International Journal of Information Science and Management
Vol. 21, No. 3, 2023, 111-130
DOI: https://doi.org/10.22034/ijism.2023.1977833.0 / DOR: https://dorl.net/dor/20.1001.1.20088302.2023.21.3.7.1

Original Research

The Effect of Customer Knowledge Management on the Perceived Quality of University Library Services through the Mediating Role of Customer Relationship at the University of Tabriz Central Library

Hashem Atapour
Associate Prof., Department of Information Science, Faculty of Educational Sciences and Psychology, University of Tabriz, Iran.
Corresponding Author: hashematapour@tabrizu.ac.ir
ORCID iD: http://orcid.org/0000-0003-0763-8413

Afshin Hamdipour
Associate Prof., Department of Information Science, Faculty of Educational Sciences and Psychology, University of Tabriz, Iran.
hamdipour@tabrizu.ac.ir
ORCID iD: http://orcid.org/0000-0002-5671-995X

Elahe Zabihifar
M.A. in Knowledge and Information Science, University of Tabriz, Iran.
elahezabihi@yahoo.com
ORCID iD: http://orcid.org/0000-0003-0674-7386

Received: 12 May 2022
Accepted: 27 July 2022

Abstract

This research aims to investigate the effect of Customer Knowledge Management on the perceived quality of university library services through the mediating role of customer relationships at the University of Tabriz Central Library. This research is a correlational study that has been carried out using Structural Equation Modeling and survey method. The study population includes all 15732 students of Tabriz University in the academic year 2020-2021, of which 375 people were selected as a sample using stratified random sampling. A questionnaire was used to collect data. Data were analyzed using SEM with the partial least squares method. The results showed that Customer Knowledge Management had a positive and direct effect on the perceived quality of Central Library services of Tabriz University. Also, customer relationships had a mediating role in the relationship between customer knowledge management. They perceived the quality of Central Library services of Tabriz University. In other words, Customer Relationship strengthens the relationship between Customer Knowledge Management and the perceived quality of Central Library services of Tabriz University. The Central Library of Tabriz University can improve the perceived quality of services among users and their satisfaction with the library by improving customer knowledge management and customer relationship.

Keywords: Customer Relationship, Customer Knowledge Management, Service Quality, University of Tabriz, Academic Library.

Introduction

Knowledge is one of those assets of an organization that is never lost through use. On the contrary, the use of knowledge adds to its value. In knowledge-based organizations, knowledge is visible in the organization's instructions, views, procedures, actions, decisions, and, in general, everywhere. The importance of knowledge increases when it leads to new services. It

can be said that an organization's competitive advantage lies in knowledge and the speed of adding new knowledge to prior knowledge (Tavalaei, BamdadSufi, Rezaean & Salehi Sedghiyani, 2014).

The importance of organizational Knowledge Management is undeniable in maintaining a competitive advantage for the organization and the optimal use of knowledge assets. There are a variety of knowledge resources in the organization that need to be managed. One of the important sources is Customer Knowledge which has emphasized the need for much attention (Gibbert, Leibold & Probst, 2002). Customer Knowledge Management is a systematic process resulting from customer interaction (Salomann, Dous, Kolbe & Brenner, 2005). Kim and Kim (2007) define Customer Knowledge Management as acquiring, developing, sharing, and maintaining customer knowledge. Customer Knowledge Management generally consists of Knowledge Management and the organization's relationship with its customers, through which the organization strives to acquire knowledge about its customers and provide them with knowledge of its products and services (Akhavan & Heidari, 2011). Customer Knowledge that creates value for the organization and the customer (Paquette, 2011) includes three types of knowledge: knowledge with the customer, knowledge from the customer, and knowledge about the customer (Gibbert, Leibold & Probst, 2002). Knowledge with customers is the knowledge that the organization provides to its customers to introduce its products and services better to motivate them to products and services (Nejatian, Sentosa, Piaralal & Bohari 2011). Customer knowledge refers to customers' requests, expectations, ideas, thoughts, and experiences of customers towards the services and products of the organization as well as their understanding of the market (Gibbert, Leibold & Probst, 2002). This knowledge is provided to the organization in various ways and can be used to develop and improve the organization's services (Nejatian & et al., 2011). Customer knowledge is a type of knowledge that helps an organization to get to know its customers and to target them effectively (Gibbert, Leibold & Probst, 2002). This type of knowledge is often grouped into three types: demographic, psychological, and behavioral (Bose & Sugumaran, 2003). The three types of Customer Knowledge can be created and developed using customer relationship techniques.

On the other hand, there are university libraries. Due to the speed of information production and the advent of new technologies, the academic and research community demands new and up-to-date information from them (Hariri and Afnaei, 2008). Like other types of libraries, these types are service-oriented organizations whose existence depends on their customers, referred to as users in the context of libraries. University libraries must provide quality services to attract, retain and increase their users. It seems that Customer Knowledge Management, which is applicable in many activities, processes, and procedures of libraries and information centers, can help to improve the quality of libraries' services and increase their efficiency and competitive excellence (Rajabali Beglou, 2012) and ultimately promote the quality of university education and research.

A literature review shows considerable research on the quality of university library services and contributing factors. Among them, we can mention the research of Ghafari and Korani (2011), Jabbari and Jalali Dizaji (2017), Ghorbani (2016), Rak (2018), and Khosravi and Pournaghi (2018). In addition, several theoretical and empirical studies have been conducted on Customer Knowledge Management in libraries. These studies include providing a theoretical framework for development of a customer Knowledge Management system for academic libraries (Parirokh, Daneshgar & Fattahi, 2009), Organizing customer knowledge in academic

libraries (Daneshgar and Bosanquet, 2010), providing an integrated customer Knowledge Management framework for academic libraries (Daneshgar & Parirokh, 2012), introducing Customer Knowledge Management as an Approach to Integrating Knowledge Management and Customer Relationship Management (Rajabali Beglou, 2012), measuring the maturity level of customer Knowledge Management in improving the services' quality of University of Tabriz Libraries (Zareei & Soleimanlou, 2015), investigating the status of customer Knowledge Management in Information Center and Central Library of Ferdowsi University of Mashhad (Malakouti Asl, Kafashan Kakhki & Parirokh, 2019), Designing and validating a checklist for assessment of customer Knowledge Management in academic libraries (Kakhki, Asl & Parirokh, 2021). To the best of our knowledge, there is no study on the effect of Customer Knowledge Management on the perceived quality of university library services in the presence of Customer Relationships as a mediating variable. In recent years, university libraries have either been empty of visitors or the presence of users has been limited to reading textbooks during the final exams of universities. However, university libraries are not just a place to study and to play various educational and research roles. They have been responsible for accessing, organizing, maintaining, and disseminating electronic and printed information resources and providing information services to users (Terhile & Yawe, 2014). It seems that one of the reasons for the low acceptance of university libraries is concerned with the lack of quality services provided by them. The results of some studies conducted in the field of service quality of university libraries in Iran show that the services of these libraries meet the minimum expectations of users, and there is a gap between the current level of services and the expected level. Some studies are Hashemian, AleMokhtar and Hassanzadeh (2012), Ahmadimirgaed, Maleki and Momeni (2015), Pourahmad, Neshat and Hasani (2016), and Kalhor, Bardi Neshin, Karimi and Birjandi (2020). This shows that the quality of services of university libraries needs special attention since the quality directly or indirectly affects customer satisfaction and their loyalty to the library (Malik, Naeem and Arif, 2011; Kaur and Dilijit, 2011). In the absence or low quality of customer service, attracting and retaining customers face difficulties, which can overshadow the existence of university libraries. Therefore, it is important to identify the factors contributing to the quality of university library services and how to improve them. Customer Knowledge Management and Customer Relationship Management are among the variables affecting the perceived quality of university library services. Accordingly, the present study intends to study the effect of Customer Knowledge Management on university libraries' perceived quality of services through the mediating role of Customer Relationships. For this purpose, the Central Library of the University of Tabriz, one of the largest university libraries in Iran and a provider of various services to many students, was selected to study the relationship, as mentioned earlier.

