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Procedural applications of total quality management in university education in light of the COVID-19 pandemic

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Abstract

The current study aimed to establish the basic infrastructure to facilitate the implementation of the procedural applications of total quality management, through the introduction of a fully functional total quality management unit in colleges and scientific departments, in line with internationally recognized standards, by meeting ISO 21001: standards for the requirements of the management system of educational institutions 2018 in light of the coronavirus crisis. A questionnaire was printed including all applications and 40 actions distributed to three categories of volunteers: undergraduate students, graduate students, and faculty members at the university. The current study involved the calculation of several key metrics, including the average number of volunteers, the average level of satisfaction across all choices, and the proportion of overall satisfaction attributable to the mean values observed across all groups. The results indicate a relatively low rating of 15 and a satisfaction level of 25.125 among the sample of undergraduates who participated in the study. In the context of postgraduate education, the scale reached a numerical value of 12.1, resulting in a satisfaction rate of 48.4. The responses or alternatives provided by respected faculty members at the university indicated a high level of confidence and clarity. The results indicate that a large percentage of the respondents 62.322 expressed their satisfaction unequivocally in the categorical response of "exactly yes" with a similar frequency of 8.725. The rationale behind their selection can be attributed to various factors, such as their proximity to the deanship, their great experience in university work, their active participation in decision-making processes, and the limited impact of the Corona pandemic. The satisfaction rate of university professors reached 80.57% overall. The graduate student group ranked second, peaking at 70.56%. In contrast, the statistical figures related to undergraduate students were relatively lower, as they ranked third with a rate of 55.21%.

Keywords Quality assurance, Total quality management, Procedural applications, University education, ISO 9000, Educational system, Questionnaire

Background

Universities aspire to graduate qualified graduates who can perform their duties effectively in community service through the application of the unified quality management system at the university (Blackmur 2004; Nikolaos and Eleni 2020; Quinn et al. 2009; Yakubu et al. 2020; Cruz-Benito et al. 2019; Idan 2020; García-Martínez et al. 2021). The idea of a quality management system relates to the attributes and benefits that are consistent with the product or service standard to satisfy the beneficiaries (Nikolaos and Eleni 2020; Quinn et al. 2009; Yakubu et al. 2020; Cruz-Benito et al. 2019; Idan 2020; García-Martínez et al. 2021; Alkaabi 2021; Bupe et al. 2020; Correa-Baena et al. 2018). Several studies have proven that the use of quality management techniques leads to positive results on organizational performance (Garcia et al. 2018;

