to serve its customers. Perceptions of service quality often differ for individual customer. In the educational environment, one customer might appraise the situation a high-quality while another might find the same experience middling. The purpose of the research is to determine service quality perceptions of the students who graduated from the university in Turkey. This research was conducted with mixed methods approach. The HEdPERF scale which used to measure the service quality offered to students in higher education was used and semi- structured interview was conducted to collect data. While the perception of service quality does not indicate a significant difference by gender, it indicated significant differences according to faculties and establishment years of universities.

Keywords

Higher education

Service quality

Mixed method

Article Info

Received: 18.12.2015

Accepted: 11.04.2016

Online Published: 27.04.2016

DOI: 10.15390/EB.2016.6187

Introduction

The basic functions of higher education institutions include research and publications, service to society and education. In addition to educational services, these institutions are expected to meet needs of students concerning culture, arts and sports. Increasing number of higher education institutions affect quality and quantity in education. These institutions are required to provide basic opportunities for potential students. Provision of needs such as classroom, instructors, faculty members, civil servants, heating, accommodation, security and social activities would influence the perceptions towards the institution.

The quality of products and services has become focus of interest in the 1980s. The concept of quality has been defined and measured for concrete products; whereas service quality has not been adequately defined and investigated (Parasuraman, Zeithaml, & Berry, 1985). Knowledge about

[1] Necmettin Erbakan University, Ahmet Keleşoğlu Education Faculty, Department of Educational Sciences, Turkey, mustafayavuz@konya.edu.tr

[2] Necmettin Erbakan University, Ahmet Keleşoğlu Education Faculty, Department of Educational Sciences, Turkey, dderinbay@konya.edu.tr

product quality remains insufficient to understand service quality. In order to understand service quality, its three features, which are based on written sources, are the following: intangibility, heterogeneity and inseparability must be acknowledged. The relevant literature on service suggests three basic issues: (1) For customers, it is harder to asses service quality than product quality. (2) The perception of service quality results from the comparison of current service performance and relevant consumer expectations. (3) Quality assessments are not only made through service output; they also include assessments of the process of service delivery (Parasuraman et al., 1985). In fact, service quality benefits from total quality management and customer service in addition to marketing research. The main understanding for service quality is the belief that an organisation exists in order to provide services customers (Hernon & Nitecki, 2001). It is very difficult to define quality concepts in 'service quality' and 'quality in education'. The perceptions of service quality generally differ according to individual customer needs. In an educational environment, a customer might think that a particular university, with its particular classes and programs, has high quality educational experience; while another might find the similar experience mediocre (Quinn, Lemay, Larsen, & Johnson, 2009).

Service quality emerged as a common strategic power and an important subject in management agenda. The practitioners and academics are similarly interested in accurate measurement of service quality, in order to understand basic antecedents and outcomes of service quality in a better way and consequently to find better methods for improving quality to create customer loyalty and to gain a competitive advantage (Abdullah, 2006a). Traditionally, the conceptualisation of service quality depends on disconfirmation paradigm and the perceived quality is considered as an outcome of a comparison between a particular standard and certain performance (Suuroja, 2003). Researchers generally adopt one of two conceptualisations. The first one is the 'Nordic' perspective, which defines the dimensions of services quality consisting of global functionality and technique quality. The second one is the 'American' perspective, which defines its features of service provision. Although the second conceptualisation is more dominant in the literature, yet there is no consensus on which one is the more convenient approach (Prakash & Mohanty, 2013).

The importance of service quality in higher education has gradually occurred (Tan & Simpson, 2008) and the role of service quality in higher education has aroused interest in the last two decades (Jelena, 2010). Higher education institutions have become interested in service quality, as quality assessment in education is a social necessity. In many countries, this necessity is one of the assessment criteria; this has led to foundation of independent quality assurance boards, which emphasise student experiences (Zafiropoulos & Vrana, 2008). Higher education institutions should ensure that all services are managed in order to increase the perceived quality by customers (Jelena, 2010). Service quality is generally assessed in terms of its processes and outputs. Service quality outputs (technique quality etc.) and the basic quality of interaction between service providers and customers (functionality etc.) help customers to evaluate services (Eisingerich & Bell, 2008). In higher education, the definition of a customer is considerably different from definitions in production and general services because groups such as students, employers, academic staff, administration and families with different needs are customers of education system. Educators of higher education should be accountable for the quality of education that they provide. More accountability is desired in higher education; the current mechanisms to achieve this are being discussed (Abdullah, 2006b).

Service quality in higher education can be analysed in two dimensions 'method' and 'quality dimension'. In terms of the method, some studies employed and positive obtained outcomes (Yildiz, 2014) by employing SERVQUAL (Tan & Kek, 2004; Barone & Franco, 2009), SERVPERF (Abdullah, 2006a; Li & Kaye, 1998) and significance-performance analysis (Angell, Heffernan, & Megicks, 2008; Wright & O'Neill, 2002; as cited in Yildiz, 2014). SERVPERF makes a general measurement of service quality, although the impact of these tools on service quality research is undeniable, this might not be a sufficient tool to evaluate perceived quality in higher education. HEdPERF is new, performance-

based and more comprehensive scale; it is used for original and decisive factors of service quality in higher education (Abdullah, 2006c).