Conceptual Model and Hypothesis

Libraries, especially academic libraries, deal with activities such as user community analysis, information needs assessment, and introducing resources and services to promote their services. Concentration on Customer Knowledge Management and types of customer knowledge reveal that many of the activities mentioned above significantly overlap with Customer Knowledge Management. As a result, it can be argued that Customer Knowledge Management can improve the quality of academic library services. On the other hand, extracting, acquiring, and managing various types of customer knowledge requires effective

and comprehensive relations with users. Customer Relationships seem to strengthen the relationship between Customer Knowledge Management and the quality of library services. Accordingly, the conceptual model of the present study is presented as follows (Figure 1):

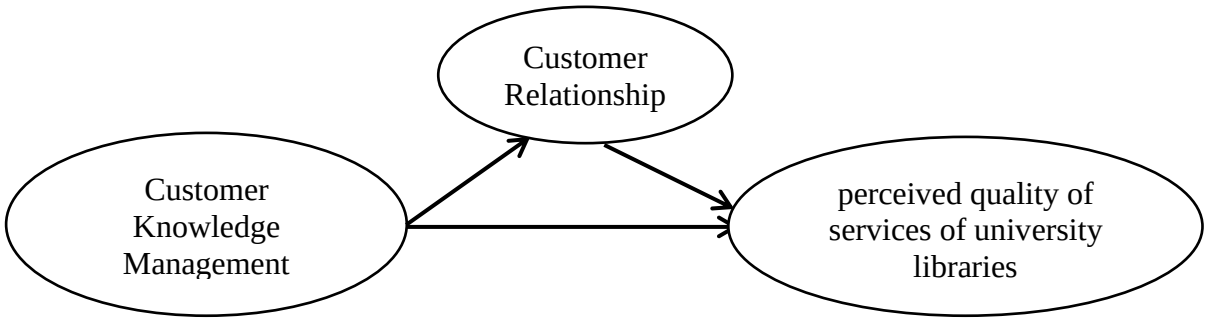

Figure 1. Conceptual model

The above relationships have been studied in the non-library context and often in for-profit organizations. For example, the impact of external knowledge (knowledge from customers, suppliers and competitors) on service quality in Tseng (2016), the effect of Customer Knowledge Management on service quality in Ghelichli and Rahimi (2016), the effect of Knowledge Management on the success of Customer Knowledge Management in Yaghoubi, Amiri Fini and Rahmati Najarkalaei (2017) the effect of Customer Knowledge Management on organizational performance with the mediating role of Customer Relationship Management in Jamali (2018), the effect of Customer Knowledge and Customer Relationship Management on service quality in Tseng and Wu (2014), contribution of external knowledge (measured by firms' customer orientation) to quality and efficiency of service system performance in (Jayaram & Xu, 2016), the impact of Knowledge Management Capability on service quality with the mediating role of Customer Relationship Management in Tseng (2016), boosting quality performance through customer knowledge management and service innovation capability in the automotive industry in Janteng, Tan and Fernando (2018), the influence of Customer Knowledge on service innovation capability in Yasmeen, Wang, Zameer & Waheed (2019), the impact of customer relationship management dimensions on service quality in Al-Gasawneh, Anuar, Dacko-Pikiewicz & Saputra (2021) have been studied and confirmed. Based on the above findings and based on studies that have theoretically discussed Customer Knowledge Management in libraries, the hypotheses of the current research are as follows:

H1. Customer Knowledge Management significantly affects Customer Relationships in the Central Library of Tabriz University.

H2. Customer Relationship significantly affects the perceived quality of Central Library services of Tabriz University.

H3. Customer Knowledge Management has a significant effect on the perceived quality of the Central Library services of Tabriz University.

H4. Customer Relationship positively affects the relationship between Customer Knowledge Management and the perceived quality of Central Library services of Tabriz University.

Literature Review

Castagna, Centobelli, Cerchione, Esposito, Oropallo and Passaro (2020) presented a new definition of Customer Knowledge Management and introduced it as a logical intersection of Customer Relationship Management and Knowledge Management. Rajabali Beglou (2012) states that using Customer Knowledge Management and Customer Relationship Management leads to improving organizational performance and the emergence of a purposeful and efficient system for determining customers' needs and satisfaction. Daneshgar and Bosanquet (2010) categorized the types of Customer Knowledge in academic libraries. Accordingly, Customer Knowledge in libraries falls into three categories: knowledge about customers, knowledge from customers, and knowledge with customers. Given that each type of Customer Knowledge can be explicit or implicit, in total Customer Knowledge is classified into 6 groups. Parirokh, Daneshgar and Fattahi (2009) presented a theoretical framework for developing a Customer Knowledge Management system in academic libraries. Based on the authors' experiences in managing university libraries and their expertise in knowledge management, they provide a conceptual framework for managing various knowledge-related activities, especially Customer Knowledge in academic libraries. Their proposed framework has two main components: (1) an overall integrated Knowledge Management model for the academic library as a basis for examining Customer Knowledge Management, (2) a method to integrate different types of Customer Knowledge into academic libraries to improve services or creating innovative services in academic libraries. Using a qualitative exploratory case study and review of current literature in the field of Knowledge Management, Daneshgar and Parirokh (2012) presented a conceptual model. This model is presented as an analytical tool to improve current services and create innovative services by properly managing Customer Knowledge in academic libraries.

There are few empirical studies on Customer Knowledge Management in libraries. However, these few studies have mainly examined the status of Customer Knowledge Management in libraries, and the effect of Customer Knowledge Management on library service quality and performance has not yet received much attention. Zareei and Soleimanlou (2015) examined the level of maturity of Customer Knowledge Management in Tabriz University libraries and its relationship with the quality of Tabriz University library services from the perspective of librarians. The results of this study showed that different dimensions of Customer Knowledge Management, including strategy, technology, integration, process, and human resources are at the third level of maturity, and there is a positive and significant relationship between these dimensions and service quality. In addition, among the dimensions of Customer Knowledge Management, technology had the greatest impact on service quality. Malakouti Asl, Kafashan and Parirokh (2019) studied the status of Customer Knowledge Management in the Information Center and Central Library of Ferdowsi University of Mashhad. The results of their research showed that the Information Center and Central Library of the Ferdowsi University of Mashhad are moderate in managing different types of Customer Knowledge.