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Schleyer et al. 2012; Ogunnaike et al. 2018; Quinn et al. 2009; Hendricks and Singhal 2001; Muchtar et al. 2019; Bahari 2020; Ghazal et al. 2018; Lewin et al. 2018; Latif et al. 2019). Among these benefits are increased productivity, enhanced profitability, lower prices, improved performance, improved employee relations, and increased job satisfaction (Appiah 2020; Pheunpha 2019; Manatos et al. 2018; Koh and Kan 2020; Chick et al. 2020). In 1987, the International Organization for Standardization and Metrology issued a set of standards, including the ISO 9001 series of 2015, 2000, 1994, and 1987 (Levine et al. 2020; Bilen 2010; Husky et al. 2020). Due to the difficulty of implementing ISO 9001 in educational institutions, ISO has focused on another direction to support the beneficiaries in pursuing the cause of education (Evagorou and Nisiforou 2020). Because education is the basis of productive societies, the ISO organization issued the first international standard that represents the requirements of the educational institution management system ISO 21001: 2018 for official educational institutions, with a guide explaining the method of applying the standard in May 2018 (Nasri et al. 2020). ISO 21001 provides a common management tool for organizations that provide educational products and services capable of meeting the needs and requirements of learners and other customers (Educational organizations 2018). This standard is in line with other ISO management system standards (such as ISO 9001 and ISO 14001) by applying the higher-level structure (International Organization for Standardization 2018). ISO 21001 focuses on the interaction between the educational institution, the learner, customers, and other relevant interested parties. In 2023, a study was conducted to identify the degree of application of total quality management in Jordanian universities and its relationship to the level of community service (Al-Zoubi et al. 2023). The study sample consisted of 415 faculty members, and data were collected in the second semester of 2021–2022. The results indicated that there is a high degree of application of total quality management in Jordanian universities. In 2018, he published an article examining developments and challenges in higher education in developing countries using a comprehensive qualitative interview with the Deans, Principals, and Heads of Departments of the University of Ghana (Abugre 2018). The study identifies weaknesses in institutional policies and lack of infrastructure for higher education in Ghana as the main challenge factors. In 2018, she published a paper dealing with the dynamics behind the development of quality assurance policies and practices in Slovenian higher education by focusing on the establishment of the National Agency for Quality Assurance, and the introduction of an accreditation system. From the perspective of institutional cohesion, it shows that in Slovenia, the development of quality assurance has been largely influenced by the preferences of national political actors, which calls into question the convergence of quality assurance policies and practices across the European Higher Education Area (EHEA) (Hauptman Komotar 2018). E-learning is a web-based educational system for the dissemination of information, communication, and knowledge for education and training (Cidral et al. 2018). Although studies on e-learning management systems using information systems models are available, their theoretical foundations are not familiar with the social structures of developing countries including Nigeria (Nicholas-Omoregbe et al. 2017). The results showed that attitude, social influence, and technology culture are strong determinants of the intention to adopt an e-learning management system. In contemporary times, e-learning has emerged as a pivotal strategy that facilitates individuals' access to higher education across a broad spectrum (Manatos et al. 2018). In 2022, a group of researchers conducted a study to create and evaluate a theoretical framework that uses structural equation modeling based on covariance (Koh and Kan 2020). The study was conducted by surveying 419 first-year full-time undergraduate students in the United Arab Emirates to obtain relevant data. During this investigation, it was determined that the perceived level of education provision and acquisition has significant effects on student satisfaction, with institutional and organizational reputation emerging as integral directive determinants in the model (Chick et al. 2020). During this unprecedented era, the rapid shift from traditional in-person education to digital education is seen as a paradigm shift with significant impacts on various dimensions such as social, economic, and environmental factors (Latif et al. 2019). The COVID-19 pandemic has greatly affected global societies, giving rise to the idea of a "new normal," which has been incorporated into many aspects of daily life, including but not limited to education, employment, and socialization. Research has shown that efficient and effective Learning Management Systems (LMS) were the main reasons for sustainable education in developed countries during the COVID-19 pandemic (Cavus et al. 2021a). However, due to the slow uptake of LMS, many schools in developing countries, especially in Africa, have closed their doors entirely due to the COVID-19 pandemic. The sudden onset of the COVID-19 pandemic and its associated containment measures required educational institutions of all sizes to adopt e-learning as the only option for sustainable education. Despite the many learning management systems, the rapid shift to e-learning has posed many challenges that negatively affect the effectiveness and sustainability of educational activities (Cavus et al. 2021b). COVID-19 has affected higher education

institutions, not only in Wuhan, China, where the virus originated, but all other higher education institutions in 188 countries as of April 06, 2020 (Toquero 2020). Distance education is one of the means of education development through which knowledge can be disseminated (Aljarrah et al. 2020). It can help people overcome the obstacles of time and space. Recently, education and learning systems have become completely dependent on e-learning, especially during the corona virus (COVID-19) pandemic, as the world has turned to electronic transactions in all fields, especially in the field of education. A case study was conducted at Chemnitz University of Technology (Germany), where digital classes were introduced in a matter of weeks (Skulmowski and Rey 2020). By analyzing the curriculum data, it was found that the use of video and video conferencing is an important development. The current study is based on the goal of achieving the necessary standards for the comprehensive implementation of quality standards in the field of education, and therefore the ultimate goal is to provide a recommended framework that meets the need for quality education by therequirements of ISO 21001: 2018 Educational Institutions Management System.