Education quality is one of the basic factors to educate professionally qualified students. However, authorities in departments plan education programs and basic qualifications of students in detail, based on their prospective careers and features of departments, in order to maintain education quality. Nevertheless, achievement of goals and basic skills not only depend on administration, but also learning environment and its facilities, student skills and education counsellors and in general how good education services are. For this reason, service quality is considered significant in order to reach program goals and to improve basic skills of students (Cheng, Tsai, & Lin, 2013). In a dynamic environment, institutions focus on quality service management and consequently efficiency ratings of institutions increase the importance of service quality (Kondrotaitė, 2012).

The assessment of service quality is more difficult than the assessment of product quality. The perception of service quality stems from the comparison of current service performance and relevant consumer expectations. Service quality is not only outcome-oriented; it also includes process-oriented evaluations. In higher education, developing performance indicators might cause some problems. This situation is due to the fact that performance indicators are inclined to measure efficiency rather than accurate measurement of students' educational service quality. The aim of this study is to determine service quality perception of graduates from different university of Turkey towards the universities at which they studied. For this purpose, evaluation the students' perceptions of service quality in terms of gender, year of establishment of higher education institutions and faculty, and determining students' opinions constitute the sub-problems of the research.

Method

The Research Model

This study adopts a mixed approach, consisting of quantitative and qualitative approaches to determine service quality perception. A single study or series of studies focus on collection of both quantitative and qualitative data, analysis and comparison as a method. The use of quantitative and qualitative approaches together provides a better understanding of research questions than employment of a single approach alone (Creswell, 2006). Mixed research method consists of synthesis of quantitative and qualitative approaches; it is still relatively unknown and confusing for many researchers (Leech & Onwuegbuzie, 2009). Greene, Caracelli and Graham (1989) indicate that mixed method researches have significant functions such as diversification, completion, improvement, initiation and expansion. Creswell and Plano Clark (2007) classified designs that are used in mixed method researches: diversification design, embedded design, descriptive design and explanatory design (as cited in Yıldırım & Şimşek, 2013). This study employs diversification design, which is the most common research method for mixed method studies.

The Study Group

The population of this research consists of graduate students from different universities, who study pedagogical formation at Necmettin Erbakan University. The research was implemented with two different study groups. The sample of the study's quantitative dimension consists of 381 students (274 females and 107 males), who were randomly included in the sample during the 2014-2015 academic year and whose graduation dates have elapsed among 3 months – 10 years. The data concerning study group are presented on the table below.

Table 1. Descriptive Data Concerning The Quantitative Dimension's Study Group

Gender	**f**	**%**	**Faculty**	**f**	**%**
Female	274	71,91	Theology	61	16,01
Males	107	28,09	School of Physical Education and Sports (SPES)	47	12,34
Total	381	100	Faculty of Arts and Sciences	90	23,62
Universities according to years of establishment	**f (university/number of students)**	**%**	Engineering	42	11,02
Before 1980	15 / 185	25,86 /48,56	Economics and Administrative Sciences (EAS)	45	11,81
1980-2000	26 / 86	44,83 /22,57	Agriculture	32	8,4
After 2000	17 / 110	29,31 /28,87	Health Sciences	40	10,5
Total	58 / 381	100 /100	Fine Arts	24	6,3

The sample of the study's qualitative dimension consists of opinions of 41 students, who were selected through maximum variation sampling method during the 2014-2015 academic year and whose graduation dates have elapsed among 3 months – 10 years. 23 of them (13 females, 10 males) were graduates of universities that were established before 1980; 10 students (6 females, 4 males) were graduates of universities that were established between 1980-2000 and 8 students (all females) were graduates of universities that were established after 2000.

Table 2. Descriptive Data Concerning The Quantitative Dimension's Study Group

Gender	**f**	**%**	**Universities according to year of establishment**	**f**	**%**
Female	27	65,85	Before 1980	23	56,1
Male	14	34,15	1980-2000	10	24,39
			After 2000	8	19,51
Total	**41**	**100**	**Total**	**41**	**100**

Table 3. The Crosstab Indicating Distribution of Faculties According to Universities' Year of Establishment

Faculty / Years	**1.Theology**	**2. SPES**	**3.Arts and Sciences**	**4.Engineering**	**5.EAS**	**6.Agriculture**	**7.Health Sciences**	**8.Fine Arts**
1.Before 1980	23	25	63	13	8	17	21	15
2.1980-2000	2	5	14	23	7	14	12	9
3.After 2000	36	17	13	6	30	1	7	0

The majority of graduates (63 individuals) from universities that were established before 1980, graduated from Arts and Science faculties, the majority of graduates (23 individuals) from universities that were established between 1980 and 2000 graduated from engineering faculties. It is observed that the majority of graduates from universities that were established after 2000, studied at faculties of Theology (36 individuals) and Economics and Administrative Sciences (30 individuals).