The relationships considered in the current study have been primarily studied in non-library contexts. These studies can be divided into three categories: several studies have dealt with the impact of Customer Knowledge Management on service quality, others have considered the impact of Customer Knowledge Management on organizational and marketing performance, and the third group embraces studies that just have focused on Customer Relationship effect and its impact on organizational performance and service quality. It should be noted that the studies of the first two groups were often done in the presence of a Customer Relationship

variable. The following are some of the studies in each category:

Tseng (2016) studied the impact of external knowledge and knowledge chain on service quality. A survey was done on a sample of 500 Taiwanese corporations. The results of the study showed that external knowledge had a positive impact on service quality. Tseng and Wu (2014) examined the impact of Customer Knowledge and Customer Relationship Management on service quality. The results showed that Customer Knowledge positively affected service quality, and Customer Relationship Management had a minor intervention role between Customer Knowledge and service quality. That is, Customer Knowledge enhances Customer Relationship Management, and Customer Relationship Management, in turn, enhances service quality and brings a competitive advantage. They conclude that Customer Knowledge is an essential source of competitive advantage. Ghelichli and Rahimi (2015) conducted a study entitled "The effect of Customer Knowledge Management and its dimensions on service quality and customer satisfaction". this study, done using a standard questionnaire in Bank Melli Iran and Bank Mellat, revealed that the dimensions of Customer Knowledge Management (knowledge from the customer, knowledge with the customer, and customer knowledge) positively affected customer satisfaction and service quality in surveyed banks. Jayaram & Xu (2016) tried identifying service operations' quality and efficiency performance determinants. Their research, conducted on a large sample of 249 Chinese service firms, showed that Knowledge of customer orientation influenced quality and efficiency dimensions of service system performance.

Tseng (2016) surveyed middle-top managers of the largest Taiwanese corporations to examine the impact of Knowledge Management Capability on Customer Relationship Management and service quality. The results showed that KMC had a positive influence on Customer Knowledge management and service quality, furthermore, Customer Knowledge Management had a positive influence on service quality. Nazari, Tajdin and Ebadi (2017) examined the effect of Customer Knowledge and Customer Relationship Management on the services' quality of Sarmad Insurance Company. This study also showed that Customer Knowledge and Customer Relationship Management affect the quality of services of Sarmad Insurance Company. Janteng, Tan and Fernando (2018) concluded Customer Knowledge Management and service innovation capability affect the quality performance of automotive service centers in Malaysia. Yasmeen et al. (2019) surveyed 319 managerial employees to study the Customer Knowledge dimension of service innovation capability. Their study revealed the significant influence of Customer Knowledge on service innovation capability. Al-Gasawneh et al. (2021) used a survey among the general managers of hotels in Jordan to study the impact of Customer Relationship Management (CRM) dimensions on service quality. The results showed Customer Relationship Management had a positive impact on service quality.

Jamali (2018), in his thesis, examined the impact of Customer Knowledge Management on organizational performance by considering the mediating role of Customer Relationship Management in Asian insurance agencies and branches. The results showed that Customer Knowledge Management had a positive and significant effect on organizational performance only when Customer Relationship Management play mediating variable between them. Asgari, Ansari, Rashidi & Sourani (2016) conducted a study entitled "enhancing innovative and sale performance through Customer Knowledge Management ". The statistical population of this study included 900 salesmen of Behbakhsh company, of which 270 people were selected by simple random sampling method. The results showed that the three components of Customer

Knowledge had a positive effect on the innovative performance and sales of the company, and innovative performance can also help improve organization's sales performance. The study by Esmaeilpour, Doostar, and Taherparvar (2016) entitled "Customer Knowledge Management and its role in continuous innovation and superior performance (Case Study: Private Banks in Guilan Province)" showed that knowledge from customers had a positive and significant effect on the quality and speed of innovation and the financial and operational performance of studied banks. Ehsanfar and Garousi (2017) investigated the effect of Customer Knowledge and Customer Relationship Management on marketing capability and organizational performance in private insurance companies. The findings of this study revealed that Customer Knowledge Management had an impact on Customer Relationship Management. Customer Relationship Management also had a positive and significant effect on organizational performance. The mediating role of Customer Relationship Management in the relationship between Customer Knowledge Management and marketing performance was focused in Ahmadizad, Mousavi Jed, Rafiei Delfan and Yasemi (2017). This study, conducted among 163 senior marketing managers of industrial towns of Kermanshah province, showed that the dimensions of Customer Knowledge Management positively and significantly improved marketing performance and Customer Relationship Management. Usugami (2017) examined the role of intercultural Customer Knowledge Management in promoting the tourism industry. The results showed that big data has become a high priority in intercultural Customer Knowledge Management in local governments and Japanese tourism organizations in two years. The growth of international tourists, IT infrastructure improvement, and preparation for the Tokyo Olympics and Paralympics in 2020 were identified as external drivers of intercultural Customer Knowledge Management using big data.

Esmaeilpour and Razavi Dashti (2013) identified and ranked the factors affecting the electronic Customer Relationship Management infrastructure in small and medium enterprises. The results of this study, conducted among managers, business and information technology experts of small and medium companies in Bushehr province, led to the identification of 7 factors. These factors include culture, management, technology, manpower, structure, processes, and strategies. The ranking results showed that culture and strategy were the most important and least important factors in e-customer relationship management infrastructure. Karbala Aghaei Kamran and Karimi Suflo (2017) examined the observance of four-dimensional components of Customer Relationship Management (technology, user focus, process organization, and Knowledge Management) in the central libraries of Tehran public universities from the perspective of managers and employees. The results showed that Tarbiat Modares University, Art University, and the Amirkabir University of Technology observed the four-dimensional components of Customer Relationships more than other surveyed universities. Hart, Hogg and Banerjee (2019) analyzed the impact of Customer Relationship Management on improving organizational capabilities in 15 car production companies. They concluded that using experiences in Customer Relationship Management improves the organization's ability, productivity, and benefits.

A literature review shows that despite theoretical and empirical studies on Customer Knowledge Management in libraries, the effect of Customer Knowledge Management and Customer Relationships on the service quality of university libraries has not been examined. This distinguishes the present study from previous studies. Furthermore, the present study differs from the research of Zareei and Soleimanlou (2015), which studied the maturity of

Customer Knowledge Management in Tabriz University libraries and its relationship with the quality of services. In the present study, Customer Knowledge Management is measured using three types of customer knowledge. Also, the perceived quality of services is determined from the users' perspective.

Materials and Methods

Research Design

This study is applied research in terms of research objectives and survey research in terms of data collection. It falls into the correlational studies carried out using Structural Equation Modeling. Research data were collected using a researcher-made questionnaire that encompassed two parts. The first part was collecting respondents' demographic information, such as gender, age, and educational level. The second part consisted of theoretical constructs and items related to them. All the constructs and items were adopted from previous literature, including Jabbari and Jalali Dizaji (2017), Ghorbani (2016), Azghandi Shahri (2016), and Rezaei Heidari (2018). The face and content validity of the questionnaire was examined and confirmed using experts' opinions. Table 1 shows the constructs and items.