Methods

To study the application of the concept of total quality management in the higher education sector to the university concerned, the requirements of the educational institution's management system ISO 21001: 2018 were applied. Where a questionnaire was printed that included all the requirements of the educational institution's management system ISO 21001: 2018, Table 1 includes 40 procedures required to be distributed over three categories of volunteers provided in the same table. These procedures covered the following requirements (Educational organizations 2018): (a) focus on learners and other beneficiaries; (b) visionary leadership; (c) engagement of people; (d) process approach; (e) improvement; (f) evidence-based decisions; (g) relationship management; (h) social responsibility; (i) accessibility and equity; (j) ethical conduct in education; and (k) data security and protection. The questionnaires were distributed to three categories of volunteers as follows: 60 volunteers undergraduate students and 25 volunteers from postgraduate studies. And 14 volunteers from university faculty members. Volunteers were asked to check an appropriate (choice) box representing the action believed to be performed at the university, and the three answers were, respectively: yes exactly, almost yes, and not exactly.

A score is given for each answer (P_i) in Table 2. After the volunteers completed the three category forms, the matching choices for each action and all categories were collected and are given in Tables 5, 6, and 7. The number of points for each choice (P_{ai}) was calculated from the following equation:

$$P_{ai} = P_i \times N_{\mathrm{p}}, \quad i = 1, 2, 3, \ldots n,$$

where N_{p} is the number of volunteers for each selection.

Then, the total points for each answer (N_a) were calculated by categories as follows:

$$N_a = \sum_{i=1}^{n} P_{ai},$$

where n is the total number of questions.

Mathematically, the arithmetic mean is computed by adding the values of the elements of the group whose average can be found and dividing the sum by the number of elements (Ghazal et al. 2018; Koh and Kan 2020). Therefore, the average number of volunteers was calculated from the following equation:

Table 2 Points for each answer

Answer	Points (P_i)
Yes exactly	5
Almost yes	3
Not exactly	1

Table 1 Procedural requests questionnaire form

No.	Procedural requests	Yes exactly	Almost yes	not exactly
1	Formulate the goals and mission of the university in a clear, specific, achievable, and measurable way		√	
2	Provide the real and sincere desire of the university administration for proposals aimed at improving and developing the educational situation	√		
3	Involve professors, staff, and students in formulating university policy			√
.	.	.	.	.

Put a true (√) next to your choice

Category: undergraduate students ◯, postgraduate students ◯, and university professor ◯

Table 3 Average answers for each choice for each category

Category	N_{av}			P_{av}		
	Yes exactly	Almost yes	Not exactly	Yes exactly	Almost yes	Not exactly
Undergraduate students	18.85	15	26.15	31.45	25.125	43.414
Postgraduate students	12.1	7.4	5.5	48.4	29.6	22.0
University professor	8.725	3.75	1.525	62.322	26.785	10.893

Table 4 Contentment for each category

Category	Percentage of contentment (%C)
Undergraduate student	55.21%
Postgraduate student	70.56%
University professor	80.57%

$$N_{\text{av}} = \frac{1}{n}\sum_{i=1}^{n}\left(P_i.N_{\text{p}}\right) \tag{1}$$

The arithmetic mean of the number of volunteers was calculated for each of the three responses and all groups.

$$P_{\text{av}} = \frac{\sum_{i=1}^{n}\left(P_i.N_{\text{p}}\right)}{N.n} \times 100\%, \quad I = 1, 2, 3, \ldots n. \tag{2}$$

The average overall satisfaction was calculated for all groups. The following equation was applied in calculating the percentage of the average general satisfaction for all categories:

$$\%C = \frac{\sum_{i=1}^{n}\left(P_i.N_{\text{p}}\right)}{N.n.P_{\max}} \times 100\%, \quad I = 1, 2 \ldots n, \tag{3}$$

where $P_{\max}$ is the highest rating and is equal to 5.