Collection of Data

On the qualitative dimension HEdPERF scale, which is used to measure service quality in higher education, was employed as a tool for data collection. HEdPERF is a performance-based scale and more comprehensive than others in identifying quality service in higher education institutions. It was developed by Firdaus in 2005 and adapted to Turkish by Bektaş and Ulutürk Akman (2013) in 2013. HEdPERF scale consists of 6 dimensions and 41 questions, which takes academic aspects, administrative aspects, image, accessibility, diploma programs and physical facilities of an institution. The result of pilot implementation this scale became a Likert scale consisting of 28 questions. The possible answers on the scale are the following: (1) strongly disagree, (2) disagree, (3) indecisive, (4) agree, (5) strongly agree. Cronbach's Alpha value of the scale was found .91. Cronbach's Alpha values of the sub-dimensions are the following: 0.92, 0.80, 0.82, 0.74, 0.71 and 0.70. Cronbach Alpha value for this research was found .82 and values of the sub-dimensions are the following: 0.79, 0.80, 0.81, 0.81, 0.81, 0.81 and 0.80. In order to collect data for qualitative dimension of the research, semi structured interview form was applied. This form was prepared by researchers. Interview form consists of five open-ended questions concerning the sub-dimensions of the scale. Interviews with students who study pedagogical formation were conducted after the course on weekend in the offices of the researchers. Interviews took approximately an hour and data collection process continued during eight weeks.

Data Analysis

In analysing data for the quantitative dimension of the research, R 3.2.0 statistical software was employed. Firstly, Kolmogorov Smirnov test was used in order to test whether first study group is normally distributed and the results ($d=0.84$; $p<0.05$) indicated that data had normal distribution. Levene test was applied to look at the homogeneity of variances. It was observed that variances were not normal according to gender ($p=0.01$; $f=6.03$) and faculty ($p=0.02$; $f=2.35$) and as $p<0.05$, in analyses values referring to conditions in which variances were not equal. Welch T-test was used to analyse the difference according to gender on R software. Anova was applied to analyse the difference according to the year of establishment of universities and Welch Anova test was employed to analyse the difference according to faculties. On the qualitative dimension of the research, content analysis was used in order to analyse data. Content analysis generally reflects the analysis of text (interview transcriptions, diaries and documents) instead of observation-based field notes (Patton, 2014). Data acquired from content analysis were coded. During the coding, the years of establishment (Before 1980 =1; 1980-2000 =2; After 2000 =3), gender (Female: F; Male: M) and finally faculty of graduation (Theology=1; SPSE=2; Arts and Sciences =3; Engineering=4; EAS=5; Agriculture=6; Health Sciences=7; Fine Arts=8) were coded.

Results

Service quality perception of students, who graduated from higher education institutions, was assessed according to gender, year of establishment of higher education institutions and faculty. Student opinions about service quality were also included.

Table 4. Service Quality Perception According to Gender, Welch T-Test Results

Dimensions	Group	n	Mean	df	T	P
Service quality perception	Female	274	88.04	165.11	1.68	0.09
	Male	107	84.06			
Administrative aspects	Female	274	30.65	171.1	1.51	0.13
	Male	107	29.17			
Academic aspects	Female	274	21.50	161.58	1.84	0.06
	Male	107	20.29			
Institution's image	Female	274	8.68	184.21	1.06	0.28
	Male	107	8.24			
Accessibility	Female	274	9.30	178.85	0.94	0.34
	Male	107	8.97			
Diploma programs	Female	274	8.91	173.79	0.68	0.49
	Male	107	8.68			
Physical facilities	Female	274	8.98	174.57	0.75	0.45
	Male	107	8.69			

Students' service quality perceptions about the higher education institutions did not show a significant difference according to gender. Gender of students did not play a role in assessment of their institutions' service quality.

According to research findings stemming from qualitative approach, some of the graduates evaluated that universities' services quality was average and more than average. Some considered it below average. For example, a male student (1,M,2,4) said that "conditions of students were not taken into consideration during decisions at university. Decisions provide burdens for students. Academic efficacy of faculty members might be at national average but they are very weak in terms of instruction. Facilities at the university are not enough; instead pretty much limited." According to this opinion, it seems he considers service quality very low. A female student (2,F,13,6) expressed her opinion as such: "University administration's attitude towards students was good. In theory education was good but in practice it was not enough because laboratory facilities were not sufficient". According to another male student (1,M,10,3) said "I witnessed that university administration, particularly the rector, partially joined in student-oriented activities. Apart from that, there were no sincere and warm relations. With the exception of a few special days, nobody saw rector and dean. I think knowledge levels and teaching skills of professors at my department were fine. There were swimming pool, tennis courts, open-closed sports areas at university, they were open to student use. However, there were serious problems about cafeteria and dormitories. Physical facilities were not enough". He considered service quality low. According to another male student (1,M,3,2), "university administration did its best to solve problems. There were unimportant problems as it happens in all universities; but I think they really did their best." A female student (1,F,14,6) assessed service quality as follows: "university administration helped students by all means. I experienced their assistance in terms of both courses and social life".

