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Determination of the Factors Affecting the Quality of Education in Technical and Vocational Universities

Teknik ve Mesleki Üniversitede Öğretim Kalitesini Etkileyen Faktörlerin Açıklanması

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Abstract

This study aimed to explain factors affecting quality of teaching and determine their impact on teaching quality. The mixed research approach and sequential exploratory strategy of classification model were used to collect the data. The population (qualitative method) consisted of staff at central organization of a technical and vocational university and top technicians and researchers of a technical and vocational university in 2011- 2016; they were selected using mixed sampling (homogeneous and snowball) method. The population (quantitative method) also consisted of educational assistants, heads of research and education department, and faculty members in 2016. In qualitative study, the exploratory interviews and semi-structured interviews were used for collecting the data. In quantitative study, the identified categories which were derived from encoding qualitative data were used to create paired comparison questionnaires; they included factors affecting quality of teaching. Using Expert Choice Software, the results were analysed by AHP method. The findings indicated that the contribution of teacher, educational environment, and students were estimated to be 41, 33, and 26 percent, respectively. Among teacher components, the professional skills of teacher (weight 361 out of 1000) was determined to be the most important component; among student components, the academic records and experiences (weight 385 out of 1000) was determined to be the most important component; and among educational environment components, quality of environment and educational conditions (weight 341 out of 1000) was determined to be the most important component.

Keywords: Educational quality, technical and vocational university, analytical hierarchy process, mixed research method

Öz

Bu çalışma, öğretimin kalitesini etkileyen faktörleri açıklamayı ve bunların öğretim kalitesi üzerindeki etkilerini belirlemeyi amaçlamaktadır. Verilerin toplanması için karma araştırma yaklaşımı ve sınıflandırma modelinin sıralı keşif stratejisi kullanılmıştır. Araştırma evrenini (nitel yöntem), 2011-2016 yıllarında teknik ve meslek üniversitenin merkezi biriminde görev yapan personel ve teknik ve mesleki üniversite araştırmacıları ile üst düzey teknisyenleri oluşturmaktadır. Katılımcılar karışık örnekleme (homojen ve kartopu) metodu kullanılarak seçilmiştir. Araştırmanın nicel boyutu için katılımcılar 2016 yılında görev yapan eğitim asistanları, araştırma ve eğitim bölümleri başkanları ve öğretim üyelerinden oluşmaktadır. Nitel bölümde, verilerin toplanması için keşfedici görüşmeler ve yarı yapılandırılmış görüşmeler kullanılmıştır. Nicel bölümde, nitel verileri kodlamadan türetilerek belirlenen kategoriler, eşleştirilmiş karşılaştırma anketleri oluşturmak için kullanılmıştır. Bu kategoriler öğretimin kalitesini etkileyen faktörleri içermektedir. Expert Choice Software kullanarak, sonuçlar AHP yöntemi ile analiz edilmiştir. Bulgular öğretmen, eğitim ortamı ve öğrencilerin katkısının sırasıyla yüzde 41, 33 ve yüzde 26 olduğunu göstermiştir. Öğretmen bileşenleri arasında, öğretmenlerin mesleki becerileri (ağırlığı: 1000 üzerinden 361) en önemli bileşen olarak belirlenmiştir; öğrenci bileşenleri arasında, akademik kayıtlar ve deneyimler (ağırlığı: 1000 üzerinden 385) en önemli bileşen olarak belirlenmiştir. Eğitim ortamı bileşenleri arasında, çevre kalitesi ve eğitim koşulları (ağırlığı: 1000 üzerinden 341) en önemli bileşen olarak belirlenmiştir.

Anahtar Kelimeler: Eğitim kalitesi, teknik ve mesleki üniversite, analitik hiyerarşi süreci, karışık araştırma yöntemi.

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Extended Abstract

Explaining Factors Affecting Quality of Teaching at Technical and Vocational University

The main objective of this research is to explain the factors affecting the quality of teaching and determine the contribution and weight of each of the factors in the quality of teaching at the technical and vocational college. Among the factors, three factors of the teachers, students and educational environment were studied.

Method: In this research, a third methodological movement called the combined research approach and exploratory strategy of classification model was used with emphasis on qualitative emphasis. In the qualitative section, the grounded theory method was used and in the quantitative part a descriptive survey method was taken into account.