Results

After studying and analyzing the results of the questionnaire for all categories and assuming that the weights of all inquiries or choices are of equal importance, the following results were reached, which are represented in the following figures and tables.

Discussion

Depending on the results obtained, from the information provided in Tables 3 and 4 and Figs. 1 and 2, the following observation was established: The distribution of responses across the three alternative options was uniform or consistent. The responses of Undergraduate students were as follows: “Not exactly” answered by an average of 26.15 volunteers and an average of 43.414 satisfaction with each choice. An average of 18.85 volunteers answered "yes exactly," and the average satisfaction with each choice was 31.45. On the contrary, an average of 15 volunteers answered "almost yes," and an average

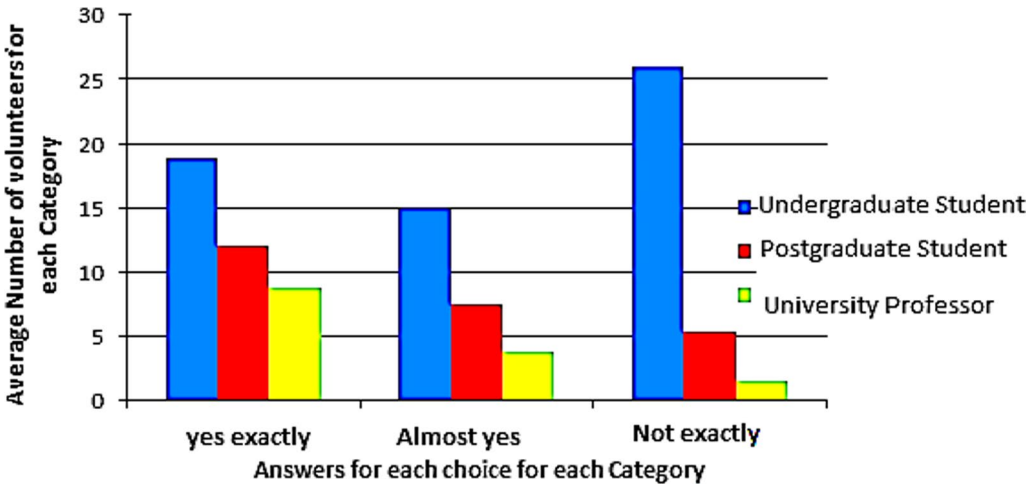

Fig. 1 The average number of volunteers and the answers for each choice

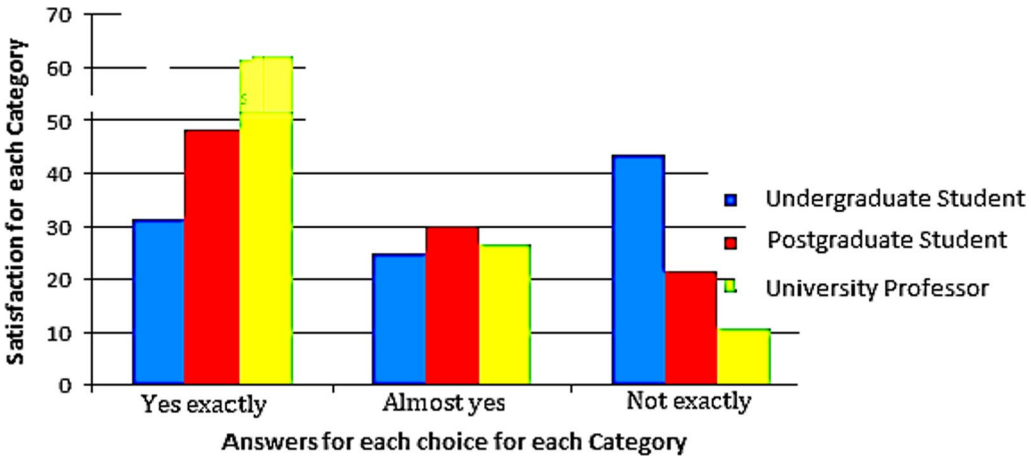

Fig. 2 The satisfaction and the answers for each choice

of 25.125 were satisfied with each choice. Based on the analyzed data, it can be assumed that the response was conveyed in the affirmative, albeit with a marginally low rating of 15 and a satisfaction level of 25.125. The remarkable phenomenon has been attributed to the spread of the coronavirus pandemic and the adoption of exclusively digital educational modes, which has resulted in a tangible rift between the pupil and the academic institution. The above reason elicited diverse responses among the students, which later contributed to the resulting inconsistency in their solutions. In the realm of graduate studies, the majority of procedures were outfitted with explicit and well-defined answers or choices. Within this framework, the uppermost available answer, which corresponded precisely with "yes exactly" attained a numerical value of 12.1, and yielded a satisfaction rate of 48.4. Conversely, a slightly less affirmative response, nearly equivalent to "almost yes" produced a value of 7.4 and a satisfaction rate of 29.6. The response that garnered the lowest score was the "not exactly" response, specifically, with a numerical score of 5.5 and an associated satisfaction rate of 22.0. The present study posits that graduate students remained unaffected by the Corona epidemic because they received face-to-face lectures in the classroom and were in proximity to their university and faculty members. The responses or alternatives provided by the members of the university faculty evinced greater confidence and lucidity. Specifically, the highest frequency of responses