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**The Evaluation of the Effectiveness
and the Determination of the
Relationship between the Dimensions
of the Quality of Services Provided
by Central Library of Ferdowsi
University of Mashhad**



Abstract: - The objective of this article is to evaluate the effectiveness and determine the relationship between the dimensions of the quality of service based on the components of the servqual scale and the structural equation model in the central library of Ferdowsi University of Mashhad from the perspective of graduate students. The present research method is in terms of the descriptive-survey method. The statistical population of the research includes all graduate students of Ferdowsi University of Mashhad. The sampling method is based on a stratified random method proportional to the size of the population. The data collection tool was the standard Serqual questionnaire. The validity of the questionnaire was approved by experts, and the reliability of the questionnaire was calculated using Cronbach's alpha coefficient method equal to 0.91. To test hypothesis 1, the student's t-test statistic (average test of a community) and to test hypothesis 2, the structural equation method and path analysis diagram were used to determine the relationship between variables. The effectiveness test of the service of quality based on each of the dimensions showed that from the users' point of view, the dimensions of responsiveness, assurance, tangibles (tangible factors), reliability, and empathy have the lowest distance with the effectiveness limit. The obtained results of the test showed the significance level of the relationship between the dimensions of service quality in hypothesis 2 through the method of structural equations and the path analysis diagram. The assurance dimension has the highest relationship and the tangibles dimension has the lowest relationship with the service of quality. According to the librarians of the Central Library, the assurance dimension which has the highest significant relationship with service quality is to give more importance, they will see the effectiveness of service quality. The main findings of the research showed that the assurance dimension has the highest relationship with service quality and the tangible dimension has the lowest relationship with service quality.

Keywords: Effectiveness, Quality of services, Servqual scale, Central library, Structural equations.

I. INTRODUCTION

In the field of global competition, the subject of service quality as a strategic program has always been the attention of planners. Organizations that provide better high-quality services have pleasant and more loyal customers. No organization can succeed in achieving the goals of service quality without paying attention to the needs and demands of its customers (Iranban, Sokhikian, Abnavi, 2013; Alkadhimi A, 2024). According to Ladhari, a better quality of services causes to distinguish one organization from other competitors and obtain a series of competitive advantages (Ladhari, 2009; Alkhamsan RA, et al., 2023). The most important factor that increases the internal ability and competitiveness power of the organization is the quality of the services provided (Guo et al., 2008). Considering that university libraries play a key role in the educational system and the vital arteries of institutions play the educational and research role of the country, libraries have special importance from various aspects, especially in terms of scientific and cultural dimensions. The optimal performance and quality of services of these institutions will facilitate the achievement of the scientific and cultural goals of societies (Hariri, Najla. 2002). The existential philosophy of a library is to serve the members. (Gharib Nawaz, Zamardian, 2012). The concept of service quality implies the important role of users in how to receive library services. To achieve user satisfaction, one must first identify their priorities in the type of service. As long as the library officials are not aware of their performance in providing services to users, they cannot provide good quality services (Gharib Nawaz and Zamardian, 2018; Alqara MH, Alqara AH, & AlKhathlan A., 2024). Knowing the category of providing high-quality desirable services by libraries to users has caused the researchers should periodically investigate the amount of effectiveness and satisfaction of users of library services and propose solutions according to their needs.

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In other words, rapid changes in services technology and, on the other hand, changes in the level of diverse expectations of users from libraries' services, provide the motivation for research in this field for more interested people. The officials' special attention to the category of service quality of academic libraries and how to provide it to users, is a key and influential point on the performance of those libraries (Kirn and Diljit, 2017; Grin NA, et al., 2024). Assessing and evaluating the level of quality of services provided, in addition to having a very important role in understanding the level of quality of services provided, it also helps to measure the amount of progress and modelling from the existing best examples in the field of service quality (Shakerzadeh, 2012). If the library management, as the officials in charge of the center for meeting information needs, have a complete understanding of the users' needs, they can reduce unnecessary budgets by making correct and timely decisions and create the necessary changes to improve the quality of services and how to provide them. Giving importance and maintaining relations with the user's community and meeting their needs, is considered one of the most important duties of academic libraries (Zamani, Allah Dadian, 2007; Vardhan NRH, Ladani RK, & Reddy AR 2023). Based on this issue, Ferdowsi University of Mashhad, with six decades of educational-research experience and 150 fields of study in specialized doctoral and master's degrees, is a great scientific and cultural pole and an indicator of higher education in the northeast of the country (Ferdowsi University, 2011). According to these cases, the position of the information center and the central library is a special position in terms of scientific and specialized information. With the development of various fields of study and the quantitative increase of students in graduate courses and the necessity of quick achievement and worry-free access of these students to scientific and research resources for the preparation and compilation of research reports, the central library of the university as the main center of providing information resources needed is considered for the development of technical and specialized knowledge for users, provided that they are up-to-date and meet the growing needs of users in terms of quantitative and qualitative. The goals of the central library are to prepare, organize and provide accessible services of resources and scientific information needed by users for the progression of education and research. In line with the above goals, the following tasks have been considered for the central library which is as follows: Gathering library materials, including printed, non-printed and electronic; performing technical services (cataloguing, organizing and indexing) of all university library resources; holding librarianship training courses, guiding and training the clients in retrieving and using information resources (Ferdowsi University, 2011). Giving importance to the opinions of the user's community is an important factor in an information and decision-making system (Zamani, Allah dadian, 2016; Ruiz FJ, Luciano C, Flórez CL, & Falcón JCS. 2024). Concerning the above cases, the quality of effective services for both library officials and service users is so important; because when they are faced with a variety of tasks and demands, service units are faced with many problems (Katler, Armstrong, 2020). The concept of effectiveness means "doing the right things or achieving goals and realizing the goal" (Rezaeian, 2022). In other words, effectiveness shows how much extent of the efforts made, and the expected results that have been achieved. (Kazemi, & Abtahi, 2015). The evaluation is the only tool that measures the effectiveness and quality of academic library services. The meaning of effectiveness the quality of library services is approaching the ultimate goals and ensuring users' satisfaction (Oloomi 2012; Joseph N, & Jiji MG. 2023). There are many reasons for evaluating the effectiveness of library services. But the most important of these reasons are as follows: (1) gathering information to facilitate decision-making, (2) examining the quality of services provided, both in general and in planning for future advancements, (3) determining the possibility of solving problems, because by evaluating problems, their limits are determined, (4) identifying different or conflicting needs of different users' groups, (5) participation of users in management. In fact, regular evaluation of services allows users to play a role in library management and to express their views on service priorities and thereby find out that their words have been heard. 6) Providing a basis for further progress and guidance. Evaluating the effectiveness can reveal the lack of awareness of the library officials about a specific issue and the necessity of the work. According to the above reasons, the need to measure the effectiveness of the quality of library services is not hidden from anyone, and the use of a suitable method to measure the effectiveness of the quality of services has particular importance, because it is possible that the used models cannot respond to the compensation of the quality of library services.