The statistical population in the qualitative section included experts, key people and top researchers from the university's technical and vocational college and were selected through homogeneous and snowball sampling. The statistical population of this study was the students of technical faculties throughout Iran. In this section, a multi-stage probable sampling method was used.

Considering the combination of the method of this research, data gathering tools in the qualitative section encompassed exploratory interviews with multiple answers questions about three important factors affecting the quality of education and the use of semi-structured interview tools.

In the quantitative part, using the identified factors and components derived from coding and analyzing qualitative data, a pairwise comparison questionnaire was developed. Validity was evaluated for content validity and was approved by the opinions of the experts and supervisor as well as advisor professors.

Cronbach Alpha method was used for reliability estimation and the reliability of each of the components was calculated and validated separately as follows Teacher component(87.0),Student component(82.0),and Educational environment(78.0):. In the data analysis section in the qualitative section, first, the primary and secondary categories were determined by coding, and in the secondary coding, common concepts were placed in one category. In the axial coding step using the static comparison method, the obtained categories were compared and their dimensions were determined and then effective categories were identified at the selected coding stage. In the quantitative part, the method of hierarchical analysis process was used to rank factors and components.

Findings

Qualitative data analysis: At the initial stage of coding, each concept extracted was included in each of the three factors of teachers, students and the learning environment. For the teacher factor, 5 components and 69 concepts, for the student, 4 components and 43 concepts were obtained and for the operating environment of the educational environment, 4 components and 36 concepts were obtained.

Quantitative data analysis: In this section, the relative weight of each of the factors and factors affecting the teaching quality was determined using paired comparisons and using the hierarchical analysis process technique in which the three factors of the teachers, students and the educational environment had a relative weight of 410, 260 and 330 of 1,000, respectively. The rate of inconsistency of respondents is 0.08 and because it is less than 10%, this rate is scientifically acceptable.

Among the factors related to the teacher›s role, the following components are ranked based on relative weight: professional teaching skills with a relative weight of 361 out of 1000, job characteristics of teachers with a relative weight of 214 out of 1000, personality traits Teachers with a relative weight of 156 per thousand, teaching activities of teachers with a relative weight of 139 per thousand, and individual characteristics of teachers with a relative weight of 130 per thousand. The rate of inconsistency of respondents in this section is 0.05 and acceptable.

Among the components related to student factors, the following components were ranked based on their relative weight. Component of Students' Records and Educational Experiences with Relative Weights of 385, Student Expectations from Professor with Relative Weights of 217, Individual Features of Students with Relative Weights of 205, and Family Attributes of Students with Relative Weights of 193 were identified as components of this factor. The inconsistency rate is also 0.07, which is acceptable.

Among the components of the educational environment, the components of the environment and educational environment, physical environment, educational quality assessment strategies, and organizational and administrative environment are ranked relative to the relative weight of 341, 247, 211 and 201 respectively. The inconsistency rate in this factor is 0.04 and is acceptable.

Discussion and conclusion: The quality of teaching and teaching in higher education is influenced by the various factors that are expressed in different sources in different sources. In this research, which was carried out in combination with the technical and professional university of Iran, the most important factors and components were identified in terms of three factors of teachers, students and educational environment, and the relative weight of each component was calculated.

According to the findings of this research, and on the other hand, given the emergence of the technical and vocational universities and the policy of governments regarding the need to paying attention to technical and vocational training and the efficiency and effectiveness of graduates of the technical and vocational education and services sector Quality in the work environment ,there should be great emphasis on the training of this group so as to provide areas of creativity, innovation and entrepreneurship. On the other hand, given that the university is defined as a capable university in the field of training skilled human resources, and advanced and industrial in the global category; the quality of education in this university is a major challenge and one of the main goals of the university is to improve the quality of education and meet the needs of the industry in the field of skills and technology. Therefore, it is recommended that in the educational and research policies of this kind of university, the quality of teaching and teaching is considered as one of the most important issues of the relevant authorities and designing a desirable educational quality assessment and providing indicators and tools for quality evaluation Teaching and training will provide the necessary effort to promote educational activities.