corresponded to a categorical "yes exactly" with an occurrence rate of 8.725, thereby indicating a satisfaction rate of 62.322. Among the responses received, "almost yes" secured the second position with a numerical score of 3.75 and a satisfaction rate of 26.785. The result demonstrates that the response "not exactly" is evidenced by its third-place ranking with a rate of 1.525 and a satisfaction rate of only 10.893. The rationale for their selection can be attributed to several factors including their proximity to the Deanship, extensive experience in university work, active participation in decision-making processes, and the minimal impact of the corona epidemic. Table 4 presents a clear picture of the total percentage of satisfaction among university professors, and it was found that the total percentage of satisfaction was 80.57%. Graduate students who expressed positive feelings came second with a score of 70.56%. By contrast, the numbers for undergraduates were lower, ranking third at 55.1%.

Conclusions

Undergraduate answers were marginally low, with a score of 15 and a satisfaction score of 25,125. For graduate students, the answers were clear and very specific with a score of 12.1 and a satisfaction score of 48.4. But the answers of the university faculty members were more confident and clear, they scored 8.725, and the satisfaction rate was 62.322. This remarkable phenomenon is attributed to the spread of the coronavirus epidemic, and the adoption of exclusive electronic educational models that they are not used to, which led to a tangible division between the student and the academic institution. As for graduate students, they remained unaffected by the Corona epidemic because they received face-to-face lectures in the classroom and were close to their universities and faculty members. While university professors were slightly affected by their closeness to the deanship, their extensive experience in university work, their active participation in decision-making processes, and the minimal impact of the Corona epidemic. The total percentage of university professors' satisfaction was 80.57%. Graduate

students who expressed positive feelings came second, with a score of 70.57%. By contrast, undergraduate student satisfaction was lower, ranking third at 55.1%.

Recommendations

- Study the feasibility of applying the international ISO 9001 standard in Iraqi universities after the COVID-19 pandemic.
- Study the negative repercussions that hinder the feasibility of implementing the international standard ISO 9001 in academic institutions, especially in the context of the COVID-19 pandemic.

Appendix

See Tables 5, 6, and 7.