Table 1
Constructs and items of the research questionnaire

construct	item
Customer Knowledge Management	Q1 The knowledge acquired from library users leads to new services.
	Q2 Librarians are constantly enquiring users about the features and quality of current library services.
	Q3 Library users are asked about the services they need.
	Q4 The library conducts training sessions to make users more aware of the services provided.
	Q5 Librarians help users find information.
	Q6 Library staff share their knowledge with users.
	Q7 Librarians know the history of users' use of information resources.
	Q8 Librarians ensure that the privacy of library users is protected.
	Q9 The library staff has the necessary ability to understand users' needs.
Perceived Quality	Q10 In this library, staff Qeate a sense of trust in users.
	Q11 Librarians are ready and willing to answer users' questions.
	Q12 The behavior of librarians is satisfactory.
	Q13 Librarians pay attention to every user.
	Q14 Librarians are aware of the needs of library users.
	Q15 Library electronic resources are available from home.
	Q16 Library electronic resources are available from the workplace.
	Q17 users can access information for independent use (without the librarian's help).
	Q18 The speed of employees in providing services is appropriate.
	Q19 Print resources required by users are available in this library.
	Q20 The Information retrieval tools of this library allow easy use of information resources.
	Q21 In this library, new and suitable equipment (sufficient computers, printers, tables and chairs, proper ventilation, etc.) are provided to users.
	Q22 The library atmosphere inspires study and learning.

construct	item
	Q23 The library space is a comfortable and pleasant environment.
	Q24 The library's public space is suitable for group learning and study.
	Q25 there is a quiet space for individual activities In the library.
Customer Relationship	Q26 Reminder systems such as IVR, SMS, etc., are used to communicate with users.
	Q27 Users' personal information is protected.
	Q28 This library presents its terms and services in announcements and brochures.
	Q29 This library can establish and maintain close relationships with users.
	Q30 In this library, staff maintain long-term relationships with their users.
	Q31 In this library, the number of responsive people to the users is well proportioned.

Data Collection

The population of the study was all students of Tabriz University in the academic year 1399-1400, whose number was 15,732 students in 17 faculties. It should be noted that the students of affiliated off-campus faculties and the international branch of Tabriz University have not been considered in the calculation of the population. Using the Krejcie-Morgan formula, 375 samples were selected from the population. Sampling was done using stratified random sampling. Due to the prevalence of Covid-19 and the university's closure, the questionnaires were distributed and completed through electronic communication with the students of Tabriz University on social networks (Telegram, WhatsApp and Instagram, etc.) or by email. As mentioned, the number of research samples was 375, and the questionnaire was distributed among all selected members. If the selected person did not want to participate in the study, the person in the sampling frame after him/her would be selected as a sample so that the questionnaire response rate is 100%. SPSS software was used to calculate the descriptive values and Cronbach's alpha coefficient and test the normality of the data. Smart PLS software was used to model the structural equations.

Results

Descriptive Statistics

Table 2 shows the descriptive values of the main variables.

Table 2
Descriptive Values of Research Variables and Components

Variable	***mean***	***standard deviation***
Customer Knowledge Management	3.64	1.05
Perceived quality of services	3.71	0.97
Customer Relationship	3.82	0.97

According to Table 3, all the main variables of the research are above average, so customer relationship management is in a better position than the other two variables.

Test of Normality

The Kolmogorov–Smirnov test was used to find out the normality of collected data distribution. In the Kolmogorov–Smirnov test, the data has a normal distribution if the P-value is greater than 0.05. Table 4 provides the results of the Kolmogorov–Smirnov test for research variables.

Table 3
Kolmogorov–Smirnov Test Results

Variable	K-S statistic	P-value	Test result
Customer Knowledge Management	0.172	0.001	Not normal
Perceived quality of services	0.181	0.001	Not normal
Customer Relationship	0.209	0.001	Not normal

According to Table 4, the significance level of the Kolmogorov-Smirnov test for all research variables is less than 0.05. As a result, all variables have a non-normal distribution.

Structural Equation Modeling

In the current research, the Partial Least Squares method has been used to model the structural equations. This is one of the most potent analysis methods for small samples, non-normal data, and formative measurement models (Ringle, Sarstedt, and Straub, 2012). Two models are tested in the Structural Equation Modeling by Partial Least Squares method. The first model is the measurement model. The second model is and structural model.

Measurement Model

In modeling structural equations, the validity of the construct must first be examined to determine whether the selected indicators are accurate enough to measure the construct. Confirmatory Factor Analysis is used for this purpose. In this method, the relationship between a latent variable (construct) and its observed variable(s) (indicator) is determined by a number called factor loading. The higher the factor loading of an indicator with a specific construct, the more that indicator explains that construct (Davari & Rezazadeh, 2013). Gefen and Straub (2005) suggest that the factor loading of each observed variable should be more than 0.4, and its t-statistic should be more than 1.96. Otherwise, that variable should be excluded from the set of indicators. As shown in Table 5, the factor load of all items is more than 0.5. So no questions will be removed from the analysis.

The reliability of research items is evaluated using two criteria of Cronbach's alpha (CA) and composite reliability (CR). According to Cronbach (1951), the appropriate amount of Cronbach's alpha is above 0.7. PLS offers another criterion for reliability called composite reliability, introduced by Werts, Linn, and Joreskog (1974). The advantage of this criterion over Cronbach's alpha is that the reliability of constructs is not absolute but is calculated concerning the correlation of constructs with each other. Fornell and Larker (1981) set standards above 0.7 for composite reliability. According to Table 4, Cronbach's alpha for all constructs is over 0.7, indicating appropriate research item reliability. Also, the composite reliability values for all constructs are above 0.7, indicating that constructs have good composite reliability.

Table 4
Factor loading, T Statistics, AVE, CA, and CR for Research Items

construct	Item	Factor loading	T statistic	AVE	CA	CR
Customer Knowledge Management	Q01	0.665	16.294	0.601	0.931	0.915
	Q02	0.639	15.188			
	Q03	0.809	30.656			
	Q04	0.816	32.864			
	Q05	0.855	49.528			
	Q06	0.775	29.970			
	Q07	0.728	21.685			
	Q08	0.828	44.277			
	Q09	0.832	48.404			
Perceived Quality	Q10	0.727	24.912	0.526	0.947	0.937
	Q11	0.697	19.703			
	Q12	0.724	26.288			
	Q13	0.762	27.448			
	Q14	0.790	28.608			
	Q15	0.779	33.277			
	Q16	0.813	37.673			
	Q17	0.720	22.376			
	Q18	0.729	22.941			
	Q19	0.675	18.571			
	Q20	0.753	25.163			
	Q21	0.653	15.252			
	Q22	0.680	16.619			
	Q23	0.674	15.631			
	Q24	0.729	20.215			
	Q25	0.658	13.523			
Customer Relationship	Q26	0.811	32.181	0.591	0.896	0.861
	Q27	0.784	27.693			
	Q28	0.794	29.382			
	Q29	0.714	19.512			
	Q30	0.784	30.181			
	Q31	0.718	18.843			

The research model's validity is examined using convergent validity and divergent (discriminative) validity. Convergent validity examines the correlation of each construct with its items or indicators. The Averages Variance Extracted (AVE) was used to scrutinize the convergent validity of the research. Fornell and Larcker (1981) set a standard above 0.5 for AVE. As Table 4 shows, the AVE for each research construct is greater than 0.5, so the convergent validity of the research model is perfect.

The Fornell-Larcker Test (1981) was used to examine divergent validity. According to this test, divergent validity is acceptable when the root AVE for one construct is greater than the correlation coefficients of that construct with other constructs. Table 6 shows the root AVE for each construct and correlation coefficients between the research constructs. In this table, the values of the original diameter of the matrix present the root AVE and the values below the

original diameter present coefficients between research constructs. According to this table, the root AVE for each construct is greater than the correlation coefficient of that construct with other structures. Therefore, the divergent validity of the research model with the mentioned criteria is excellent.