1. Introduction

During past two decades, Iran's higher education has faced numerous challenges including increased number of universities, large number of diverse educational institutions, increased number of students, and sometimes huge number of unemployed graduates; these have created many problems in Iran's higher education system. Neglecting capacities and economic, social, and cultural conditions, the increased number of higher education systems may result in reduced quality of higher education system. In fact, the increased number of students and graduates cannot be associated with desirable quality. These challenges have led to need for accountability in Iran's higher education system; they have forced the academic system to revise its structure, mission, goals, functions, and processes. Since universities are among the most important institutions which are needed by communities to grow and develop, their transparency, responsiveness, and quality improvement are necessary (Bazargan, 2003, 142). As a new managerial attitude, the performance management plays an essential role in guiding and combining quality components in organization in a desirable and effective manner (Jeffreys, Translated by Kakuyi, 2000, 87). It is obvious that the existence of a desirable performance management process in Iran's higher education institutions will improve their quality. The performance management in higher education institutions pays special attention to performance of students, graduates, and faculty members and factors affecting their quality; it evaluates the qualitative components of such organizations in a desirable manner and uses the results to improve the weaknesses and establish the strengths (Yamani & Arasteh, 2006, 69). As performance management plays an essential role in guiding and combining qualitative components in organization, the assessment of educational quality of universities may also provide useful guidelines for improving performance management process at universities (Altnbach & Rumbley 2009, translated by Saeed Abadi & Ahmad Khanlu, 2014, 138). The evaluation is one of the most important mechanisms for managing performance in production and development of quality in organizations. In fact, the quality improvement requires qualitative assessment; this is quite obvious in all industrial, commercial, and educational organizations. However, the qualitative assessment is one of the most important requirements of organizations and the higher education institutions are not an exception (Gourchian, 2000, 126). For this reason, in recent two decades, most countries have made special efforts to improve quality of education and have used evaluation approaches in doing so (Bazargan, 2000). The research (Dumond, 2010; Tsinidou, 2010; Ghedin & Aquario; 2008; Nishi machi & kodaria; 2012; Fatima; 2014; Melhaoui; 2004; Chier; 2003; Vieira; 2002; Yarmohammadian et al., 2010; Ghaedi, 2006; Rahmani and Fathi Vajargah, 2008; Mojtaba Zadeh, 2016; Maroufi et al., 2007; Mohammad Hashemi, 2014; Najafi & Ismaili Rad, 2009; Mirzamohammadi, 2010; Omidian & Safari, 2015; Hematinejad, 2014; Berimani et al., 2011; Samari etal., 2013; Hosseini et al., 2013; Tabarsa et al., 2012; Ghonchi et al., 2012; Sabetnejad, 2011) has shown that the evaluation plays significant role in improving quality of educational systems in Iran and all countries around the world. However, it is expected that the explanation of factors affecting quality of education at technical and vocational university and determining the weight of each of components may be effective in improving quality of colleges at this university. So, this research seeks to answer the following questions: What are the main factors affecting quality of education of teachers, students, and educational environment? What is the relative contribution of each of factors affecting quality of education at technical university?

2. Methodology

The mixed (qualitative and quantitative) research approach was used in this study (Cooper, translated by Hamid Rafiee, 2006). The main advantage of this approach is that it leads to better understanding of research issues (Tedlee & Tashakori, 2009, translated by Azar & Jahanian, 2016). From among various mixed approaches, the sequential exploratory strategy of classification model (with emphasis on QUAL) was used for collecting the data (Creswell & Plano Clarck, 2007, translated by Kiamanesh & Saraei, 2011). The sequential exploratory strategy involves collecting and analysing qualitative data in first stage and subsequently, collecting and analysing quantitative data in second stage based on qualitative results of first stage (Creswell, 2009, translated by Kiamanesh & Dana Tousi, 2011). The classification model is used when the initial qualitative stage is conducted to identify main variables, develop classification or typology system, or develop a new theory; at secondary quantitative stage, these results are more accurately evaluated or studied (Morgan, 1998; Tashakorri & Tedley, 2009, quoted by Creswell & Plano Clark, 2007, translated by Kiamanesh & Saraei, 2011).