In recent years, the views of librarians and information specialists regarding the quality of services have undergone many changes under the influence of the new components ruling on the scientific and research fields. At one time, gathering information resources was very important for the library as a quality criterion, and librarians tried to overcome the difficulties of the collection (lack of space, equipment, budget, human forces, etc.) to complete the collection of resources. As a result, expanding the collection of library resources was required to solve problems

related to the "collection-oriented" approach. In another approach concerning such problems, librarians and information professionals saw the solution in clearly defining the work principles and job duties of each librarian and obliging each library employee to perform their duties; with this goal that this approach will stabilize the order and system of the library and the library can perform very well its duties- that is, informing and disseminating the content of information resources. However, these positive and logical goals, after a period of development and mission-oriented, led to the influence of bureaucratic tendencies in this approach, and adherence to the performance of duties, more than the needs of library users and efforts to provide them, were considered. Now it is time for a new approach to providing library services which is as follows: "User-oriented". The essence of this approach about the user is as follows: Choosing the right information at the right time; knowing this fact that when, where and how the user should search and how not to discover what has already been discovered. According to the librarians, this approach means that the information needed tries provide the users whatever they want and at the required time. Here, the fundamental point is what is requested by the user, not what the librarian as a curator of information provides or performs (Bahmanabadi, Ali Ghasemi, 2007; Gour K, et al., 2023). In line with the user-centered approach, researchers have provided various tools to evaluate service quality. These models are mainly in the form of questionnaires that are completed by service customers. In 1988, Parasuraman and colleagues conducted a study in 4 service industries using focus groups to identify the main factors that constitute the basis of the concept of service quality. The data of this evaluation were refined in several stages and finally, in the final stage of data review, 5 dimensions of service quality were identified and defined. These dimensions include tangibles, reliability, responsiveness, assurance, and empathy. The other model entitled "LibQual" like the SERVQUAL model tries to evaluate the quality of library services in four dimensions, which include the influence of library services as a place of personal control, and access to information. Based on 25 components around these fourfold dimensions, this model measures users' perception of services using a questionnaire (Mackyzadeh, Mirghafoori, 2007; Nurmuhambetov IR, et al., 2024). The studies conducted on the application of service quality measurement models showed that the dimensions of the SERVQUAL model are compatible with the issues raised in the library. Considering this fact so far, there has not been done research using the dimensions of the mentioned model in the libraries of Ferdowsi University. For this purpose, in this research, it has been tried to measure the effectiveness of the service quality of the Ferdowsi University central library from the students' point of view (graduate education) according to the components of the Servqual service quality model, and then a significant relationship between the dimensions of service quality in the theoretical framework of the research using the structural equations model should be explained. This research can be a reliable foundation for strategic planning to improve the quality of library services by providing background information necessary to identify the weaknesses and strengths of services from the users' point of view scientifically and methodically.

II.THEORETICAL FOUNDATIONS:

Quality of Service

It may be difficult to provide a comprehensive and accurate definition of service quality in comparison with product quality. The reason for this difficulty is that service provision includes many behavioral factors. Some people emphasize on meeting the requirements and needs of customers; for example, high quality service means to attract the customer satisfaction and this point that this service is available to the customer during necessary times and does not impose a high cost. In fact, the quality provided is the difference between the customer's expectations and the service which he has received and understood. Although the factors that are used in the production of a service are tangible, but the production and sale or provision of services take place at the same time and in the presence of the customer, and what the customer perceives about the quality of this service, is intangible. This issue makes that the institutions cannot properly understand the opinions of their customers regarding the services provided. As a result, this subjectivity arises that most services cannot be evaluated in terms of quality. By considering the above-mentioned cases, we find out that it is more difficult to provide a definition of the characteristics of the quality of services than the definition of the quality of products which their appearance forms can be clearly seen.

SERVQUAL Model:

This quality measurement tool was designed by "Parasuraman" and his colleagues (1985, 1988, 1991). In fact, the SERVQUAL model is one of the models developed in the quantitative measurement of service quality in the

public sector, belonging to Parasuraman, Zeithaml and Berry (PZB, 1988). The SERVQUAL model is an attempt to measure service quality where service quality is used as a necessity for customer perception. The measurement of the quality of services should be done to properly understand the services that organizations should provide and whether these services are effective from the point of view of customers or not, and also to compare the quality of services of one organization with other organizations. According to Parasuraman's opinion, when the customer is referred to the organization, he expects the following expectations from the organization in the first stage: the employees' correct perception of the customer's expectations, the customer's past experiences from the organization's services, the way of the organization's communication with the customer (politeness and personality), the organization's accurate understanding of the customer's point of view determines the optimal relationship between the organization and the customers. Parasuraman believes that the absence of the mentioned items will reduce the quality of the organization's services. For this reason, organizations need a mechanism to measure these factors. Parasuraman and colleagues identified ten dimensions of service quality in 1985. These dimensions are as follows: Evaluation, communication, competence, respect, credibility, responsibility, accountability, safety, physical evidence, and understanding of customer needs. In the next research, Parasuraman and colleagues introduced the service quality which is used in most organizations by using psychometric tests and examination of common attributes and characteristics of service quality in 5 broad dimensions, as follows:

- A- Tangibles factors:** Including equipment, available physical facilities, employees and regular documents;
- B- Reliability:** The service organization's ability in fulfilling one's promises accurately and continuously;
- C- Responsiveness:** The organization's enthusiasm and willingness to help customers and provide services timely;
- D- Assurance:** Knowledge, courtesy and competence of employees and the organization in instilling good trust and confidence in customers;
- E- Empathy:** Compassion and empathy with the customer and paying special attention to him and trying to understand and meet the customer's needs.

Based on this issue, the important dimensions of quality can be evaluated with the name of **RATER** in higher education libraries. The term of **RATER** is abbreviation of Reliability, Assurance, Tangibles, Empathy and Responsiveness. This tool contains 22 items that measure the quality of services from the users' point of view in the form of a questionnaire and using a five-point Likert scale (Parasuraman et al., 1994). Based on this issue, the conceptual model of research is in the form of chart (1).