Table 6
Root AVE for research Construct and Correlation Coefficients between Constructs

row	construct	1	2	3
1	Customer Relationship	0.769		
2	Customer Knowledge Management	0.644	0.775	
3	Perceived Quality	0.555	0.653	0.725

Structural Model and Hypothesis Testing

After testing the measurement model, the structural model of the research, which examines relationships between latent variables, is tested. The graphic output of the research model is as follows (Figure 2).

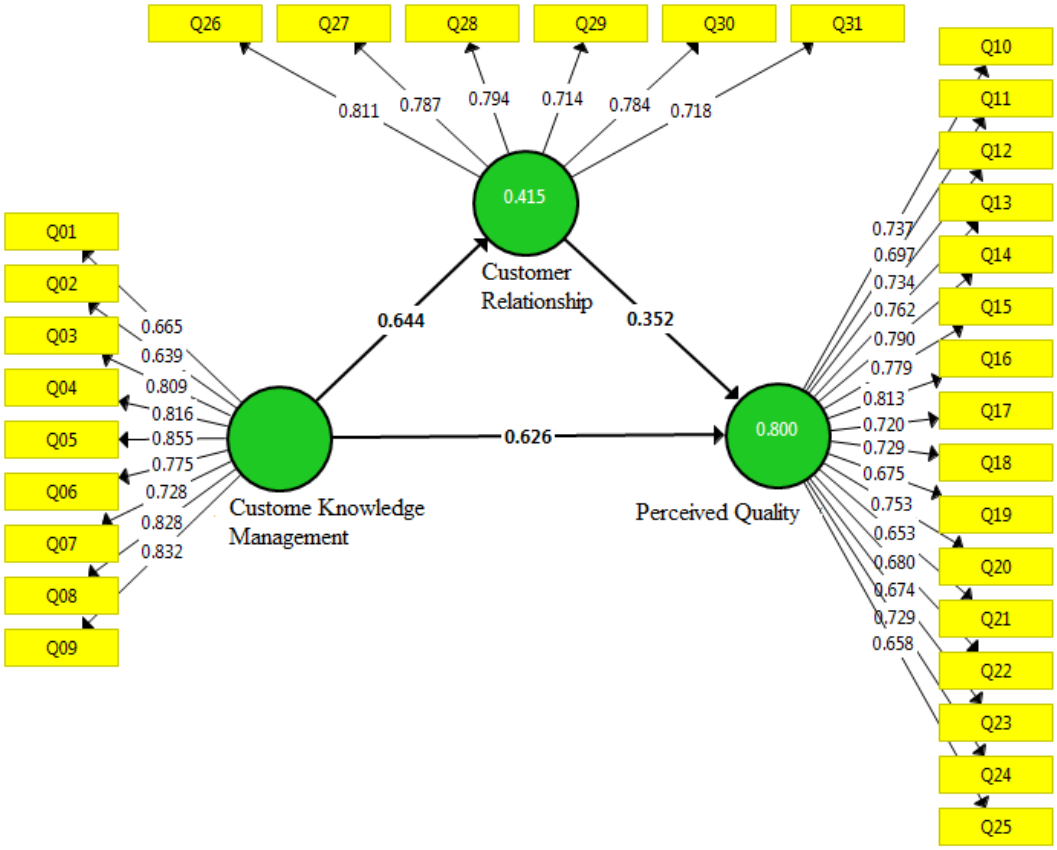

Figure 2. The Structural Model with Standard Coefficients

The numbers written on the paths in Figure 2 show the path coefficients. The size of the path coefficient indicates the intensity of the relationship between the two variables. T-statistic values were calculated to test the significance of path coefficients. If the t-statistic values are out of the range of +2.56 to -2.56, the path coefficient is significant at 0.01.

Figure 3 shows t-statistics values for each path. Table 7 shows the path coefficient (β) and

t-statistic. Given the t-statistic and the path coefficients, the first 3 hypotheses of the study were confirmed with a 99% confidence level (t-statistics are outside the range of -2.56 to +2.56).

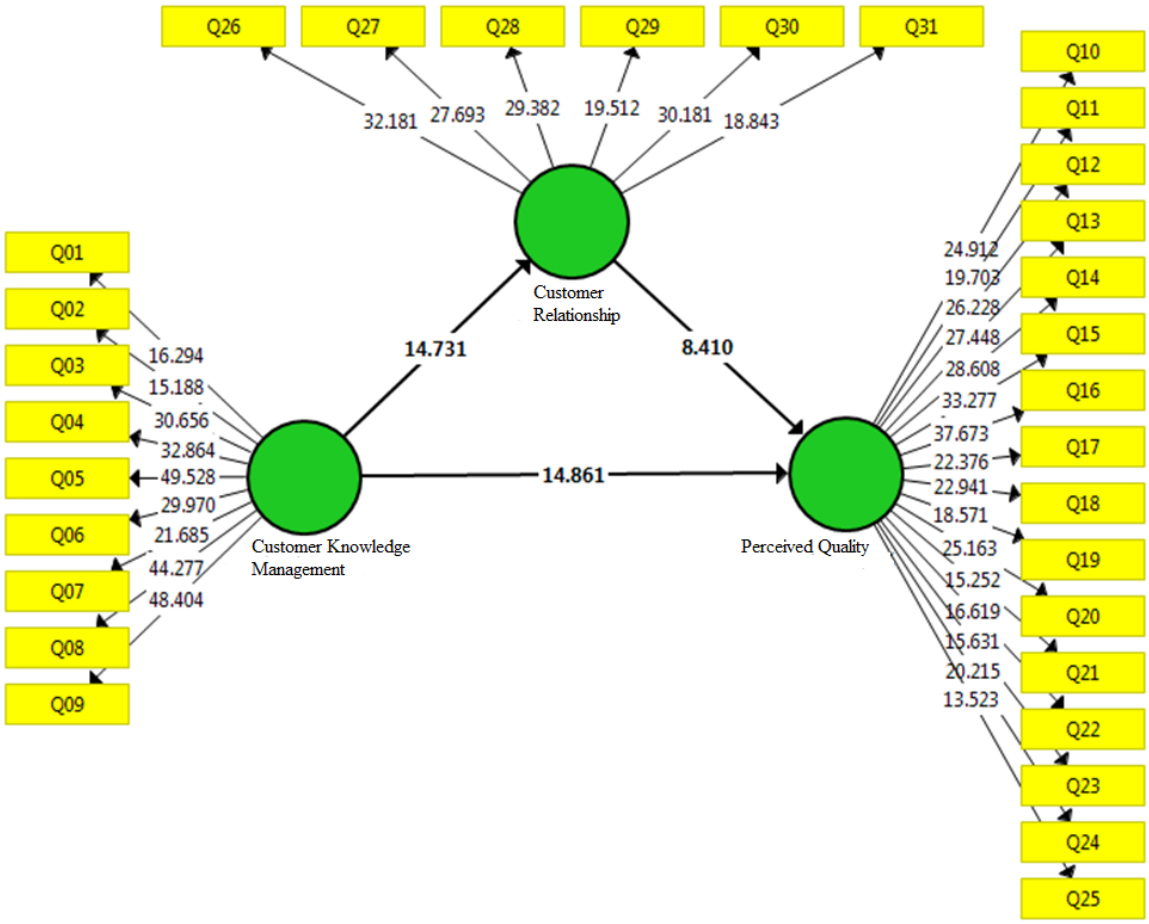

Figure 2. The structural model with t-statistic values

Table 7
Results of Hypotheses Testing

Hypothesis	path	(β) path coefficient	t-statistic	Test result
H1	Customer Knowledge Management to Perceived Quality of services	0.644	14.731	confirmed
H2	Customer Knowledge Management to Customer Relationship	0.626	14.861	confirmed
H3	Customer Knowledge Management to Perceived Quality of services	0.352	8.410	confirmed

The Bootstrap method was used to test the fourth hypothesis, which considers the indirect relationship between Customer Knowledge Management and perceived quality of service through the mediating role of Customer Relationships. In this method, if the value of the lower limit and the upper limit of Bootstrap are both positive or both negative and the p-value is less than 0.05, the indirect path is considered significant, and the hypothesis is confirmed. Table 8

shows the bootstrap method's results to evaluate the indirect effect's significance.