Table 5 The results of the procedural requests questionnaire category: undergraduate student (number of volunteers = 60)

n	Procedural requests	Points of each answer (p_a)		
		Yes exactly	Almost yes	Not exactly
1	Formulate the goals and mission of the university in a clear, specific, achievable, and measurable way	3	6	51
2	Provide the real and sincere desire of the university administration for proposals aimed at improving and developing the educational situation	8	20	32
3	Involve professors, staff, and students in formulating university policy	3	7	50
4	Awareness and education of all employees (professors, students, staff, and workers) on the management of total quality on an ongoing basis	3	7	50
5	Attention and urging teachers to use teaching methods that depend on teaching students' thinking	57	2	1
6	Providing classroom learning supplies (computers, display screens, display devices, laboratories)	56	2	2
7	Using various assessment methods to evaluate the student's personality from multiple aspects and not be limited to the information aspect only	5	40	15
8	Renewing and updating the curricula in light of global knowledge and technological progress	1	7	52
9	Choosing qualified teachers when choosing to carry out new work and tasks	9	41	10
10	Extensive interest in the efficiency and selection of a faculty member at the university	9	41	10
11	Extensive interest in incentives and incentive rewards (for employees and students) who are distinguished in their performance at the university	3	3	54
12	Selection of qualified persons in the administrative and service departments of the university	8	33	19
13	Reducing the centralization of decision-making in the university	2	4	54
14	It provides a rich library of books and various resources in the departments and faculties of the university in addition to the central library	1	1	58
15	It provides an integrated database covering the various fields of activities and events at the university	0	4	56
16	Providing an environment that helps employees and students to innovate and develop within the university	9	30	21
17	Setting criteria for admission of students to the university	3	3	54
18	Paying attention to the offices allocated to the faculty and staff, in terms of space and appropriate equipment	2	50	8
19	Making friendliness and mutual respect between employees and between them and students a common culture	1	5	54
20	Providing an information network linking the university with other universities internally and externally	1	4	55
21	Using modern systems to transfer and exchange information in university institutions	1	4	55
22	The university's interest and encouragement for students self-learning	4	40	16
23	Continuous monitoring of student achievement and analysis of results throughout the academic year	5	40	15
24	Creating equal opportunities for all employees to achieve integrated growth in their personalities	5	40	15
25	Providing health and security services in the university's buildings and institutions	58	1	1
26	The number of students per class is small	1	4	55

Table 5 (continued)

n	Procedural requests	Points of each answer (p_a)		
		Yes exactly	Almost yes	Not exactly
27	Providing adequate housing for expatriate workers and students	4	40	16
28	The classrooms are spacious enough to accommodate the number of students	1	5	54
29	Periodic evaluation of the work of the university and its institutions to diagnose obstacles and develop appropriate treatments	52	3	5
30	Eliminating redundancy and administrative corruption in the completion of work and decision-making at the university	52	3	5
31	Interest in scientific, social, and recreational activities at the university	52	3	5
32	The university's independence and the university's inability to be affected by political, sectarian, ethnic, and racial tensions	51	4	5
33	Preparing educational programs according to the needs of the labor market and society	52	3	5
34	Supporting the activities of faculty members in the fields of teaching and scientific research, financially and morally	10	44	6
35	Commitment to the ethics of the teaching profession and mutual respect between all employees and students shall prevail in the relations between them	53	3	4
36	Providing various sports fields and establishing theaters and halls for fine arts	53	3	4
37	Paying attention to the environment and preserving it from pollution by paying attention to cleanliness, establishing gardens and landscaping with a beautiful engineering system	53	3	4
38	Paying attention to a clear job description for the work of any university employee	10	44	6
39	Description of the curricula in terms of preparing and formulating its objectives and distributing its vocabulary over the months of the school year	53	4	3
40	Establishing the curriculum unit at the university and its faculties to follow up on the progress of implementing the curriculum at the university	1	2	57
N_a		755	603	1042
$N_{av} = N_a/n$		18.85	15	26.15
% C		31.458	25.126	43.416