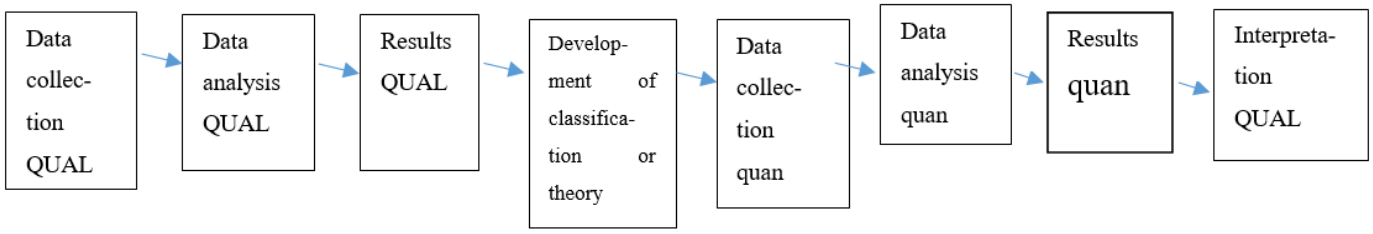

Figure 1. Exploratory Plan of Classification Model with an Emphasis on QUAL (Creswell & Plano Clarke, 2007, translated by Kiamanesh & Sarai, 2011).

Methodology of qualitative research

In this research, the grounded theory was used as a qualitative approach. It is used to design a model-based theory (Charmaz, 2000, quoted by Bazargan, 2010). The implementation of grounded theory includes systematic (Strauss & Corbin, 1990), innovative (Glaser, 1992), and constructive (Charmaz, 2000) plans; however, the systematic method was used in this study. This method emphasizes the use of data analysis steps through open coding, axial coding, and selective coding (Marshal & Rasman, 1995; translated by Parsaian & Arabi, 2011; Zolfagarian & Latifi, 2011).

Methodology of quantitative research

This was descriptive-survey study. The descriptive research includes a set of methods aimed at describing, explaining, and extracting factors and variables. The descriptive research can merely be used to understand the existing conditions or assist the decision-making process (Sarmed et al., 2007). The survey research is also a quantitative study in which the same questions are systematically asked from individuals or contributors and the answers are recorded and analysed (Numan, 2004; quoted by Moghadam, 2008). In addition, the pair comparisons based on expert views were conducted in analytical hierarchy analysis process (AHP) to compare and rank each of factors affecting quality of education (Ghodsipour, 2016; Nick Mardan, 2012).

Population, sample, and sampling method

Due to mixed research method, the population and sampling methods were distinct in qualitative and quantitative studies. The population in qualitative study included staff in relevant fields at central organization of technical and vocational university and top technicians and researchers at technical and vocational university in 2011-2016. Using mixed (homogeneous and snowball) sampling method, the sample was selected. The population in quantitative study included educational assistants, heads of research and education department, and faculty members of all faculties in 2016. The multi-stage probability (random) sampling method was used for sampling in quantitative study. For this purpose, two colleges (one for girls and one for boys) were selected from each district; then, the sample was selected from each colleges. Thus, nine individuals from each colleges, eighteen individuals from each region, and one hundred and eighty individuals from all ten regions were selected as final sample and the necessary information was collected in the form of questionnaires and specific forms.

Tools and methods for collecting information

Due to mixed research method, the research tools were also different in both qualitative and quantitative studies.

In qualitative study, the first stage used exploratory interviews with several open questions regarding the most important factors affecting quality of education and second stage used semi-structured interview. In quantitative part, the identified components and factors by coding and analysis of qualitative data were used to create questionnaires. Subsequently, the pair comparison questionnaires were distributed among selected samples; this questionnaire included factors, components, and categories affecting quality of education which were identified in qualitative study. The samples were requested to answer according to specific instructions of questionnaire.

It should be noted that for assessing the validity and reliability of tools in both qualitative and quantitative studies, specific methods were used. The content validity was evaluated; also, the Cronbach Alpha method was used to assess the reliability (Uono & ghebousy and Johnson, 2006, quoted by Creswell, 2009, translated by Kiamanesh & Danae Tous, 2011).

Data analysis method

In qualitative study, first the open coding and information segmentation were used to determine main and secon-

dary categories and in secondary or central coding, the common concepts were placed in one category. In axial coding, the constant comparison method was used to compare obtained categories and determine their dimensions. Then, the main categories were determined at selective coding stage. Finally, the categories affecting measured phenomenon, i.e. factors affecting educational quality, were determined based on grounded theory.