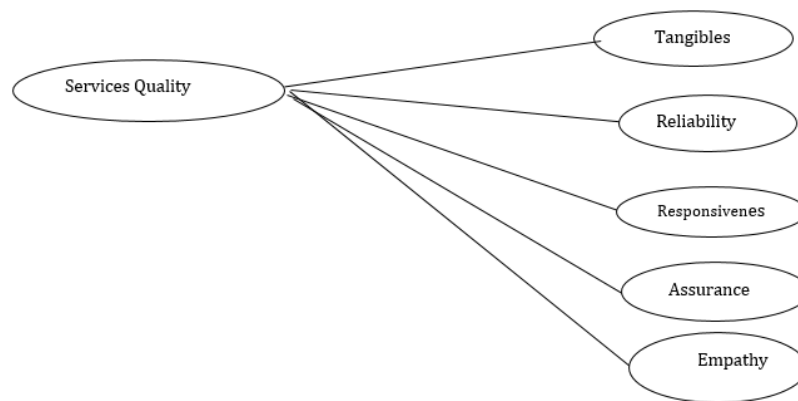


Chart 1 - Conceptual model of research

Research background:**Domestic research**

In Iran and the world, various researches have been conducted using the SERVQUAL model and different methods to measure the effectiveness and satisfaction of the quality of library services some of them are mentioned in the following description. In 2007, Mohammadi and Dostdar investigated the role of Central Library of Imam Sadiq University (AS) in meeting the information needs of postgraduate students of those university. In this research, a descriptive-survey method was used and the data collection tool was a questionnaire. The students with both master's and doctoral degrees, have described the situation of librarians at the medium level in retrieving information and the most important factors that have been effective in the lack of access to resources are the limited working hours of the library, the limited facilities for receiving information from outside, the non-available of information resources and not being up-to-date of information resources in both master's and doctoral degrees. In 2016, Mirghafoori and Mackyzadeh, in their research, evaluated the service quality level of Yazd University libraries. The results of the research showed that from the users' point of view, the service quality level of these libraries was not effective in any of the dimensions. Ahmadmozam, Shapouri and Hassanzadeh (2013) showed in their research that the level of services received by users from the public libraries of Ramsar City is higher than the minimum their expected level in some items, but it did not meet the maximum level of their expectations. Also, the findings of the research showed that these libraries are weaker in terms of information control compared to other dimensions, so that their resources have not met the minimum level of users' expectations. Mardani and Sharif Moghadam (2013) showed that users evaluate the quality of existing services lower than librarians, and this difference is deeper in the subscale of information control. In this research, the gap of service excellence in the total services of the studied libraries was evaluated equal to 5.2 and the studied libraries are many far from meeting the expectations of the users about their most optimal level of service. The librarians do not have a correct understanding of their users' expectations and the gap between the users' expectations and the librarians' perception of their needs and expectations is very negligible (Mardani, et al. 2011). Esfandiari Moghadam et al. (2012) concluded that in the current situation, Iran's libraries do not provide effective and successful services in all dimensions, and in many cases, they provide the minimum service and sometimes even lower than the minimum service expected level by the users. The quality of services in academic libraries are weak in terms of information control, in public libraries, in all components and in specialized libraries in terms of information control and the library as a place. In a research which was conducted by Babaghaibi and Fatahi in 2017 with the aim of comparing master's degree students and librarians of Ferdowsi University about the quality of library's services using the LibQual tool, the research findings showed that master's degree students have evaluated the quality of existing services lower than librarians. The Librarians pay more attention to the performed works and the spent expenses, but the master's degree students realize that their needs are not met with the existing services. The above research also showed that the quality of services of the studied libraries in Ferdowsi University does not meet the expectations of the master's degree students in any of the dimensions of LibQual. According to research which was conducted by Derakhshan and his colleagues with the aim of evaluating the service quality of the central library of the country's management and planning organization between two groups of organizational and non-organizational users, it was showed that there is a significant difference between the existing level and the desired level of service quality. Also, the opinions of these two groups of users regarding the existence of a gap between the existing and the desired situation were investigated separately, and the findings show that the opinions of both groups are the same, but the amount of this difference is different in both groups and generally according to the opinion of the library's users "Related Information Services" has the highest importance (Derachshan and peers, 2007).

Foreign research:

In the recent several years, numerous and extensive researches have been conducted in different countries using the LibQual tool, which some examples of them are mentioned. The first researches that were measured the quality of library services with the SERVQUAL scale, go back to the early 1990s. The use of SERVQUAL model in libraries has become an international phenomenon. For example, in addition to the United States and England, India (Sherikar et al., 2006) has been used. Also, there is a relative difference between the existing services and the expected services of users. In other words, the library should make more efforts to reach the desired situation of the users. In another similar study which was conducted by Nimsomboon (2003) entitled "The evaluation of

the service quality of Thammasat University Library in Thailand” it was showed that according to the opinion of users, the access to information resources and tangible factors of the library in terms of providing quality services is problematic and the services provided in those dimensions are 80% and 45% respectively away from the minimum effective level services, but in other dimensions, it has provided acceptable quality services. In another research which was conducted by Peter and Altman (Peter H, Altman E, 2002; Maluku A, et al., 2024) entitled “The evaluation of the service quality of Chicago University Library on a sample of 523 students, it was showed that the studied library could not meet the minimum expectations of users in terms of tangibles, responsiveness and assurance dimensions. Rahman and Al-Hadi (2012) in their research in Pakistan showed that the dimension of information control is the most critical dimension. Also, users were not satisfied with the size of the collection and the accessibility to the library, the attitude of the library’s staff, and the atmosphere of the library for learning. The analysis showed that the dimension of information control needs immediate attention. Asyiqin et al. (2015) showed that there is a significant relationship between service quality and customer satisfaction, and with the increase of service quality, customer satisfaction will increase. Also, the focus of service quality is emphasized more on the evaluation of customer perception of tangibles, reliability, responsiveness, and assurance, while users’ satisfaction is measured through perceived service quality, image, loyalty, and customers’ expectation. Veasna and Nimol (2015) showed that service quality of private university libraries in Colombia have higher service quality in the studied dimensions compared to public university libraries. The results showed that the fivefold dimensions of security, library as a place, information control, collection, and accesibility and the effect of services have a positive relationship with the satisfaction of users. Among of these five dimensions, the security dimension is the strongest predictor in the users’ satisfaction. The conducted internal and external researches have shown that in the current situation of libraries, in all aspects of the LibQual and SERVQUAL models, they have not been able to provide the desired services to the users in accordance with the needs of their users, and in some cases, the minimum services of the user's expectation has been answered. The gap that exists in most of the researches is that it has not been paid attention to the relationship between the dimensions and the quality of the services provided. Therefore, examining the impact and relationship of each of the dimensions on the quality of the services provided, according to the users' point of view, will show that which of dimensions the library planners should pay more attention in the current situation, so that the effectiveness can be achieved at the desired level.