Table 5. Service Quality Perception According to Years, Anova Results

Dimension	Years	df	Sum of Squares	Means of Squares	f	P	Difference
Service quality perception	In-group	2	2485	1242.4	3.463	0.03*	3-1 3-2
	Inter-group	278	135626	358.8			
Administrative aspect	In-group	2	230	114.75	1.792	0.16	-
	Inter-group	278	24208	64.04			
Academic aspect	In-group	2	89	44.48	1.626	0.19	-
	Inter-group	278	10336	27.34			
Institution's image	In-group	2	98	48.92	3.953	0.02*	3-1
	Inter-group	278	4678	12.38			
Accessibility	In-group	2	44	22.024	2.536	0.08	-
	Inter-group	278	3283	8.686			
Diploma programs	In-group	2	118.7	59.34	7.656	0.00***	3-1 3-2
	Inter-group	278	2929.8	7.75			
Physical facilities	In-group	2	429	214.40	22.9	0.00***	3-1 3-2
	Inter-group	278	3539	9.36			

Students' service quality perceptions about the higher education institutions indicate a significant difference according to year of establishment of universities. Significant differences were observed in the sub-dimensions of general service quality perception, institution's image, diploma programs and physical facilities. The difference in the *sub-dimensions of perception of general service quality, diploma programs and physical facilities* was found out between higher education institutions, which were founded before 1980 and after 2000. Accordingly, service quality perception was found higher at high education institutions, which were founded before 1980. In addition, in terms of the difference between higher education institutions that were established between 1980 and 2000 and after 2000; service quality perception was identified higher at higher education institutions, which were founded between 1980 and 2000. The difference in the *sub-dimension of institution's image* occurred only between higher education institutions, which were founded before 1980 and after 2000. Accordingly, service quality perception was higher at higher education institutions, which were founded before 1980. In the light of this analysis, it can be claimed that universities, which were established after 2000, have lower service quality perception than others.

According to the qualitative data, which explained significant difference in terms of the sub-dimensions of general service quality perception, institution's image, diploma programs, and physical facilities a graduate student's opinions demonstrated that service quality, opportunities and physical facilities at her university were very good. The student (1,F,6,3) stated that "*the university has very qualified education to improve students. It is at high quality and systematic. There are good amount of tools and equipment. Laboratory services are ordered and meticulous. Double major and minor programs are sufficient and systematic. All willing students are allowed to benefit from these programs. Besides university have gymnasium, swimming pool and facilities. Festivals and ceremonies take place in a pleasant way".* Another student (1,M,8,3) also thinks that service quality is high: "*.... University was very good in terms of administration, relations with students. My department was among the most quality ones in Turkey. I took courses from professors, who were experts on their fields. Therefore education quality was high. They had double major and minor programs. I could not join as my GPA was not high enough. Physical facilities were great at my university. There was a rail system on the campus. It has the largest IT centre in Turkey. The library was open for 24 hours. University's shopping centre helped us to spend our leisure time".*

However, a student (2,M,13,3), who graduated from a university, which was established between 1980 and 2000, emphasised insufficient status of instructors: "*there were no professors. Academic staff was not sufficient. Most of them tried to impose their own ideas; they were pompous while teaching*". Another student (2,F,20,5) complaint from insufficient physical facilities: "*I think my university's academic aptitude was okay. There were no programs like double major or minor at out department. Physical environment was insufficient. It was like a labyrinth. Although limited, there was some social space. Conference facilities were small and cold*".

A student graduated from a university, which was established after 2000, evaluated her university as follows (3,F,33,7): "*our university provided no opportunities or social facilities. Even my primary school (we lived in a small town), had better buildings, better facilities. Our entire instructors, except the head of department, were insufficient*". Another student (3,F,16,5) expressed her positive and optimistic opinions: *"I am content with the education at .... University. They are at good levels in terms of academic aptitude. It is a new university; therefore it develops gradually. I think it will become very good and effective university in two years."*

Table 6. Service Quality Perception According to Faculty, Welch Anova Results

Dimensions	Groups	N	Mean Rank	df	f	P	Difference
Total service quality perception	1. Theology	61	83.85246	7	3.51	0.00	2-3 2-8
	2. SPES	47	76.70213				
	3. Arts and Sciences	90	89.73333				
	4. Engineering	42	89.85714				
	5. EAS	45	86.86667				
	6. Agriculture	32	90.28125				
	7. Health Sciences	40	86.72500				
	8. Fine Arts	24	95.12500				
Administrative aspects	1. Theology	61	27.90164	7	3.87	0.00	1-8 2-7 2-8
	2. SPES	47	26.63830				
	3. Arts and Sciences	90	31.03333				
	4. Engineering	42	31.07143				
	5. EAS	45	29.84444				
	6. Agriculture	32	31.56250				
	7. Health Sciences	40	32.35000				
	8. Fine Arts	24	34.25000				
Academic aspects	1.Theology	61	22.09836	7	3.33	0.00	1-2 2-4 2-6
	2. SPES	47	18.34043				
	3. Arts and Sciences	90	21.03333				
	4. Engineering	42	22.80952				
	5. EAS	45	21.37778				
	6. Agriculture	32	22.37500				
	7. Health Sciences	40	20.45000				
	8. Fine Arts	24	21.16667				
Institution's image	1. Theology	61	9.688525	7	3.32	0.00	1-2 2-3
	2. EAS	47	6.893617				
	3. Arts and Sciences	90	9.044444				
	4. Engineering	42	7.666667				
	5. EAS	45	8.311111				
	6. Agriculture	32	8.468750				
	7. Health Sciences	40	8.525000				
	8. Fine Arts	24	9.333333				