Table 6 The results of the procedural requests questionnaire category: postgraduate student (number of volunteers = 25)

n	Procedural requests	Points of each answer (p_a)		
		Yes exactly	Almost yes	Not exactly
1	Formulate the goals and mission of the university in a clear, specific, achievable, and measurable way	2	3	20
2	Provide the real and sincere desire of the university administration for proposals aimed at improving and developing the educational situation	5	16	4
3	Involve professors, staff, and students in formulating university policy	4	16	5
4	Awareness and education of all employees (professors, students, staff, and workers) on the management of total quality on an ongoing basis	4	17	4
5	Attention and urging teachers to use teaching methods that depend on teaching students' thinking	20	3	2
6	Providing classroom learning supplies (computers, display screens, display devices, laboratories)	21	2	2
7	Using various assessment methods to evaluate the student's personality from multiple aspects and not be limited to the information aspect only	5	17	3
8	Renewing and updating the curricula in light of global knowledge and technological progress	2	2	21
9	Choosing qualified teachers when choosing to carry out new work and tasks	3	18	4
10	Extensive interest in the efficiency and selection of a faculty member at the university	23	1	1
11	Extensive interest in incentives and incentive rewards (for employees and students) who are distinguished in their performance at the university	2	3	20

Table 6 (continued)

n	Procedural requests	Points of each answer (p_a)		
		Yes exactly	Almost yes	Not exactly
12	Selection of qualified persons in the administrative and service departments of the university	20	4	1
13	Reducing the centralization of decision-making in the university	2	2	21
14	It provides a rich library of books and various resources in the departments and faculties of the university in addition to the central library	2	3	20
15	It provides an integrated database covering the various fields of activities and events at the university	1	1	23
16	Providing an environment that helps employees and students to innovate and develop within the university	2	19	4
17	Setting criteria for admission of students to the university	21	2	2
18	Paying attention to the offices allocated to the faculty and staff, in terms of space and appropriate equipment	5	17	3
19	Making friendliness and mutual respect between employees and between them and students a common culture	21	3	1
20	Providing an information network linking the university with other universities internally and externally	20	3	2
21	Using modern systems to transfer and exchange information in university institutions	21	3	1
22	The university's interest and encouragement for students' self-learning	20	3	2
23	Continuous monitoring of student achievement and analysis of results throughout the academic year	4	18	3
24	Creating equal opportunities for all employees to achieve integrated growth in their personalities	5	18	2
25	Providing health and security services in the university's buildings and institutions	21	\3	1
26	The number of students per class is small	5	19	1
27	Providing adequate housing for expatriate workers and students	5	16	4
28	The classrooms are spacious enough to accommodate the number of students	23	1	1
29	Periodic evaluation of the work of the university and its institutions to diagnose obstacles and develop appropriate treatments	23	1	1
30	Eliminating redundancy and administrative corruption in the completion of work and decision-making at the university	20	4	1
31	Interest in scientific, social, and recreational activities at the university	19	4	2
32	The university's independence and the university's inability to be affected by political, sectarian, ethnic, and racial tensions	18	5	2
33	Preparing educational programs according to the needs of the labor market and society	18	5	2
34	Supporting the activities of faculty members in the fields of teaching and scientific research, financially and morally	5	16	4
35	Commitment to the ethics of the teaching profession and mutual respect between all employees and students shall prevail in the relations between them	21	3	1
36	Providing various sports fields and establishing theaters and halls for fine arts	20	3	2
37	Paying attention to the environment and preserving it from pollution by paying attention to cleanliness, establishing gardens and landscaping with a beautiful engineering system	19	5	1
38	Paying attention to a clear job description for the work of any university employee	5	16	4
39	Description of the curricula in terms of preparing and formulating its objectives and distributing its vocabulary over the months of the school year	21	2	2
40	Establishing the curriculum unit at the university and its faculties to follow up on the progress of implementing the curriculum at the university	3	2	20
N_a		484	296	220
$N_{av} = N_a/n$		12.1	7.4	5.5
% C		48.4	29.6	22.0

Table 7 The results (points) of the procedural requests questionnaire category: university professor (number of volunteers = 14)