Research objectives:

- 1- The determination of the level of effectiveness of the quality of services provided in the central library from the point of view of postgraduate students based on the SERVQUAL scale;
- 2- The determination of the significant relationship between the dimensions and the quality of the services provided in the central library from the point of view of postgraduate students based on the SERVQUAL scale.

Research hypotheses:

This research includes two main hypotheses and eleven sub-hypotheses (Table 1).

Table 1 - Research hypotheses

Main hypotheses	Sub-hypotheses
1- The services quality provided in the central library of postgraduate students have been effective.	1. The quality of the services provided in terms of reliability has been effective. 2. The quality of the services provided in terms of responsiveness has been effective. 3. The quality of the services provided in terms of assurance has been effective. 4. The quality of the services provided in terms of empathy has been effective. 5. The quality of services provided in terms of tangible factors has been effective.
	1- There is a significant relationship between the service tangibles and the quality of the service provided.

2- There is a significant relationship between the dimensions of services and the quality of services provided in the central library from the point of view of graduate students.	2- There is a significant relationship between reliability and the quality of services provided.
	3- There is a significant relationship between responsiveness and the quality of services provided.
	4- There is a significant relationship between the assurance and the quality of the services provided.
	5- There is a significant relationship between empathy and the quality of services provided.

Statistical population and Statistical sample size:

The statistical population of this research is made up of all graduate students in Ferdowsi University of Mashhad, which their number is 4800 students in 2018. Since the number of these group of the members of this statistical population was limited, the method of calculating the sample size was used in the case of a limited population and the sample size was determined using the following formula:

$$n = \frac{N \cdot z_{\frac{\alpha}{2}}^2 \cdot p \cdot q}{e^2 (N - 1) + z_{\frac{\alpha}{2}}^2 \cdot p \cdot q} \approx 188$$

Where in this formula:

N indicates the size of the population, which in this research is 4800 people (Total of graduate students of Ferdowsi University of Mashhad).

α indicates the error level, which in this research is considered equal to 5%.

P indicates the probability of items that answer the questions about the desired variable.

Z indicates the probability of standard normal distribution, which is taken according to the error level (5%) from the relevant table that has been calculated equal to 96.1 in this research.

e indicates the allowed error value in parameter estimation, which was considered equal to 0.07 in this research (Khaki, 2019).

According to the performed computations, the sample size has obtained equal to 188 people.

Sampling method:

In this research, a stratified random sampling method was used. In this way, firstly, the population was divided into classes according to the types of colleges and then the questionnaires were distributed simple randomly among the students in 10 colleges (For graduate students). In order to distribute the questionnaires according to the simple stratified random sampling method, we must first get the samples related to each of the classes (colleges) by using of allocation according to the size of the different classes. Therefore, the following formula is

used:
$$n_i = \frac{N_i}{N} \cdot n$$

Where in this formula:

N_i indicates the size of the population of each class, i.e. the number, *n_i* indicates the sample size of the *i*th class. Therefore, the estimation table of sample size in each of the classes will be in the form of Table No. 2:

Table 2- Stratified sampling according to volume

Row	Colleges	Population size	Sample size
1	Literature	550	21
2	Theology	300	12
3	Physical Education	101	4

4	Veterinary medicine	70	3
5	Sciences	647	27
6	Administrative and economic sciences	413	12 15
7	Mathematics	320	13
8	Educational Sciences	303	12
9	Agriculture	764	31
10	Engineering	1084	41
11	Law and political science	245	9
Total sum		188	4800

Research variables:

In this research, the factors of tangibles (Tangibility), reliability, responsiveness, assurance empathy are the independent variables and the effectiveness factor is the dependent variable.

Validity and reliability of questionnaire:

The meaning of validity is that the content of the questionnaire with the questions included in it accurately measures the studied variables and subjects. In this research, the validity of the questionnaires has been achieved through content, and to determine the content validity, the experts in the field of librarianship and senior experts of libraries have been used and the validity of the questionnaire has been confirmed. The reliability of the questionnaire, which is also interpreted as validity, accuracy and reliability, means that if a measurement criterion that is made to measure a variable and attribute is used in similar conditions in another time and place, similar results will be obtained (Khaki, 2019). To test the reliability of the questionnaire, Cronbach's alpha coefficient method has been used. According to the performed computations to determine the reliability of the questionnaire, first through a pre-test, the questionnaire was distributed among a random sample of 20 questionnaires, and then Cronbach's alpha coefficient was calculated using Spss software. The obtained Cronbach's alpha coefficient was calculated equal to 0.91 which shows that the questionnaire has high reliability.

Determination method of effectiveness evaluation criteria:

To determine the effectiveness evaluation criterion, in this research, the average scores in the 5-point Likert questionnaire, which is equivalent to the number 3, was used as the effectiveness criterion.

Operational definition of questionnaire options:

In order to facilitate the expression of the results obtained from the questionnaires, as it was mentioned, the questions scoring were performed based on the 5-point Likert scale. The item "very high" means that the effectiveness of the quality of the central library's services in the relevant field of activity is placed on a very good level (higher than the effective level). The item "high" means that the effectiveness of the quality of the central library's services in the relevant field of activity is placed on a good (effective) level. The item "medium" means that the effectiveness of the quality of the central library's services in the relevant field of activity is placed on a medium level which is the average scores of the Likert spectrum. The item "low" means that the effectiveness of the quality of the central library's services in the relevant field of activity is unacceptable (ineffective) and serious and radical measures should be immediately taken to improve it.

Categories of questions and dimensions of questionnaire:

The questions of the questionnaire based on the 5 dimensions of service quality of the SERVQUAL model are categorized according to the following description in Table No. (3).