Table 6. Continue

Dimensions	Groups	N	Mean Rank	df	f	P	Difference
Accessibility	1. Theology	61	9.180328	7	1.27	0.26	-
	2. SPES	47	8.723404				
	3. Arts and Sciences	90	9.322222				
	4. Engineering	42	9.095238				
	5. EAS	45	9.066667				
	6. Agriculture	32	9.343750				
	7. Health Sciences	40	8.825000				
	8. Fine Arts	24	10.750000				
Diploma programs	1. Theology	61	8.852459	7	3.24	0.00	2-3
	2. SPES	47	7.489362				
	3. Arts and Sciences	90	9.600000				
	4. Engineering	42	9.166667				
	5. EAS	45	8.644444				
	6. Agriculture	32	8.906250				
	7. Health Sciences	40	8.175000				
	8. Fine Arts	24	9.583333				
Physical Facilities	1. Theology	61	6.131148	7	10.75	0.00	1-2; 1-3 1-4; 1-5 1-6; 1-7 1-8
	2. SPES	47	8.617021				
	3. Arts and Sciences	90	9.700000				
	4. Engineering	42	10.047619				
	5. EAS	45	9.622222				
	6. Agriculture	32	9.625000				
	7. Health Sciences	40	8.400000				
	8. Fine Arts	24	10.041667				

According to the table, which analyses service quality perception according to faculty, all sub-dimensions revealed significant difference except accessibility ($p>0.05$). In order to identify the difference between groups, Games-Howell multiple comparison tests was applied. On the sub-dimension of *administrative aspects of* service quality perception; students graduated from faculties of Health Sciences and Fine Arts, found service quality good concerning *administrative aspects.* For sub-dimension of *academic aspects;* graduates of faculties of Theology, Engineering and Agriculture perceived service quality higher. For *sub-dimension of institution's image;* significant difference were identified between faculty of Theology and SPES; and faculty of Arts and SPES. Graduates of Theology and SPES considered institution's image higher. For the *sub-dimension of diploma programs,* a significant difference was found out between SPES and faculty of Arts and Sciences graduates. Arts and Sciences students perceived higher service quality concerning diploma programs. For the *sub-dimension of physical facilities,* significant difference appeared between the faculties of Theology and SPES; Arts and Sciences, Engineering, EAS, Agriculture, Health Science and Fine Arts. Students' perception of service quality was the lowest for faculty of Theology and the highest for faculties of Fine Arts and Engineering in terms of physical facilities.

In terms of the sub-dimension of administrative aspects of service quality according to faculties, faculties of Health Sciences and Fine Arts were found better. A graduate (1,F,7,7*)* from faculty of Health Sciences evaluated quality as follows: "*the relations between administration and students were good and respectful. We were very happy about it. Their attitudes and behaviours towards us were positive."* Similarly a graduate's opinions from faculty of Fine Arts are the following (1,M,14,8): "*there was no problem concerning the relations with the administration during my university education. I had chance to establish very respectful and adequate communications. They had good attitudes towards students."*

On the sub-dimension of academic aspects, students graduated from faculties of Theology, Engineering and Agriculture regarded service quality higher. A student's (2,F,12,4) expressed her views as follows: "*I believe that food engineering education was given in a good way. We had a convenient laboratory environment. It had many developed devices; so that were able to realise analyses in a good way. Academics were also good at their fields".* A student (1,F,8,1) graduated from faculty of Theology was also content: "*most faculty members at out faculty were very good at their fields; they were very keen on students. We had very good professors. They liked their students; they valued and directed them".* Accordingly, she considered her faculty academically sufficient. Similarly, another student (3,F,10,6) from faculty of Agriculture thought that her faculty was academically convenient: "*we had really qualified, knowledgeable and self-improved instructors. However, it would be better to receive more practical courses; they would be more permanent and instructive. We were lucky that most of our lecturers were professors and they did not leave the courses to assistants".*

According to sub-dimension of institution's image according to faculties; it was found out that faculties of Arts and Sciences and Theology graduates had higher perception of service quality. For the diploma programs sub-dimension, it was observed that service quality was perceived higher at faculty of Arts and Sciences. According to interview data, a student (2,F,23,3) graduated from a university, which was established between 1980 and 2000, expressed her opinions: *" University of ...., Department of Physics had qualified instructors and qualified education. They encouraged students to study at master's level. Physics students had right to do double major at the department of mathematics. Some friends used this opportunities. Many esteemed instructors contributed to my post-graduate studies on nuclear physics. My university put academic studies on its agenda; it had qualified instructors. If I studied physics again, I would prefer the same department".* A student's (1,F,15,3) opinions about her university, which was established before 1980, are the following: *"I think it is the most qualified universities in Turkey. It has a long history and a good reputation. There were many graduates, who were among the best on their fields. Faculty members were well educated; they had sufficient knowledge. Not every department offer opportunities for different diplomas."* She highlighted her university's image but stated that diploma opportunities were limited. A student (1,F,8,1), who graduated from faculty of Theology at a university, which was established before 1980, also evaluated her university: "*Many faculty members at our faculty are keen on their fields; they care our students. We had academically superior professors. Our instructors loved, cared and directed students".*

Discussion, Conclusion and Suggestions

This study analysed service quality of higher education institutions on the basis of the perceptions of graduates. Accordingly, it was found out that service quality perception did not show a significant difference according to gender. Nevertheless, significant differences were observed in terms of the sub-dimension of institution's image, diploma programs and physical facilities according to establishment years of universities. It was identified that universities, which were established before 1980, had better service quality perception. Student opinions were included on this issue.