Table 8
The Results of the Bootstrap Method

Path			Indirect effect	Bootstrap Value		T-Statistic	Estimation Error	P-value
Independent variable	Mediating variable	Dependent variable		Upper limit	Lower limit			
Customer Knowledge Management	Customer Relationship	Perceived Quality of Services	0.227	0.292	0.159	6.565	0.035	0.001

As shown in Table 8, the significance level of the test is equal to 0.001, which is lower than 0.05, and the confidence interval of the bootstrap value does not include zero, so the research's fourth hypothesis is confirmed. This means that Customer Knowledge Management affects the perceived quality of services by mediating customer relationships in the Central Library of Tabriz University.

It is necessary to examine the fit of the structural research model. The R^2, Q^2, and Goodness of Fit (GOF) criteria were used to evaluate the model's fit. The R^2 is a measure that shows what percentage of the changes in the endogenous variable is explained by the exogenous variable(s). The values of 0.67, 0.33, and 0.19 for R^2 were introduced by Chin (1998) as strong, moderate, and weak, respectively. As shown in Table 9, the values of R^2 (numbers within the green circles in Figure 2) for the model's endogenous variables are 0.8, and 0.415, indicating the appropriate fit of the structural model of the research. Criterion Q^2 refers to the ability of the structural model to predict the endogenous variable. Values of 0.02, 0.15, and 0.35 are considered weak, moderate, and strong values for Q^2 (Davari & Rezazadeh, 2013). Given the results of Table 9, the Q^2 for perceived quality of services and Customer Relationship are 0.366 and 0.212, respectively, which are acceptable regarding criteria. Goodness of Fit (GOF) examines the overall fit of the structural model. This index which was developed by Tenenhaus, Amato and Vinzi (2004), is calculated using the geometric mean of R^2 and the mean commonality indicators:

$$GOF = \sqrt{\overline{commonality} * \overline{R^2}}$$

Values of 0.01, 0.25, and 0.36 are suggested as weak, moderate, and strong values for the overall model fit. According to the above formula, the GOF was calculated at 0.519. this value indicates a strong overall fit.

Table 9
Structure model fit indicators

construct	R^2	Q^2
Perceived Quality of Services	0.8	0.366
Customer Relationship	0.415	0.212

Discussion

Findings showed that the status of all research variables, including Customer Knowledge Management, perceived quality of services, and Customer Relationship were above average,

with the Customer Relationship in a better position than the other two variables. The analysis showed that Customer Knowledge Management affects the perceived quality of services of the Central Library of Tabriz University through the mediating role of Customer Relationships. This finding means that the better the Customer Relationship in the central library of Tabriz University, the more severe the impact of Customer Knowledge Management on its service quality. The results also showed that Customer Knowledge Management positively and directly affected Customer Relationships. Finally, the results showed that Customer Relationships affected the perceived quality of the services of the Central Library of Tabriz University.

The effect of Customer Knowledge Management on the perceived quality of services through the mediating role of Customer Relationships has also been observed in non-library contexts in studies such as Tseng and Wu (2014), Jamali (2018), and Ahmadizad et al. (2017). The direct and positive effect of Customer Knowledge Management on Customer Relationships, which is another finding of this study, is consistent with the findings of studies such as Ehsanfar and Garousi (2017), Jamali (2018), and Tseng and Wu (2014). Finally, the effect of Customer Relationships on service quality has been reported in Tseng and Wu's (2014) research. Other studies have reported the positive role of Customer Relationships on the performance and innovation of the organization. We can, for example, refer to the studies of Ehsanfar and Garousi (2017), Ahmadizad et al. (2017), and Hart, Hogg and Banerjee (2019). In explaining the relationships mentioned earlier for the university library studied in current research, it can be said that academic libraries perform various activities to achieve their ultimate goal: improve performance and service quality and gain user satisfaction. Introducing library services and resources, current awareness services, and other similar activities are some of the actions that lead to the production of knowledge with customers. Analysis of the library user community regarding demographic characteristics such as education level, job status, type of job, interests, and information needs leads to customer knowledge. Finally, measuring users' perceptions of library services and resources brings customer knowledge to the library. All these basic and traditional activities of the library, which today are under a single umbrella called Customer Knowledge Management, are aimed at improving the performance and quality of library services to satisfy, retain and attract users. This study showed that storing and managing knowledge due to the abovementioned activities can help increase the perceived quality of services among users. Also, creating, storing, and managing Customer Knowledge, if done by using effective communication skills with users, can further increase the perceived quality of services to users.

Conclusion

The results of this study confirm the theoretical arguments on the effect of using Customer Knowledge Management and Customer Relationship on improving service quality and increasing user satisfaction - especially in knowledge-based organizations such as libraries and information centers. Therefore, it is necessary for university libraries, which seek to meet the educational and research needs of the university community, to join the Customer Knowledge Management and Customer Relations process and use new methods in this field. In this regard, and considering the strengthening effect of Customer Relationships in the relationship between Customer Knowledge Management and the services' quality of the Central Library of Tabriz University, it is necessary for this library always use information and communication technologies such as social networks and other software to develop its interaction with

customers, to improve Customer Knowledge Management and service quality.

This study is a step towards identifying one of the factors affecting the quality of services in university libraries. Still, it should be remembered that the present study was conducted in the community of users of the Central Library of Tabriz University. Similar research needs to be carried out in other environments and sections of society to ensure the generalizability of the results of this study to other people and environments. It is also necessary to continuously evaluate Customer Knowledge Management and the variables affecting it in the central library of the University of Tabriz to determine the trend of Customer Knowledge Management and the effects of possible actions in the center.