Table 3- Categories of questions and dimensions of the questionnaire

Services Quality dimensions	Questions
Tangibles	1. Using modern and advanced equipment for simple access to the information needed by users (graduate students)
	2. Remarkable physical facilities (proper decoration, proper ventilation system, standard work design, quiet environment for studying, comfortable furniture and chairs, water cooler, suitable place for individual and group study, suitable shelves and physical spaces... ..)
	3. Employees (librarians) with clean and neat appearance.
	4. Orderly and regularly documents (such as cataloging indexing, tabulation, profiling and abstract writing - reference services, notification,
Reliability	5. Performing the promised work or service until a certain time
	6. Showing sincere interest in solving graduate students' problems
	7. Making corrections in the services at the first time and providing the service in the best way.
	8. Providing and performing the services at the promised time.
Responsiveness	9. Librarians tell users exactly what services they will provide.
	10. Librarians provide the necessary services to users in the shortest time.
	11. Librarians are always willing to help users by observing library ethics.
	12. Librarians are always ready to answer users' questions.
	13. Librarians provide services to users without delay and cheerfully.
Assurance	14. Behavior of librarians makes users trust the services provided.
	15. Users feel safe and calm in their interactions with the service provider.
	16. Librarians of the library always try to provide flawless information.
	17. Librarians have enough knowledge to answer users' questions.
Empathy	18. Librarians understand the specific information needs of users.
	19. Librarians have working hours according to the needs of users.
	20. Librarians provide services to users with individual consideration and attention.
	21. Librarians want the best reading time and satisfaction for users.
	22. Employees meet the needs of users with good human relations.

Research method:

This research in terms of purpose is based on applied and in terms of method is based on descriptive-survey method. This research has been conducted in 2018. The descriptive research can be effective in understanding the improve practical solutions and the questionnaire is the easiest way to obtain these data. In this research, library

and internet methods were used to collect secondary information, and a questionnaire (based on SERVQUAL scale) was used to collect data and field information.

Research hypothesis testing model:

In the present research, descriptive statistics indicators were used to describe the questionnaire data and inferential statistics indicators, Student's t test and structural equations test were used to test the research hypotheses. In order to analyze the collected data, the SPSS and Lisrel statistical software were used.

III.RESULTS OBTAINED OF QUESTIONNAIRE’S DATA:

The present research questionnaire with 22 five-item questions has measured the five dimensions of the quality of library’s services from the perspective of 188 subjects which based on the researcher's calculations and the data obtained from the questionnaire, 78% of the subjects used the services of the central library for more than 2 years and 22% of the subjects used the services of the central library for less than 2 years. These numbers show the correctness of the subjects' opinions in answering the questions of the questionnaire. (Table No. 4).

Table 4 - Frequency distribution and average response of users to questionnaire questions

Question	Variable	No Answer		Very Low		Low		Average		Much		Too much		Number of respondents
		percentage	Abundance	percentage	Abundance	percentage	Abundance	percentage	Abundance	percentage	Abundance	percentage	Abundance	
concrete	1	0	0	5.3	10	16.0	30	64.9	122	13.8	26	0	0	188
	2	0	0	6.9	13	28.7	54	51.1	96	13.3	25	0	0	188
	3	0	0	1.1	2	18.1	34	61.2	115	18.1	34	1.6	3	188
	4	0	0	7.4	14	20.2	38	52.1	98	20.2	38	0	0	188
	Mean	0	0	175.5	75.9	7.205	39	32.575	75.107	32.16	75.30	4.0	75.0	188
Reliability	5	0	0	9.6	18	21.3	40	42.0	79	26.1	49	1.1	2	188
	6	0	0	12.8	24	39.9	75	29.8	56	17.0	32	.5	1	188
	7	0	0	2.7	5	34.0	64	44.7	84	18.1	34	.5	1	188
	8	0	0	3.7	7	26.6	50	46.3	87	20.7	39	2.7	5	188
	Mean	0	0	2.7	5.13	4.305	25.57	7.40	5.76	47.205	5.38	2.1	25.2	188
Responsiveness	9	.5	1	1.1	2	24.5	46	26.6	50	43.1	81	4.3	8	188
	10	0	0	11.2	21	27.1	51	31.9	60	27.1	51	2.7	5	188
	11	0	0	3.2	6	35.1	66	39.9	75	21.3	40	.5	1	188

	12	0	0	6.4	12	42.6	80	31.9	60	18.1	34	1.1	2	188
	13	.5	1	2.7	5	23.4	44	45.2	85	25.0	47	3.2	6	188
	Mean	0.2	0.4	92.4	2.9	5.30 4	4.57	1.35	66	92.2 6	6.50	36.2	4.4	188
guarantee	14	0	0	8.5	16	29.3	55	44.1	83	16.5	31	1.6	3	188
	15	.5	1	6.9	13	30.3	57	35.6	67	25.0	47	1.6	3	188
	16	.5	1	6.4	12	16.0	30	43.1	81	30.9	58	3.2	6	188
	17	.5	1	2.7	5	28.7	54	48.9	92	17.6	33	1.6	3	188
	Mean	0.375	0.75	125.6	5.11	075. 26	49	42.5	75.80	22.5	25.4 2	2	75.3	188
empathy	18	0	0	8.5	16	35.1	66	39.9	75	16.0	30	.5	1	188
	19	0	0	12.2	23	31.9	60	40.4	76	14.9	28	.5	1	188
	20	0	0	5.9	11	27.7	52	51.6	97	13.3	25	.5	1	188
	21	0	0	6.4	12	39.9	75	36.2	68	17.6	33	0	0	188
	22			10.6	20	28.7	54	50.0	94	10.6	20	0	0	188
	Mean	0	0	75.8	4.16	66.3 2	4.61	62.43	82	48.1 4	2.27	3.0	6.0	188

As can be seen in Table No. 4, in all dimensions of service quality, the highest average of the responses is related to “medium” item and the lowest average of the responses is related to “very high” item which indicates this issue that most of the users have evaluated effectiveness of the service quality of the central library on the medium level. Only in some of dimensions as described below, most of the respondents have evaluated some of items on the “weak” level. For example, in relation to the questions, the reliability dimension, most of the respondents have evaluated question number 6 (sincere interests of librarians to solve postgraduate students' problems) less than the medium level and in relation to the responsiveness dimension, most of the respondents have evaluated question number 9 (explanation and detailed description of the type of services that can be provided by librarians to users) less than the medium level.