According to 2014-2015 rankings of universities in, which were established before and after 2000, published by the research laboratory of University Ranking by Academic Performance (2015), the scores of top ten universities that were established before 2000 (800-700) were almost double than those, which were established before 2000 (600-400). In addition, three universities from Turkey were included in Times Higher Education's (n.d.) rankings concerning top 500 universities in 2015-2016. Eight Turkish universities also found a place in between 500-800. It is interesting that all these universities were established before 2000. Research findings were also parallel with these indicators that institution's image, which was among the sub-dimensions of service quality, was better perceived at the universities, which were established before 1980. It can be claimed that universities with about 25 years of history have more institutionalised structure in terms of academic, administrative and physical aspects; student perception towards these universities are also better.

In analysing service quality perception according to universities' establishment years; it is considered that the interpretation should be made in line with recently increasing demand for high education, number of universities, number of students per faculty member and physical facilities of universities. In terms of establishment years, the date of institutionalisation is regarded as an important component to complete their personnel (Çetinsaya, 2014). In the last decade, the main objective of higher education policy in order to facilitate student access was to increase the number of universities. Consequently fifty state universities and thirty-six foundation universities were established between 2006 and 2011 (Altınsoy, 2011). Despite this increase, in order to explain the above-mentioned insufficiency, ÖSYM and YÖK statistics were used and a table demonstrating the number of students and instructors was prepared.

Table 7. Number of Students, Instructors and Faculty Members

Academic year	Number of students	Prof. Dr.	Assoc. Dr.	Asist. Prof. Dr.	Inst.	Res. Ass.	Total
1995-1996	1.470.492	6719	3674	6355	6916	20572	50259
2000-2001	1.881.088	8804	5249	10407	10140	25580	25580
2010-2011	3.817.086	15529	8486	21717	17520	36669	111495
2014-2015	5.642.562	20879	14140	33323	21118	45399	148903

The increasing number of higher education institutions and students requires a balance between demand and supply of faculty members. As the table suggests, despite considerable increase of the numbers of faculty members, the demand was not sufficiently satisfied. For example, at Istanbul University, which was found before 1980, had a total number of 173.190 students in 2014-2015 academic year; whereas total number of academics were 5061. Osmangazi University, which was established between 1980 and 2000, had 27533 students in 2014-2015 academic year; the university had 1535 academics. Karamanoğlu Mehmetbey University, which was established after 2000, had 10952 students and 492 academics. From this point of view, the evaluation of the change in the number of students per academics would contribute to explain this situation.

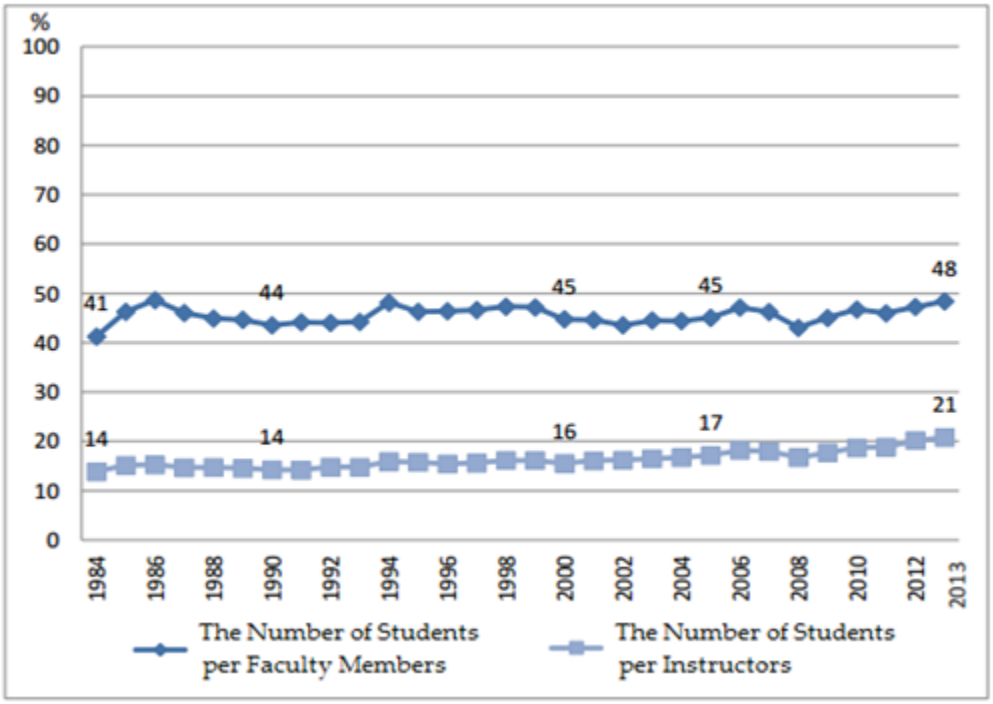

Figure 1. The Number of Students per Faculty Members and Instructors in Turkey (1984-2011) (Çetinsaya, 2014). Note: The numbers include associate, undergraduate and graduate students with the exception of Open University students

The change of the number of students per faculty members and instructors in Turkey suggests that the figure was between 14 and 41 in the 1980s. Between 1980 and 2000, this number increased gradually. After 2000, it reached to 21 and 41. According to Education at Glance report in 2012, average of OECD countries was 14; whereas this number was 20 in Turkey and above OECD average (OECD, 2014). These comparisons reveal that there is still considerable need for instructors and faculty members, despite recently increasing numbers.