References

Ahmadimirgaed, A., Maleki, R. & Momeni, E. (2015). The assessment of services quality in the central library of science & culture university as viewed by users. *Knowledge Retrieval and Semantic System*, 2(4),107-128. Retrieved from https://journals.atu.ac.ir/article_1726_62b0159d3e0a59b20553a3242d98ab33.pdf [in Persian]

Ahmadizad, A., Mousavi Jed, S.M., Rafiei Delfan, R. & Yasemi, P. (2017). The mediating role of customer relationship management in the relationship between customer knowledge management and marketing performance. In *11th national congress of pioneers of progress*. Tehran. Retrieved from https://civilica.com/doc/742518 [in Persian]

Akhavan, P. & Heidari, S. (2011). Customer knowledge management, an approach to gaining a competitive advantage. *Modiriat-e-Farda*, 5(18), 24-40. Retrieved from https://www.sid.ir/paper/147447/fa [in Persian]

Al-Gasawneh, J. A., Anuar, M. M., Dacko-Pikiewicz, Z. & Saputra, J. (2021). The impact of customer relationship management dimensions on service quality. *Polish journal of management studies*, 23(2), 24-40. https://doi.org/10.17512/pjms.2021.23.2.02

Asgari, N., Ansari, M., Rashidi, M., & Sourani, A. (2020). Enhancing innovative and sale performance through customer knowledge management. *Innovation management in defense organizations*, 3(3), 75-96. Retrieved from https://sid.ir/paper/390960/fa [in Persian]

Azghandi Shahri, M. (2016). Studying the services' quality of Gonabad academic libraries using LibQual. National conference university-driven development, Payame Noor University of Torbat Heydariyeh. https://civilica.com/doc/616695 [in Persian]

Bose, R. & Sugumaran, V. (2003). Application of knowledge management technology in customer relationship management. *Knowledge and Process Management*, 10(1), 3-17. https://doi.org/10.1002/Kpm.163

Castagna, F., Centobelli, P., Cerchione, R., Esposito, E., Oropallo, E. & Passaro, R. (2020). Customer knowledge management in SMEs facing digital transformation. *Sustainability*, 12(9), 3899. https://doi.org/10.3390/su12093899

Chin, W. W. (1998). The partial least squares approach to structural equation modeling. In Marcoulides, G. A. (Ed.), *Modern methods for business research* (Chapter 10, pp. 295–336). Mahwah, New Jersey: Lawrence Erlbaum Associates Publisher. http://www.researchgate.net/publication/232569511

Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika*, 16(3), 297–334. https://doi.org/10.1007/BF02310555

Daneshgar, F. & Bosanquet, L. (2010). Organizing customer knowledge in academic libraries. *Electronic Journal of Knowledge Management*, 8(1), 21-32. Retrieved from https://www.researchgate.net/publication/45109466_Organizing_Customer_Knowledge_in_Academic_Libraries

Daneshgar, F. & Parirokh, M. (2012). An integrated customer knowledge management framework for academic libraries. *The Library Quarterly*, 82(1), 7-28. https://doi.org/10.1086/662943

Davari, A. & Rezazadeh, A. (2013). *Structural equation modeling with PLS*. Tehran: Jahad-e-Daneshgahi publication. [in Persian]

Ehsanfar, G. & Garousi, E. (2017). The effect of customer knowledge on organizational performance based on the mediating role of customer relationship management and marketing capability in insurance companies. *Iranian Journal of Insurance Research*, 31(4), 49-72. https://doi.org/10.22056/jir.2016.44392.1650 [in Persian]

Esmaeilpour, M. & Razavi Dashti, F. (2013). Identifying and ranking the factors affecting electronic customer relationship management infrastructure in small and medium enterprises. *International SAMANM Journal of Marketing and Mmanagement*, 1(3). Retrieved from https://www.researchgate.net/publication/329982879_Identifying_and_Ranking_the_Factors_Affecting_Electronic_Customer_Relationship_Management_Infrastructure_in_Small_and_Medium_Enterprises

Esmaeilpour, R., Doostar, M. & Taherparvar, N. (2016). Customer knowledge management and its role on continues innovation and superior performance (Case study of private banks in Guilan). *Journal of Business Management*, 8(1), 1-28. https://doi.org/10.22059/JIBM.2016.50739 [in Persian]

Fornell, C. & Larcker, D. F. (1981). Evaluating structural equations models with unobservable variables and measurement error. *Journal of Marketing Research*, 18 (1), 39-50. https://doi.org/10.2307/3151312

Gefen, D. & Straub, D.W. (2005). A practical guide to factorial validity using PLS-Graph: Tutorial and annotated example. *Communications of the Association for Information Systems*, 16 (1), 91–109. https://doi.org/10.17705/1CAIS.01605

Ghafari, S. & Korani, A. (2011). A Survey on the quality of services of medical sciences libraries of Kermanshah. *Journal of epistemology (Library and information science and information technology)*, 3(12), 53-68. [in Persian]

Ghelichli, B. & Rahimi, F. (2016). The effect of customer knowledge management and its dimensions on service quality and customer satisfaction. *Journal of Business Management Perspective*, 14(4), 133-154. [in Persian]

Ghorbani, M. (2016). *Investigating the relationship between organizational intelligence and service quality in the central libraries of Tehran universities*. Master Thesis. Tehran: University of Tehran. [in Persian].

Gibbert, M., Leibold, M. & Probst, G. (2002). Five styles of customer knowledge management, and how smart companies use them to create value. *European Management*, 20(5), 459-469. doi:10.1016/S0263-2373(02)00101-9

Hariri, N. & Afnani, F. (2008). The study of service quality of central libraries of medical sciences universities in Tehran, using the gap analysis model. *Library and Information Science*, 11(2), 25-52. [in Persian]

Hart, S., Hogg, G. & Banerjee, M. (2019). Does the level of experience have an effect on CRM programs? Exploratory research finding. *Industrial Marketing Management*. 33(6), 549-560. https://doi.org/10.1016/j.indmarman.2004.01.007

Hashemian, M., Alemokhtar, MJ. & Hasanzadeh, A. (2012). Quality assessment of services provided by libraries of Isfahan University of Medical Sciences using gap analysis model (Libqual), Iran. *Health Information Management*, 9(3), 440-444. Retrieved from https://him.mui.ac.ir › article-11163 [in Persian]

Jabbari, L. & Jalali Dizaji, A. (2017). Measurement of the quality of library services of Tehran University central library based on LibQual model. *Journal of Information Systems and Services*, 6(1-2), 53-66. Retrieved from https://iss.srbiau.ac.ir/article_13453 [in Persian]

Jamali, P. (2018). *Investigating the impact of customer knowledge management on organizational performance considering the mediating role of customer relationship management: a case study of Asian insurance branches in Fars province*. Master Thesis. Shiraz: Zand Institute of Higher Education. Retrieved from https://akhbarelmi.ir/48885/ [in Persian]

Janteng, J., Tan, C. L. & Fernando, Y. (2018). Boosting quality performance through customer knowledge management and service innovation capability in the automotive industry. In *ICMLG 2018 6th International Conference on Management Leadership and Governance* (p. 395). Academic Conferences and publishing limited.
Retrieved from https://www.researchgate.net/publication/327765034_Boosting_Quality_Performance_Through_Customer_Knowledge_Management_and_Service_Innovation_Capability_in_the_Automotive_Industry

Jayaram, J. & Xu, K. (2016). Determinants of quality and efficiency performance in service operations. *International Journal of Operations & Production Management*, 36(3), 265-285. https://doi.org/10.1108/IJOPM-03-2014-0122

Kakhki, M. K., Asl, N. M. & Parirokh, M. (2021). Assessment of customer knowledge management in academic libraries: Design and validation of a checklist. *The journal of academic librarianship*, 47(6), 102459. https://doi.org/10.1016/j.acalib.2021.102459

Kalhor, M., Bardi Neshin, F., Karimi, F. & Birjandi, M. (2020). Evaluation of the quality of the services rendered by Lorestan University of Medical Sciences Libraries from the users' perspectives in 1396 [2017]. *Caring Today Journal*, 12(42-43), 8-20. Retrieved from https://caringtoday.lums.ac.ir/article_129094_3a032d84850e636f56b3c8e4dc50920d.pdf [in Persian]

Karbala Aghaei Kamran, M. & Karimi Suflo, L. (2017). Evaluating the rate of adherence to the components of the 4D model of customer relationship management in the central libraries of Tehran public universities from the perspective of managers and librarians. *Academic Librarianship and Information Research*, 51(1), 134-150. https://doi.org/10.22059/JLIB.2016.59447 [in Persian]

Kaur, K. & Diljit, S. (2011). Antecedents of customer loyalty: Does service quality suffice? *Malaysian Journal of Library & Information Science*, 16(2), 95-113.