Statistical analysis and hypothesis test results:

According to this fact that in this research, the sampling method was used to investigate the effectiveness and significant relationship between the dimensions of the quality of library's services, therefore, inferential statistics should be used to analyze the results. For this purpose, to test hypothesis 1, the Student's t test statistic (Average test of a community) and to test hypothesis 2, the structural equations method has been used in the following description (Table No. 5).

Table 5 - Average test of a community (t-test)

Variable	Mean	T-statistics	Degree of freedom	Significance level	Average difference	95% confidence level	
						Upper limit	Lower limit
Services quality	81.2	-535.4	182	0.000	-18.01	-0.259	- 0.102
Tangibles factors	86.2	-478.3	187	03.001	-0.139	-0.218	- 0.060
Reliability	78.2	-324.4	187	0.000	-0.219	0.319	-0.119
Responsiveness	91.2	-1.801	187	0.000	-0.086	-0.180	0.008
Assurance	87.2	-2.403	184	0.017	-0.120	-0.219	-0.021
Empathy	634.2	-7.386	185	0.000	-0.356	-0.452	-0.261

Table 6 - Summary of the results obtained of test hypothesis 1 based on t-test

Hypotheses	P-Value	Test result with 95% confidence
1- The quality of the services provided in the central library of postgraduate students has been effective.	0.05>0.000	Hypothesis rejection
1-1- The quality of services provided in terms of tangible factors has been effective.	0.05>0.000	Hypothesis rejection
1-2- The quality of the provided services in terms of reliability has been effective.	0.05>0.000	Hypothesis rejection
1-3 - The quality of the services provided in terms of responsiveness has been effective.	0.05>0.000	Hypothesis rejection
1-4- The quality of the provided services in terms of assurance has been effective.	0.017>0.05	Hypothesis rejection
1-5- The quality of the services provided in terms of empathy has been effective.	0.000	Hypothesis rejection

As can be seen in Table No. 5, the results of the one-sample t-test in relation to hypothesis 1 (Effectiveness of service quality) show that the p-value or significant number observed is smaller than 0.05 and the average quality of services provided is also lower than 3 (Medium level). As a result, the null hypothesis is confirmed and the opposite hypothesis is rejected. This means that according to the respondents's point of view, the quality of the services provided is not effective. The results obtained of this study are in consistent with the results of many internal and external researches, such as the researches of "Kazempour" (2015); Mirghfour and Makkizadeh

(2007), Derakhshan (2007), Babaghaibi and Fatahi (2008), Esfandiari Moghadam et al. (2013), Ahmadmozam, Shapouri and Hassanzadeh (2012), Mardani and Sharif Moghadam (2012), Mohammadi and Dostdar (2017), Sherikar et al., (2006), Peter and Altman (2002), Rahman and Al-Hadi (2012), Asyiqin et al. (2015), Veasna and Nimal (2015), showed that the quality of library services could not meet the expectations of their users in any of the dimensions. The results obtained of the test of hypothesis 1-1 in Table No. 5 show that the observed p-value or the significant number is equal to 0.013, because of this number is smaller than 0.05, thus the average of service tangibles dimension is lower than 3. Therefore, it can be concluded that the null hypothesis is confirmed and the opposite hypothesis is rejected. This means that according to the respondents' point of view, the tangible factors are not effective. The results obtained of the test of this hypothesis are consistent with the researches of Nimsomboon (2003), Peter and Altman (Peter H, Altman E, 2002; Dewi BS, & Surini S. 2024) which showed that the quality of library services in the studied universities could not be acceptable from the users' point of view. The results obtained of the test of hypothesis 1-2 show that the observed p-value is less than 0.05 and the average of reliability dimension is lower than 3. Therefore, it can be concluded that the null hypothesis is confirmed and the opposite hypothesis is rejected. This means that according to the respondents' point of view, the reliability dimension is not effective. The results of Peter and Altman's research (Peter H, Altman E, 2002) in the Chicago University Library and Rahman and Al Hadi (2012), Asyiqin et al. (2015), Veasna and Nimal (2015) which showed that the studied libraries could not meet the minimum expectations of users. The results obtained of the test of hypothesis 1-3 show that the observed p-value or the significant number is equal to 0.05 and the average responsiveness dimension is lower than 3. Therefore, it can be concluded that the null hypothesis is confirmed and the opposite hypothesis is rejected. This means that according to the respondents' point of view, the service responsiveness dimension is not effective. Similarly, the results of Esfandiari Moghadam et al. (2013), Ahmed Mozam, Shapouri and Hassanzadeh (2015), Peter and Altman, Asyiqin et al. (2015), Veasna and Nimal (2015) researches are consistent. The results obtained of the test of hypothesis 1-4 show that the observed p-value or the significant number is equal to 0.017 and is less than 0.05 and the average assurance dimension is lower than 3. Therefore, it can be concluded that the null hypothesis is confirmed and the opposite hypothesis is rejected. This means that according to the respondents' point of view, the assurance dimension is not effective. Similarly, the results obtained of this test are consistent with the results of Hakimi and Souri's researches which showed that the service quality of Zahedan Medical Sciences Library could not meet the expectations of users in terms of service assurance dimension. Also, the results of the research are consistent with the results of Mardani and Sharif Moghadam (2013), Mohammadi and Dostdar (2017), Asyiqin et al. (2015), Saada M, Morrissey H, & Ball P., (2023), Veasna and Nimal (2015) and Peter and Altman's research in the Chicago University Library which showed that the studied libraries could not meet the minimum expectations of users in terms of assurance dimension. The results obtained of the test of hypothesis 1-5 in Table No. 5 show that the observed p-value is less than 0.05 and the average empathy dimension is lower than 3. Therefore, it can be concluded that the null hypothesis is confirmed and the opposite hypothesis is rejected. This means that according to the respondents' point of view, the empathy dimension is not effective. Similarly, the results obtained of this test are consistent with the results of Mardani and Sharif Moghadam (2017), Hakimi and Souri, which showed that the Medical Sciences Library could not meet the minimum expectations of users in terms of empathy dimension.

Main hypothesis test 2:

To test the main hypothesis 2 of the research, based on this fact that there is a significant relationship between the dimensions of service quality provided in the central library from the postgraduate students' point of view. For this purpose, the method of path analysis and structural equations have been used. The path diagram can be considered as a means to represent this issue that which variables cause changes in other variables. If a model drawn in the form of a path diagram and is confirmed by the fit indices of the model, as a result the path diagram can be used to test hypotheses about the existence of a causal relationship between the existing variables in the path diagram. Therefore, the first step is to determine the model fitness. The chart (2) and chart (3) are the desired path diagram for testing the hypotheses research in the form of standard estimation and significance of parameters. This path diagram includes the relationships between the research variables that constitute the overall research model and its set of hypotheses. The fitness indices for the model are given in Table No. 7.