No	Procedural requests	Points of each answer (p_a)		
		Yes exactly	Almost yes	Not exactly
1	Formulate the goals and mission of the university in a clear, specific, achievable, and measurable way	2	11	1
2	Provide the real and sincere desire of the university administration for proposals aimed at improving and developing the educational situation	12	2	0
3	Involve professors, staff, and students in formulating university policy	12	1	1
4	Awareness and education of all employees (professors, students, staff, and workers) on the management of total quality on an ongoing basis	1	11	2
5	Attention and urging teachers to use teaching methods that depend on teaching students' thinking	11	2	1
6	Providing classroom learning supplies (computers, display screens, display devices, laboratories)	11	3	0
7	Using various assessment methods to evaluate the student's personality from multiple aspects and not be limited to the information aspect only	12	2	0
8	Renewing and updating the curricula in light of global knowledge and technological progress	2	12	0
9	Choosing qualified teachers when choosing to carry out new work and tasks	12	2	0
10	Extensive interest in the efficiency and selection of a faculty member at the university	13	1	0
11	Extensive interest in incentives and incentive rewards (for employees and students) who are distinguished in their performance at the university	1	12	1
12	Selection of qualified persons in the administrative and service departments of the university	12	2	0
13	Reducing the centralization of decision-making in the university	1	2	11
14	It provides a rich library of books and various resources in the departments and faculties of the university in addition to the central library	1	2	11
15	It provides an integrated database covering the various fields of activities and events at the university	1	2	11
16	Providing an environment that helps employees and students to innovate and develop within the university	14	0	0
17	Setting criteria for admission of students to the university	11	2	1
18	Paying attention to the offices allocated to the faculty and staff, in terms of space and appropriate equipment	2	11	1
19	Making friendliness and mutual respect between employees and students a common culture	11	2	1
20	Providing an information network linking the university with other universities internally and externally	12	2	0
21	Using modern systems to transfer and exchange information in university institutions	13	1	0
22	The university's interest and encouragement for students' self-learning	13	1	0
23	Continuous monitoring of student achievement and analysis of results throughout the academic year	12	1	1
24	Creating equal opportunities for all employees to achieve integrated growth in their personalities	2	10	2
25	Providing health and security services in the university's buildings and institutions	12	2	0
26	The number of students per class is small	3	10	1
27	Providing adequate housing for expatriate workers and students	12	2	0
28	The classrooms are spacious enough to accommodate the number of students	2	11	1
29	Periodic evaluation of the work of the university and its institutions to diagnose obstacles and develop appropriate treatments	12	2	0
30	Eliminating redundancy and administrative corruption in the completion of work and decision-making at the university	13	1	0
31	Interest in scientific, social, and recreational activities at the university	12	1	1
32	The university's independence and the university's inability to be affected by political, sectarian, ethnic, and racial tensions	12	1	1
33	Preparing educational programs according to the needs of the labor market and society	12	2	0
34	Supporting the activities of faculty members in the fields of teaching and scientific research, financially and morally	1	12	1
35	Commitment to the ethics of the teaching profession and mutual respect between all employees and students shall prevail in the relations between them	12	2	0

Table 7 (continued)

No	Procedural requests	Points of each answer (p_a)		
		Yes exactly	Almost yes	Not exactly
36	Providing various sports fields and establishing theaters and halls for fine arts	14	0	0
37	Paying attention to the environment and preserving it from pollution by paying attention to cleanliness, establishing gardens and landscaping with a beautiful engineering system	12	2	0
38	Paying attention to a clear job description for the work of any university employee	13	1	0
39	Description of the curricula in terms of preparing and formulating its objectives and distributing its vocabulary over the months of the school year	12	2	0
40	Establishing the curriculum unit at the university and its faculties to follow up on the progress of implementing the curriculum at the university	1	2	11
N_a		349	150	61
$N_{av} = N_a/n$		8.725	3.75	1.525
% C		62.322	26.785	10.893

Abbreviations

C	Contentment
n	The number of questions
N	Number of volunteers for each group
N_a	Number of volunteers each answer
N_{av}	The average number of volunteers for each choice
N_p	The number of points
N_{pt}	The number of points for each group
P_{ai}	The number of points for each question
P_{av}	Average contentment for each answer
QM	Quality management
TQM	Total quality management

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