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Original Research

Identify, Analyze and Categorize the Factors Affecting Sharing Web Knowledge in Libraries Using the Fuzzy Delphi Approach[1]

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Abstract

Web knowledge sharing is a developmental approach for content production systems in the Internet space that can reduce the cost of information dissemination and increase the efficiency of systems, so the purpose of this study is to identify, analyze and categorize the factors affecting Sharing web knowledge in libraries is a fuzzy Delphi approach. : This research is exploratory in terms of purpose, fundamental in terms of research audience, and qualitative in terms of the type of research. The statistical population of the study consisted of 15 experts including the professors of the Knowledge and Information Science department, professors of information technology management, and the managers of libraries who were fully acquainted with the subject of web knowledge sharing .These subjects were selected by snowball sampling method to reach theoretical saturation. The data collection instrument is semi-structured interviews. The six stages of thematic analysis were used to identify the factors affecting the knowledge web sharing the Fuzzy Delphi technique was applied for the consensus opinions of experts. The resulting data were analyzed using PSS24 and PLS3.8 software. The results obtained from Delphi-fuzzy theme analysis and technique indicated that the main factors of web knowledge sharing in libraries of Iran include three main factors, "desirability of web information" with three components (trust and reliability, perception and usefulness), "Web space desirability" with four components (ease of use, accessibility, usability, and security) and "people desirability" with two components (internal and external motivations) were identified. It was found that the web space desirability factor with a coefficient of the impact of 0.917 had the most impact and was the priority and factor of web information desirability with a coefficient of 0.858; and the desirability of individuals with a coefficient of 0.813 was in the second and third priorities of the impact factor, respectively. According to the opinion of experts, web knowledge sharing as a flexible capability to deliver content aims to provide quick access to knowledge on the web and integrate it into the library. Consequently, it is necessary for the libraries to constantly identify the production, exchange, and application of knowledge among their employees to find

ways to achieve organizational goals.

Keywords: Knowledge Sharing, Web, Library, Fuzzy Delphi.

Introduction

Economists call the present century "knowledge-based post-capitalism" (Peters, Besley, Jandric, Zhu, 2021), an economy in which thought is the dominant form of capital (Mokhtarzadeh, Razavi, Nilforoshan & Faghei, 2018). Knowledge has been introduced as the most important factor for the success of organizations (Lee, 2021) and organizations know it as a valuable resource when it can be shared (Amin, Almunawar, Hasnan & Besar, 2020). Orr IV (2014) emphasizes the value of using knowledge and reveals that, unlike tangible assets, knowledge sharing increases its value (Safarkhanlou, Gilak & Dehbandi, 2018). Garg and Zhao (2018) believe that the competitive advantage of organizations depends on the knowledge sharing of the organization. Knowledge is the only asset that is increased by sharing with others (Anari, 2012). In this regard, one of the facilitating factors of knowledge sharing is the use of the "web". Web 2 technologies have changed the process of communication and interaction of people (Norouzi and Mostafaei, 2020). Individuals use Web 2 to create a neural network via the two-way information flow (Shahraki Sanavi, 2016). Using Sites, Wikis, Podcasts, Social Networks, etc. has provided increased access to knowledge and reduced communication costs (Taghvaeeyazdi, Golafshani, Aghamirzaee Mahali, Aghatabar Rodbari & Uosefi Saeed Abadi, 2019). Web 2 is defined as an instrument for knowledge sharing, which significantly facilitates the formation, dissemination, and application of knowledge (Panahi, Watson & Partridge, 2016). Web knowledge sharing is one of the new development approaches for content generation systems in the Internet space that can reduce the production, presentation, and processing costs of information, increase public awareness and increase the efficiency of the system. Access to information at any time and place easily and quickly has caused individuals to achieve the desired knowledge without the fear of complexity and organizational hierarchy (Hosseinzadeh & Abdollahi, 2015). Web knowledge sharing leads to the generation of new knowledge and synergy in the organization by utilizing collective intelligence and providing a participatory space and brainstorming (Amin et al., 2020). Web knowledge sharing has extended communication and eliminated the barriers to access to information flow to a great extent, as well as provided a large volume of information to others in the shortest interval, in which PCs, cell phones, etc. have facilitated access to information (Musfikar, 2017). Although, many studies have been carried out to identify the factors affecting knowledge sharing, "web knowledge sharing" has not been examined and the existing literature on Web 2 acceptance by knowledge employees has not investigated knowledge sharing in an integrated model. Thus, the present study attempted to identify, analyze and categorize factors affecting knowledge sharing on the web. A comprehensive understanding of the causes of web knowledge sharing and its impact on knowledge sharing is not recognized. A deep assessment of this vital aspect can help to fully understand the factors affecting knowledge sharing behavior. Therefore, this study seeks to answer the question of how to identify, analyze and categorize the factors affecting the web knowledge sharing in libraries with the fuzzy Delphi approach?

Thus, to achieve this goal, the data were identified and categorized in the first phase with the experts and thematic analysis and they were confirmed with the fuzzy Delphi approach by the experts in the second phase.