In quantitative study, the analytical hierarchy process (AHP) was used. The expert choice11 software was used to conduct the mentioned analyses.

3. Findings

Qualitative data analysis

At initial stage of open coding, each extracted concept was included in each of these three categories: teachers, students, and learning environment. In selection of categories, the categories which were mentioned in research questions were considered. Examining data which were obtained at first stage of open coding, 5 and 69, 4 and 43, and 4 and 36 components and concepts were obtained for teachers, students, and educational environment, respectively. After first stage of open coding, the second stage included integration of common and similar concepts and categories through constant comparative analysis of data. Thus, relying on the most significant and abundant basic concepts, the data were screened and reduced. At this stage, referring to similar concepts and comparing them with each other, the overlapped concepts and categories were identifies and sorted and the common concepts were placed in related category (teachers, students, and educational environment). Accordingly, the extensive data were reduced to a limited number of general categories. At this stage, the data were categorized into major categories and concepts. After identifying main categories, the next step was axial coding. At this stage, the above items were compared and merged to determine final categories and concepts. Therefore, the coded data were compared and placed in appropriate categories. In this regard, the major categories were compared to ensure each class of categories is distinct from others. Then, the relationship between categories was examined and based on their nature, they were classified under heading of main category. In axial coding stage, 49, 33, and 29 main concepts were determined for each of three factors (teachers, students, and educational environment), respectively. In selective coding section, the provision of a convergent model was considered.

Based on qualitative analysis of interview data and coding of teacher factor, 5 components and 49 concepts were identified as table below.

Table 1. Identified components and concepts of teacher factor

Factor	Component	Concepts	PERCENT	Component	Concepts	PERCENT
Teacher	Individual characteristics	Age	9	Teaching professional skills	Establishing and maintaining communication skills:	23
		Gender	7		Creating a positive emotional situation	22
		Level of Education	33		Expression technique	
		Teaching experience	29		Attracting students' participation and cooperation	20
		Type of employment	22		Creating a sense of need for learning among students	17
					Using non-verbal skills (body language)	18
	Teacher's personality and ethical characteristics	Intimacy	9		Lesson presentation skills:	17
		Assertiveness	8		Mastering subject of course	16
		Responsibility	14		Ability to explain, interpret, and review concepts	11
		Criticism	9			
		Flexibility	9		Ability to use examples	11
		Respect for justice	13		Ability to stimulate student learning	11
		Humility	10		Ability to create and strengthen spirit of group participation	12
		Avoiding discrimination	11			
		Joy	8		Ability to use appropriate teaching strategies	9
		Introversion	4		Consistency between organizing and presenting methods and subject, conditions, and facilities	13
		Extroversion	5			
					Quality of teaching method	

Factor	Component	Concepts	PERCENT	Component	Concepts	PERCENT
Teacher	Job features	Academic rank	48	Teaching professional skills	Classroom management skills:	42
		Motivation to choose a job	32		Observe order in class	24
		Amount of weekly teaching activities	11		On time start and finish of lesson	16
					Control the attendance of students	18
		Conducting executive activities	9		Optimal use of time	
	Teacher's research activities	Compilation and translation books	15		Educational evaluation skills:	30
					Quality of tests (validity, reliability, feedback)	25
		Implemented research projects	17		Consistency between test methods and course content	25
		Articles published in scientific and research journals	32			
					Evaluation and test time	20
		Membership in scientific-research associations	14		Level of using open book exams	
		Membership in scientific committee of conferences and scientific-research conferences	13			
		Subscribe to editorial board and reviewing articles in scientific and research journals	9			

In relation to student factor, 4 components and 33 concepts were extracted as table below.

Table 2. Extracted components and concepts of student factor

Factor	Component	Concepts	PERCENT	Component	Concepts	PERCENT
Students	Individual characteristics	age	8	Academic records and experiences	Idividual interest in study field	11
		Intelligence	16		Motivation to choose a field	7
		Self-confidence	17		Compete with counterparts	4
		Locus of control	19		Importance of field	11
		Attitudes to study	15		Occupation future	9
		Self-efficacy	25		Diploma GPA	7
	Family features	Parent education	15		Rank at university entrance	6
		Parent job	16		Total average of student	8
		Family monthly income	20		Number of rejected semesters	5
		Number of children in family	11		Number of rejected lessons	4
		Child's rank	10		Prioritization in field selection	8
		Relationships between family members	19		Motivation to choose (optional and compulsory) course	4
	Student expectations from teacher	Observe the rules and regulations	21		Scientific-research activities	9
					Time allocated by student to study	5
		Easy taking in training	12		Ratio of Quota student to total student	3
		Give high scores	13			
		Access to teacher outside of class time	18			
		Considering specific problems of students	19			
		Rate of answering students' non-academic questions	17			

In relation to educational environment, 4 components and 29 concepts were identified as table below.