Khosravi, M. & Pournaghi, R. (2018). Design and development of an assessment system of service quality in Iranian academic libraries. *National Studies on Librarianship and Information Organization*, 29(1), 163-181. https://doi.org/10.30484/NASTINFO.2018.2217 [in Persian]

Kim, H. S. & Kim, Y. G. (2007). A study on developing CRM scorecard. In *40th annual Hawaii international conference on system sciences (HICSS-40 2007)*, CD-ROM / Abstracts proceedings. USA: Waikoloa, Big Island, HI. Retrieved from https://doi.org/10.1109/HICSS.2007.36

Malakouti Asl, N., Kafashan Kakhki, M. & Parirokh, M. (2019). Investigating the status of customer knowledge management in academic libraries: The case of information center and central library of Ferdowsi University of Mashhad. *Journal of Studies in Library and Information Science*, 11, 225-243. https://doi.org/10.22055/slis.2019.28003.1555 [in Persian]

Malik, M. E., Naeem, B. & Arif, Z. (2011). Impact of perceived service quality on banking customers' loyalty. *Interdisciplinary Journal of Contemporary Research Business*, 3(8), 637-645. Retrieved from https://journal-archieves13.webs.com/637-645.pdf

Nazari, P. & Tajdin, A. (2017). The impact of customer knowledge and customer relationship management in the quality of services in the insurance company Sarmad. *Research in Economics and Management*, 2(4), 46-62. https://doi.org/10.22158/rem. v2n4p46

Nejatian, H., Sentosa, I., Piaralal, K. & Bohari, A. M. (2011). The influence of customer knowledge on CRM performance of Malaysian ICT companies: A structural equation modeling approach. *International Journal of Business and Management*, 6(7), 181-187. https://doi.org/10.5539/ijbm.v6n7p181

Paquette, S. (2011). Customer knowledge management. In *Encyclopedia of knowledge management*, Second edition (pp. 175-184). IGI Global. https://doi.org/10.4018/9781591405733.ch012

Parirokh, M., Daneshgar, F. & Fattahi, R. (2009). A theoretical framework for development of a customer knowledge management system for academic libraries. In *World Library and Information Congress: 75th IFLA General Conference and Council*. Italy: Milan. Retrieved from http://www.ifla.org/annual-conference/ifla75/index.htm

Pourahmad, A. A., Neshat, M. & Hasani, M. R. (2016). Using LibQUAL model for improving the level of students' satisfaction from quality of services in academic libraries: A case study in North Khorasan Province, Iran. *Journal of Information & Knowledge Management*, 15(01), 1650011. https://doi.org/10.1142/S0219649216500118

Rajabali Beglou, R. (2012). Customer knowledge management: An approach to integrating knowledge management and customer relationship management in libraries and information centers. *Shamseh*, 4(16-17), 1-17. Retrieved from https://shamseh.aqr-libjournal.ir/article_51309.html [in Persian]

Rak, K. (2018). Explaining the dimensions and indicators and evaluating the services' quality of academic digital libraries in West Azerbaijan province from the perspective of managers and librarians using the DigiQual protocol. Master Thesis. Urmia: Alzahra University (Urmia Campus). Retrieved from https://ganj.irandoc.ac.ir/#/articles/5d39111814365c3190dee46cf8152ba3 [in Persian]

Rezaei Heidari, N. (2018). *The Impact of Customer Knowledge Management on Organizational Effectiveness with the Mediating Role of Organizational Agility in Isfahan Bank Melli Branches*. Master Thesis. Shahin Shahr: Payam Noor University of Shahin Shahr Branch. Retrieved from https://ganj.irandoc.ac.ir/#/articles/65ec27ca28c982eb00bfac6b9c7c71dc [in Persian].

Ringle, C. M., Sarstedt, M. & Straub, D. W. (2012). Editor's comments: A critical look at the use of PLS-SEM in "MIS Quarterly." *MIS Quarterly*, 36(1), iii–xiv. https://doi.org/10.2307/41410402

Salomann, H., Dous, M., Kolbe, L. & Brenner, W. (2005). Rejuvenating customer management: How to make knowledge for, from and about customers work. *European Management Journal*, 23(4), 392-403. https://doi.org/10.1016/j.emj.2005.06.009

Tavalaei, R., Bamdadsufi, J., Rezaean, A. & Salehi sedghiyani, J. (2014). Presentation of model for the development of knowledge networks in research and technology hub of the oil industry by using the word models. *Journal of Globalization Strategic Studies*, 4 (13), 55-77. Retrieved from https://sspp.iranjournals.ir/article_5699.html?lang=en [in Persian]

Tenenhaus, M., Amato, S., & Esposito Vinzi, V. (2004, June). A global goodness-of-fit index for PLS structural equation modelling. In *Proceedings of the XLII SIS Scientific Meeting* (Vol. 1, No. 2, pp. 739-742).

Terhile, B. F. & Yawe, A. A. (2014). A comparative study on user satisfaction with the management of library services in three academic libraries in Benue State-Nigeria. *Journal of Studies in Social Sciences*, 6(1), 23-30. Retrieved from https://core.ac.uk/download/pdf/229606581.pdf

Tseng, S. M. (2016). Knowledge management capability, customer relationship management, and service quality. *Journal of Enterprise Information Management*, 29(2), 202-221. https://doi.org/10.1108/JEIM-04-2014-0042

Tseng, S. M. & Wu, P. H. (2014). The impact of customer knowledge and customer relationship management on service quality. *International Journal of Quality and Service Sciences*, 6(1), 77-96. https://doi.org/10.1108/IJQSS-08-2012-0014

Usugami, J. (2017). Cross-cultural customer knowledge management and service improvement in Japanese hospitality industries. In *European conference on knowledge management* (pp. 999-1007). Academic conferences international limited. Retrieved from https://docplayer.net/62682078-Abstracts-of-papers-presented-at-the-hosted-by-international-university-of-catalonia-barcelona-spain.html

Werts, C. E., Linn, R. L. & Jöreskog, K. G. (1974). Intraclass reliability estimates: testing structural assumptions. *Educational and Psychological Measurement*, 34 (1), 25-33. https://doi.org/10.1177/001316447403400104

Yaghoubi, M., Amiri Fini, S. H. & Rahmati Najarkolaei, F. (2017). The Relationship between Customer Knowledge Management (CKM) on Customer Relationship Management (CRM) tasks in a military hospital. *Journal of Military Medicine*, 18(4), 308-315. [in Persian]

Yasmeen, H., Wang, Y., Zameer, H. & Waheed, A. (2019). Service-innovation capability founded on knowledge from customers. *Human Systems Management*, 38(1), 29-41. https://doi.org/10.3233/HSM-180388

Zareei, A. & Soleimanlou, F. (2015). Maturity level of customer knowledge management in improving the services' quality of University of Tabriz Libraries. In *7th Iranian and 1st International Knowledge Management Conference*. Retrieved from https://civilica.com/doc/481448 [in Persian].