It is known that faculty members mostly work in three big cities. Doctoral graduates tend to work in big cities as well. This situation creates a vicious cycle in supply-demand relations of faculty members. For this reason, the above-mentioned higher education policy is particularly concerned with insufficient and imbalanced in increase of faculty member supply in contrast to the rapid growth at higher education, as well as physical insufficiency of universities (Özer, 2011). According to the findings of this research, students who graduated from universities, which were established before 1980, stated that physical facilities of their universities were better. However universities, which were established after 2000, had problems with their physical facilities.

The Scientific and Technological Research Council of Turkey's "Vision 2023 Science and Technology Forecast Project: Education and human resources final report and strategy document's appendix on the current situation of education in Turkey indicates and according to YÖK's statistics, in 2011 closed space per student at universities was 14, 77 m^2; whereas in Europe this number is 25 m^2. In Turkey, average closed space according to functions for formal education is the following: administrative units 3,51 m^2, education 6,1 m^2, social activities 4,88 m^2 and sports 0,28 m^2 (Serbest, 2005). According to Doğan's (2013) study on the problems of newly established universities, these institutions suffer from insufficiencies concerning tools and equipment, physical and social facilities. The literature on physical spaces of Turkish universities is very limited. Universities do not collect data on their own physical infrastructures. Moreover, although universities have strategic plans and new universities prepare development plans in order to shape the future of their facilities, these plans did not include long-term strategies for management of current structure and plans. When a building is needed, university administrators apply to State Planning Organisation in order to finance only their own projects. Consequently there are considerable differences between universities in terms of interior space. Some rural universities have more space than they need; others are at critical condition (Altınsoy, 2011). General service quality of universities were tried to explained through indicators such as institution's image, diploma opportunities, physical facilities, establishment years, increase of number of students, change of number of students per faculty members and facilities.

The difference of service quality between faculties can be interpreted through comparison of faculties' entrance scores. Entrance scores of faculties of Theology and Engineering, whose service quality was perceived higher concerning the sub-dimension of academic aspects, indicate that universities that were established before 1980, for example Ankara University Faculty of Engineering received students in 2010 with the score range of 306-489. On the other hand, Bayburt University Faculty of Engineering, which was established after 2000, accepted students with 292-346 points in 2010. Ankara University Faculty of Theology, which was established before 1980, accepted students with 365-383 points in 2010. It was observe that faculties of theology of universities, which were founded after 2000, received students with 331-341 points in 2014. It is considered that students of these faculties had higher points and their academic achievements are higher; consequently their choices might affect the academic aspects of these faculties in a positive way. In addition, the number of students per academics were analysed in basic scientific fields in 2010. Accordingly, these figures were 39 students for Social Sciences and 59 students for Applied Social Sciences. This figures referred to a decrease in comparison to past years. The number of students per academics for mathematics and sciences reduced to 27 in 2003 and to 23 in 2013; for social sciences it increased to 37 in 2003 and 48 in 2013 (Çetinsaya, 2014).

Tablo 8. Changes in Number of Students Per Academics by Years in Basic Fields of Science (Çetinsaya, 2014)

	2003	2007	2010	2013
Language and Literature	43	43	48	49
Math and Science	27	28	28	23
Health Sciences	9	8	8	10
Art	23	30	30	27
Social Sciences	37	34	39	48
Technical Sciences	32	31	33	36
Applied Social Sciences	75	65	59	60
Agriculture and Forestry	16	14	16	17
Other Educational Institutions	15	13	13	12

The sub-dimension of administrative aspects of service quality according to faculties, faculties of Health Sciences and Fine Arts were found better. In the light of the crosstab showing the distribution of universities according to year of establishment, in our study group, 21 of 40 students from Faculty of Health Sciences, 15 of 24 students from Faculty of Fine Arts graduated from universities that were established before 1980. 12 students from Health Sciences and 9 students from Fine Arts graduated from universities that were established between 1980 and 2000. These universities are more than 15 years old. They have institutionalised structure; therefore better perception of their administrative aspects is not surprising. Institution's image, which is a sub-dimension of service quality according to faculty, was better perceived for faculties of Theology and Arts and Sciences. According to Polat's (2011) research findings, students of Faculty of Education and SPES consider university's image better than other faculty and college students do.

In the light of research findings for improvement of service quality at higher education institutions, the following statements are suggested:

- There should be a balance between number of students and number of instructors/faculty members.
- Academic aspects and physical facilities of newly established universities should be consolidated.
- Universities should consider student views and pay attention to their opinions.
- The quality of services provided should be assessed.
- A commission might be formed in order to evaluate service quality.