Table 3. Extracted components and concepts of educational environment factor

Factor	Component	Concepts	PERCENT	Component	Concepts	PERCENT
Educational environment	Educational environment and conditions	Course subject feature	15	Organizational and administrative environment	Employment regulations	7
		Time to present lessons	12		Organizational climate	6
		Access to educational equipment and training assistance	17		Work culture	6
					Consulting services	8
		Access to information and communication services	13		Job satisfaction of faculty members	13
		Access to library (reference sources, journals, etc.)	12		Retraining and in-service training	10
		Access to internet and authentic scientific databases	19		Support from quality of education	9
		Physical arrangement of class seats	12		Observing hours of presence of teachers in college	9
					Criteria for promotion of faculty members	11
					Welfare regulations	12
					Research regulations	8
	Physical environment	Faculty area	6	Educational quality assessment strategies	Approved indicators of assessing quality of teaching	43
		Capacity of classes (student density)	11		Process of evaluating quality of teaching (time and place)	24
		Quality of educational spaces (class, workshop, laboratory)	25		Sources of information to assess quality of teaching and learning	33
		Quality of laboratory equipment and materials	22			
		Quality of health facilities	10			
		Quality of cultural and sports facilities	9			
		Quality of welfare service (dormitory and self service)	17			

Quantitative data analysis

In this section, the relative weight of components and categories affecting teaching quality was determined using pairwise comparisons and using analytical hierarchy process technique.

Table4. Paired comparison matrix table of factors affecting teaching quality based on AHP technique

Factors	Teachers	Students	Educational environment	Total points	Normalized weights
Teachers		+	+	2	0.66
Students	-		-	0	0
Educational environment	-	+		1	0.33

Table 5. Relative weight of factors affecting teaching quality based on AHP technique

Factors	Relative weight
Teachers	410
Students	260
Educational environment	330
Inconsistency rate: 0.08	Total: 1000

As is shown in table above, the teacher, student, and educational environment factors impact on teaching quality is 41, 26, and 33 percent, respectively. The inconsistency rate of respondents is 0.08; since this is less than 10% (acceptable value in AHP technique), it is scientifically acceptable.

Table 6. Paired Comparison Matrix Table teacher factor components based on AHP technique

Components	Teaching professional skills	Teachers' job-features	Ethical-moral characteristics of teachers	Research activities ofteachers	Individual characteristics of teachers	totalpoints	Normalized weights
Teaching professional skills		+	+	+	+	4	0.4
Teachers' job features	-		+	+	+	3	0.3
Ethical-moral characteristics of teachers	-	-		+	+	2	0.2
Research activities of teachers	-	-	-		+	1	0.1
Individual characteristics of teachers	-	-	-	-		0	0

Table 7. Relative weight of teacher factor components based on AHP technique

Components	Relative weight
Teaching professional skills	361
Teachers' job features	214
Ethical-moral characteristics of teachers	156
Research activities of teachers	139
Individual characteristics of teachers	130
Inconsistency rate: 0.05	Total: 1000

The table above shows that among teacher factor components, the professional teaching skills (36.1%) and individual characteristics of teachers (13%) have the highest and least impact. The job characteristics of teachers (21.4%), personality-ethical characteristics of teachers (15.6%), and research features of teachers (13.9%) are other components affecting teaching quality. The inconsistency rate of respondents is equal to 0.05 and is acceptable.