Table 7- Fit indices of the research model (Second-order confirmatory factorial analysis)

Index	Measurement benchmark	Current situation
df (degree of freedom)	Greater than zero	204
X ² / df	Smaller than 3	18.2
p- value (significance level)	-	0.000
RMSEA (error squared)	Smaller than 0.08	0.072
GFI (Goodness of fit index)	Greater than 0.9	0.95
AGFI (Adjusted goodness of fit index)	Greater than 0.9	0.92

Index	Measurement benchmark	Current situation
df (degree of freedom)	Greater than zero	202
X ² / df	Smaller than 3	2.13
p- value (significance level)	-	0.000
RMSEA (error squared)	Smaller than 0.08	0.070
GFI (Goodness of fit index)	Greater than 0.9	0.94
AGFI (Adjusted goodness of fit index)	Greater than 0.9	0.91

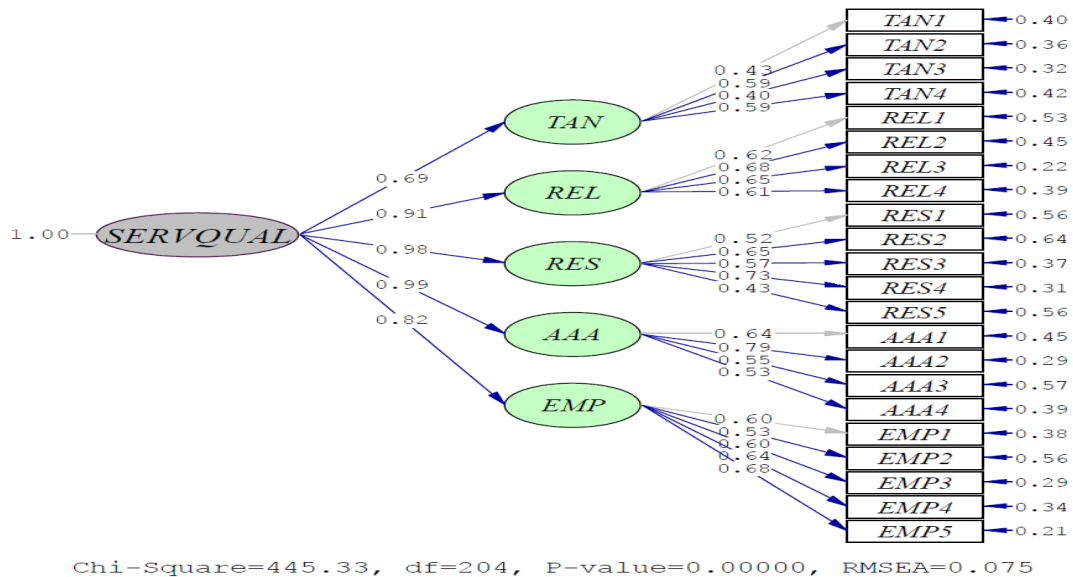


Chart 2. Second-order factorial analysis of service quality in the mode of standard estimation

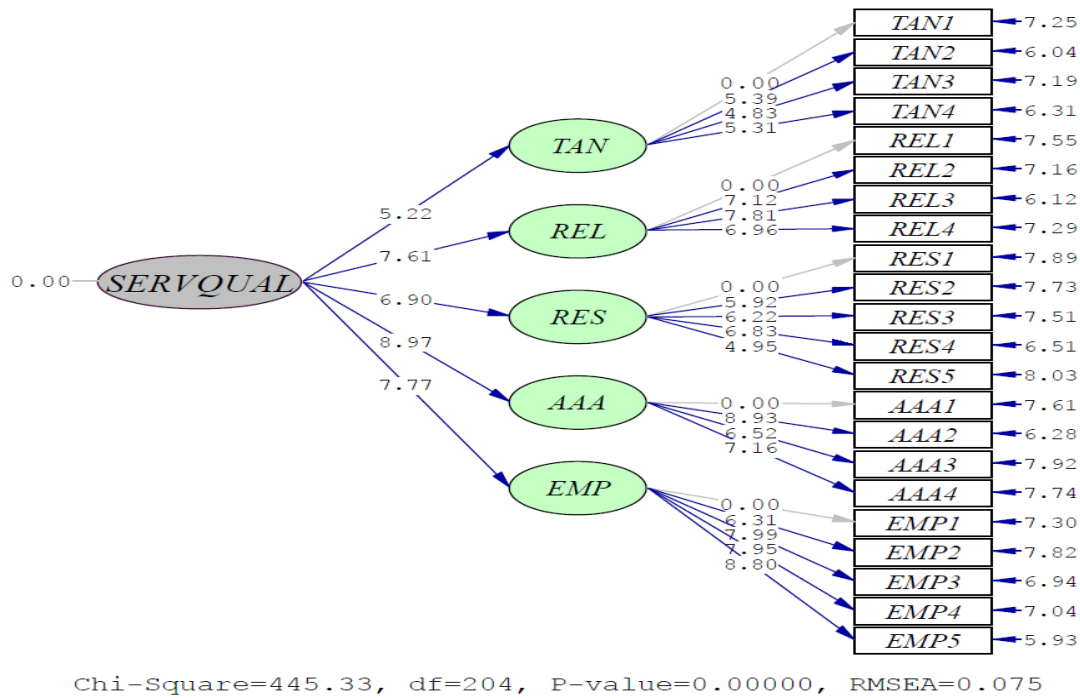


Chart 3. Second-order factorial analysis of service quality in the form of significance of parameters

Table 8 - The results obtained of the confirmatory factorial analysis of the second- order

Variables	Standard estimation	Significance number
Service Tangibles	0.69	5.22
Reliability	0.91	7.61
Responsiveness	0.98	6.90
Assurance	0.99	8.97
Empathy	0.82	7.77

As the figures in Table 8 show, the assurance variable has the highest correlation with service quality, because it has the highest standard coefficient. Also, the tangible variable has the lowest correlation with service quality because it has the lowest standard coefficient. The fit indices of the model are RMSEA and χ^2/df which in this model RMSEA is equal to 0.075 and its χ^2/df is equal to 18.2 and also GFI and AGFI indices, which their value are 0.95 and 0.92, respectively. As can be seen in Table 8, all the significant numbers related to the parameters of the model are significant because their T-value is outside (1.96, -1.96).