References

Abdullah, F. (2006a). Measuring service quality in higher education: Three instruments compared. *International Journal of Research & Method in Education*, *29*(1), 71-89.

Abdullah, F. (2006b). The development of HEdPERF: A new measuring instrument of service quality for the higher education sector. *International Journal of Consumer Studies*, *30*(6), 569-581.

Abdullah, F. (2006c). Measuring service quality in higher education: HEdPERF versus SERVPERF. *Marketing Intelligence & Planning*, *24*(1), 31-47.

Altınsoy, S. (2011). A review of university facilities in Turkey. *CELE Exchange, Centre for Effective Learning Environments* (No. 2011/06). OECD Publishing, Paris. doi:10.1787/5kg5c8cch88p-en

Bektaş, H., & Ulutürk Akman, S. (2013). Service quality scale in higher education: Validity and reliability analysis. *E-Journal of Econometrics and Statistics, 18,* 116-133.

Cheng, C-C., Tsai, M-C., & Lin, C-L. (2013). Quality education service: Put your feet in their shoes. *Current Issues in Tourism*. doi:10.1080/13683500.2013.839633

Creswell, J. W. (2006). *Understanding mixed methods research* (Chapter 1). Retrieved from http://www.sagepub.com/sites/default/files/upm-binaries/10981_Chapter_1.pdf

Çetinsaya, G. (2014). Growth, quality, internationalization: A roadmap for Turkey higher education. *Higher Education Council Publication* (No: 2014/2). Eskişehir: Anadolu University Publications Office.

Doğan, D. (2013). Problems of newly-founded universities and solution offers. *Journal of Higher Education & Science, 3*(2), 108-116.

Eisingerich, A. B., & Bell, S. J. (2008). Perceived service quality and customer trust: Does enhancing customers' service knowledge matter?. *Journal of service research, 10*(3), 256-268.

Hernon, P., & Nitecki, D. A. (2001). Service quality: A concept not fully explored. *Library Trends*, *49*(4), 687-708.

Jelena, L. (2010). Determinants of service quality in higher education. *Interdisciplinary Management Research, 6*, 631-647.

Kondrotaitė, G. (2012). Evaluation of the quality of public services in Lithuanian municipalities. *Intellectual Economics, 6*(3), 393-411.

Leech, N. L., & Onwuegbuzie, A. J. (2009). A typology of mixed methods research designs. *Quality & Quantity, 43*, 265-275, doi:10.1007/s11135-007-9105-3

OECD. (2014). *Education at a Glance 2014: OECD Indicators*. OECD Publishing. doi:10.1787/eag-2014-en

Özer, M. (2011). Expansion in higher education and faculty supply in Turkey. *Journal of Higher Education and Science*, *1*(1), 23-26. doi:10.5961/jhes.2011.002

Patton, M. Q. (2014). Qualitative analysis and interpretation. In M. Bütün, & S. B. Demir (Eds.), *Qualitative Research and Evaluation Methods* (pp. 431-541). Ankara: Pegem Academy.

Prakash, A., & Mohanty, R. P. (2013). Understanding service quality. *Production Planning & Control: The Management of Operations*, *24*(12), 1050-1065. doi:10.1080/09537287.2011.643929

Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1985). A conceptual model of service quality and its implications for future research. *Journal of Marketing*, *49*, 41-50.

Polat, S. (2011). Organizational image of Kocaeli University for university students. *Education and Science, 36*(160), 105-119.

Serbest, A. H. (2005). *Vision 2023 technology foresight project: Education and human resources final report and strategy document*. Ankara, Turkey: The Scientific and Technological Research Council of Turkey.

Suuroja, M. (2003). Service quality-Main conceptualizations and critique. *University of Tartu Economics and Business Working Paper*, 23. doi:10.2139/ssrn.486947

Tan, K. C., & Kek, S. W. (2004). Service quality in higher education using an enhanced SERVQUAL approach. *Quality in Higher Education, 10*(1), 17-24. doi:10.1080/1353832242000195032

Tan, W., & Simpson, K. (2008). Overseas educational experience of Chinese students an evaluation of service quality experience in New Zealand. *Journal of Research in International Education*, *7*(1), 93-112.

Times Higher Education (THE). (n.d.). *World University Rankings 2015-2016.* Retrieved from https://www.timeshighereducation.com/world-university-rankings/2016/world-ranking

University Ranking by Academic Performance (URAP). *Rankings of Turkey 2015-2016*. Retrieved from http://tr.urapcenter.org/2015

Quinn, A., Lemay, G., Larsen, P., & Johnson, D. M. (2009). Service quality in higher education. *Total Quality Management & Business Excellence, 20*(2), 139-152. doi:10.1080/14783360802622805

Yıldırım, A., & Şimşek, H. (2013). *Qualitative research methods in the social sciences*. Ankara: Seçkin.

Yildiz, S. M. (2014). Service quality evaluation in the school of physical education and sports: An empirical investigation of students' perceptions. *Total Quality Management & Business Excellence, 25*(1-2), 80-94. doi:10.1080/14783363.2011.637804

Zafiropoulos, C., & Vrana, V. (2008). Service quality assessment in a Greek higher education institute. *Journal of Business Economics and Management, 9*(1), 33-45.