Table 8. Paired Comparison Matrix Table student factor components based on AHP technique

Components	Students' academic records and experiences	Student's expectations from teacher	Individual characteristics of student	Family features of student	Total points	Normalized weights
Students' academic records and experiences		+	+	+	3	0.5
Student's expectations from teacher	-		+	+	2	0.33
Individual characteristics of student	-	-		+	1	0.16
Family features of student	-	-	-		0	0

Table 9. Relative weight of student factor components based on AHP technique

Components	Relative weight
Students' academic records and experiences	385
Student's expectations from teacher	217
Individual characteristics of student	205
Family features of student	193
Inconsistency rate: 0.07	Total: 1000

The above table shows that students' academic experiences, students' expectations of teacher, individual characteristics of students, and family characteristics of students impacted 38.5%, 21.7%, 20.5% and 19.3% on quality of teaching, respectively. The responders' inconsistency rate was 0.07 and this is acceptable.

Table 10. Paired Comparison Matrix Table educational environment factor components based on AHP technique

Components	Educational environment and conditions	Physical environment	Educational quality assessment strategies	Organizational and administrative environment	Total points	Normalized weights
Educational environment and conditions		+	+	+	3	0.5
Physical environment	-		+	+	2	0.33
Educational quality assessment strategies	-	-		+	1	0.16
Organizational and administrative environment	-	-	-		0	0

Table 11. Relative weight of educational environment factors based on AHP technique

Components	Relative weight
Educational environment and conditions	341
Physical environment	247
Educational quality assessment strategies	211
Organizational and administrative environment	201
Inconsistency rate: 0.04	Total: 1000

The above table shows that among educational environment factor, the educational and environment condition (34.1%) and organizational and administrative environment (20.1%) had the highest and least effect among components. The physical environment components (24.7%) and educational quality assessment strategies (21.1%) were components affecting teaching quality. The inconsistency rate of respondents was equal to 0.04 and this is acceptable.

4. Discussion And Conclusion

The teaching quality in higher education is influenced by various factors which have been expressed in different terms in various sources. Some of the most important factors that have been emphasized by scholars include teachers, students, and educational environment factors. However, this research used mixed method and was conducted in technical and vocational university of Iran. It identified main components and concepts which were related to each of these three factors (teachers, students, and educational environment) and calculated the relative weight of each component. From among components of teacher factor, the professional teaching skill was identified as the most important component of teaching quality; this component is divided into concepts such as establishing and maintaining communication skills (5 indicators), lesion presentation skill (8 indicators), classroom management skill (4 indicators), and educational evaluation skill (7 indicators). Other components of teacher factor include personality-ethical characteristics of teacher (11 indicators), job characteristics of teacher (4 indicators), research activities of teacher (6 indicators), and individual characteristics of teacher (5 indicators); these were identified through qualitative data analysis. The effect of teacher's five components (teaching skills, occupational characteristics, personality-ethical characteristics, research activities, and individual characteristics) on teaching quality was 36.1%, 21.4%, 15.6%, 13.9%, and 13%, respectively. Different researchers (Damond (2010), Wiera (2002), Maroofi et al., (2007), Hematinejad (2014), and Mojtaba Zadeh (2016)) pointed and confirmed the impact of these components on teachers' quality of teaching.

Another finding of this research was the impact of student factors, components, and concepts on teacher's quality of teaching. According to findings, this factor (with four components, 33 concepts, and relative weight of 260 out of thousand) impacted 26% on teaching quality. The student's academic backgrounds and experiences (38.5%), student's

expectations from teacher (21.7%), individual characteristics of student (20.5%), and family characteristics of student (19.3%) were components affecting quality of teaching. This is consistent with findings of Gedin and Akariu (2008), Nishi Machi and Kudariya (2012), Melhawi (2004), Fatima (2014), Rahmani and Fathi Vajargah (2008), Sameri et al., (2013), and Tabarsa et al., (2012).

The findings on environmental environment showed that this factor (with four components, 29 concepts, and relative weight of 330 out of thousand) impacted 33% on teaching quality. From among components, the environment and educational conditions (34.1%), physical environment (24.7%), educational quality assessment strategies (21.1%), and organizational and administrative environment (20.1%) impacted on teachers' teaching quality. Tesindo (2010), Chir (2003), Sobhaninejad and Afshar (2008), and Barimani et al. (2011) referred to components of educational environment as factors affecting quality of teaching.

According to findings, however, it is recommended that in educational and research policy makings at technical and vocational university, the teaching and education quality to be considered as one of the most important issues, a desirable model to be designed for evaluation, and appropriate indicators and tools to be provided for evaluating teaching quality to promote educational activities.

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