Confirmation or rejection of hypothesis 2:

According to the output of Lisrel in Chart 3, the following results are obtained in Table No. 9.

Table 9- The results obtained of hypothesis test 2

Dependent variable	Independent variable	Hypothesis	Significant number (p-value)	Hypothesis confirmation	Hypothesis rejection
	Service tangibles	First	22.5	✓	--
	Reliability	Second	61.7	✓	--

Services quality	Responsiveness	Third	90.6	✓	--
	Assurance	Fourth	97.8	✓	--
	Empathy	Fifth	77.7	✓	--

The hypothesis testing is based on T-value values, which should be outside (1.96, -1.96). As the figures in Table 9 show, all hypotheses have confirmed because their significance number is higher than 1.96. Among the mentioned hypotheses, the fourth hypothesis (Assurance) has the highest significant number and the first hypothesis (Tangibles) has the lowest significant number.

IV.CONCLUSION:

In this research, it has tried to answer 2 questions by obtaining the point of view of postgraduate students which are as follows:

1-Does the quality of the services provided in the central library is effective from the point of view of postgraduate students based on the Serocval scale?

2- How is the significant relationship between services quality provided in the central library from the point of view of the postgraduate students based on the Serocval scale?

According to this issue, two hypotheses were proposed. In the following, the conclusions related to the research hypotheses are discussed below. The analysis of the research data through descriptive statistics in Table No. 4 showed that most of the users have evaluated the effectiveness of the quality dimensions of the central library services at medium level. The above table also shows that most of the respondents have evaluated question No. 6 (reliability dimension) and question No. 9 (responsiveness dimension) less than the medium level and it indicates that the librarians did not show sincere interest and serious desire to solve the problems of the users and the type of tasks and services provided by the librarians to the users were not explained and described accurately. By testing the main hypothesis 1 in an inferential way, it was concluded that from the point of view of graduate students (which the majority of them were used the library services for more than 2 years), the quality of the services provided in the central library was not effective in any of the dimensions. The results of this test are consistent with the researches of Mirghfour and Makkizadeh, Hakimi and Souri, Nimsombon, Nikti, Mirghafouri and Makkizadeh, Derakhshan and especially Babaghaibi and Fatahi, and many foreign researches that have been conducted in this field. The reason for this issue may be due to the users' ideal and not realistic expectations from the library, which has caused them to judge about the existing situation in accordance with their mental standards, which are derived from their ideal expectations and have evaluated the quality of the library's services at lower level. Also, the test of the effectiveness of the service quality separately for each of the dimensions in Table No. 5 showed that from the users' point of view, the dimensions of responsiveness, assurance, tangibles (tangible factors), reliability, empathy have the lowest distance with the effectiveness. Among the five dimensions of service quality, the empathy dimension is considered as the weakest dimension, while the responsiveness dimension is in the best state, so these results are consistent with the studies of Peter, Altman and Abdullah Phase. Based on these results, it can be said that librarians in terms of librarian ethics and respect for the human aspects of services, as well as the emergence of professional capabilities are placed in a situation that in most cases, they are engaged in professional activities, at least based on the accepted level of the graduate students. These findings provide more hope regarding the improvement of the conditions of the central library. In relation to the empathy dimension which has the greatest distance from the limit of effectiveness, Table No. 4 also shows the items of understanding the specific information needs of users, expert human resources and consultants to solve users' problems, working hours according to users' needs, desirable human relations, consideration and individual attention to users, providing the best study time for users have been criticized more than other factors. In the tangibles dimension, most of the users evaluated item question 4(orderly and regular documents such as cataloging, indexing, tabulation, profiling and abstract writing - reference services, information, trust) at the weak level. This study clearly states that in order to increase the effectiveness of the quality of library services, the managers should focus their planning based on more dimensions. Also, the results obtained of the significance test of the relationship between the dimensions of service quality in hypothesis 2 through the method of structural

equations are shown in the Table No. 9. Accordingly, the assurance dimension has the highest relationship and the tangibles dimension has the lowest relationship with the quality of services. If the librarians of the central library pay attention to the assurance dimension which has the greatest significant relationship with the quality of services, they will observe the effectiveness of more service quality.

Practical suggestions:

In line with the results obtained of this research and in order to achieve the effectiveness of the quality of the central library services, the following recommendations are proposed according to the status of each of the dimensions:

- 1- Holding specialized short-term training courses for librarians and assistant librarians to familiarize with their duties and the type of services they should provide to users.
- 2- Employing and selecting librarians and assistant librarians interested in librarianship based on scientific methods.
- 3- Providing the specific and specialized information needs of users through the formation of a special service unit in the library, which consists of librarians and human resources experts in various fields.
- 4- The working hours of the library should be changed and adapted according to the needs of all types of users.
- 5- With regard to the important role of human relations in the effectiveness of service quality, it is suggested to hold short-term human relations training courses in the library.
- 6- The quality of library services should be periodically evaluated based on users' opinions, and based on the obtained results, corrective measures should be taken with the help of experts and researchers.
- 7- The physical and welfare facilities and equipment available in the library should be engineered and designed in such a way that the users do not suffer from mental and physical fatigue in long studies, and if possible, the capacity and renovation of various departments of the library should be on the agenda according to the needs of various types of user.
- 7- The service brochures and suitable information packages should be prepared for users.
- 8- The working librarians should be informed about the current developments and recent achievements of library science and the necessary training should be provided in this field.
- 9- In order to achieve the quality of effective services at the desired level, it is suggested that the performance of officials and librarians be evaluated based on the five dimensions of SERVQUAL model through users.

Suggestions for future researches:

- 1- Investigating the effectiveness of service quality periodically in the mentioned library and comparing the results in order to improve services quality indicators.
- 2- Identifying and ranking the quality components of library's services based on the Hierarchical Analysis Model (ahp) in order to design a suitable service quality model.
- 3- Comparative research to investigate the service quality status of similar libraries (Libraries of other universities) in order to find out the similar or different points in the provision of services.
- 4- Identifying and drawing the desired model of library's service quality based on the interpretive structural modeling method.
- 5- Investigating the quality of services of different library departments separately (interlibrary loan services, reference services, loan services, information services, etc.).
- 6- Pathology of the quality of library services in the university from the point of view of users and librarians.
- 7- Pathology of university library service quality planning system.

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