Literature Review

To interpret the findings in the field of web knowledge sharing, the literature background is explained as follows:

The research was done by Ghaffari and Valizadeh Dehkharghani (2020) aimed to investigate the status of the factors affecting knowledge sharing in creating and expanding the website of Qom University Libraries. The findings showed that the effective factors for knowledge sharing were human, organizational factors, and the use of IT tools, respectively. Ahmadi Gharebolagh (2019) researched to investigate the factors affecting knowledge sharing between physicians and nurses in social networks. The results showed that extraversion, reputation, altruism, and the predicted relationship have a significant impact on explicit and implicit knowledge sharing. A study done by Keikha (2018) aimed to focus on the factors affecting interpersonal trust and the effect of interpersonal trust on the desire to share knowledge in cyberspace. The results revealed that interpersonal trust significantly affects the intention to share knowledge among users of cyberspace. The research of Rasekh (2017) attempted to identify and explain the perception of customers of information sharing in online social networks and found that perceived ease of use has a significant impact on information sharing, utility belief, subjective norms, and belief in honesty in online social networking websites. Mohammadi, Sharifi and Norouzi (2017) besides examining the effective components of the knowledge sharing of website employees, introduced three factors of information technology, human factors, and organizational factors as effective factors in web sharing on the website of university libraries. The results of the study by Afjeh, Entezari and Mortaji (2016) show that group factors, individual dimensions, and environmental dimensions have the most significant impact on students' knowledge sharing behavior in the social network, respectively. Azadi Ahmadabadi and Azadi Ahmadabadi (2009) also revealed in their research that the information technology factor is a vital element in management and knowledge transfer. In their research, Kazemi, Vahidi Motlagh and Vahidi Motlagh (2014) on the effective variables on knowledge sharing in cyberspace concluded that there is a strong correlation between conceptual factors (norms of knowledge exchange, interpersonal trust) and individual factors (self-efficacy of knowledge sharing, perceived related advantage and perceived compatibility). The results of the study of Arif, Qaisar and Kanwal (2022) showed that behavior intention with attitudes, social norms, and the pleasure of helping others affect knowledge sharing and in addition, facilitation conditions (resources, skills, and the required technological knowledge), the ability to share knowledge, perceived mutual benefits, and the intention to behave positively affect knowledge sharing. The results of Lee's (2021) research showed that members' tendency to comply with group norms and intrinsic motivation has a significant impact on knowledge sharing in cyberspace. Tabajen (2020) also considered the structure of technology as a factor that increases the intention of individuals to participate in knowledge sharing. Davidavičienė, Al Majzoub and Meidute-Kavaliauskiene (2020) also indicate that culture, motivation, conflict, information and communication technology, trust, and leadership affect knowledge sharing. Maheshwari, Sarrion, Motiani, O'Sullivan & Chandwani (2020) in their study found that web knowledge sharing is associated with self-efficacy and reciprocity. This study also emphasized individual motivators. The results of Sharabati's (2018) research showed that altruism and knowledge self-efficacy are the main factors affecting students to share their knowledge, while trust and reputation are not motives to share knowledge via social media. Singh, Chandwani &

Kumar (2018) in their study revealed that experts are inclined to share knowledge with intrinsic motives instead of extrinsic motives and emphasize the importance of the joy of sharing, self-efficacy, and knowledge usefulness in creating motives for knowledge sharing via the web. Also, they found that knowledge self-efficacy and the joy of helping others significantly enhanced the attitude to knowledge sharing. Also, knowledge usefulness led to web knowledge sharing. According to Parker (2017), information and communication technology implements knowledge sharing more efficiently and effectively. The results of the research of Soto Acosta, Popa and Palacios Marqués (2017) also showed that technological and organizational factors have the highest impact on web knowledge sharing than environmental factors. The results of Lin, Lai & Yang (2016), considering extrinsic and intrinsic motivators, indicate that shared insights as to the most important factor, and then self-efficacy, reputation, and altruism had the greatest impact on web knowledge sharing. Wu (2016), in his research, showed that self-efficacy in knowledge creation, perceived usefulness, and organizational climate had a positive impact on knowledge-sharing goals. Pedro, Ricardo and Simona (2014) also investigated the factors affecting web knowledge sharing and its impact on innovation, and emphasized the impact of technological and organizational factors, IT expertise, and human resource management practices on web knowledge sharing. The research of Hosseini and Hashempour (2012) examined the most important reasons for using Web 2 tools in knowledge sharing speed and ease of use, personal knowledge management, and easier communication with users and colleagues. The review of the literature shows that due to the novelty of the concept of web knowledge sharing, this field has not been discussed in libraries and information centers. Therefore, the purpose of this study was to identify, analyze and categorize the factors affecting web knowledge sharing in libraries.

Materials and Methods

This research is exploratory in terms of purpose, fundamental in terms of research audience, and qualitative in terms of the type of research. The statistical population of the study consisted of the professors of the information science and knowledge department, professors of information technology management, and the managers of libraries who were fully acquainted with the subject of web knowledge sharing .The subjects were selected by purposeful and snowball sampling method in which one participant in the research directs us to the other participants. 15 experts were also interviewed (Table 1).

Table 1

Demographic characteristics of the interviewees

Total	Major			Education		Position		
	Information science and knowledge	IT management	Computer Engineering	PHD	Masters	Faculty member	professor	Library Manager
15 members	7 members	6 members	2 members	12 members	3 members	7 members	5 members	3 members

By conducting 15 interviews, the researchers found that the information collected had reached saturation point and that no further interviews were needed. The data collection instrument was semi-structured interviews and the interview process in which the researcher first asked questions in person, then sent an e-mail and called the interviewees due to the

outbreak of the Covid-19. The subjects presented their responses as open and in some cases, the researcher and interviewee communicated by asking and responding immediately. Then the researcher reviewed the final answers and examined the results. The six phases of thematic analysis by Braun and Clarke (2006) were used to identify the factors affecting web knowledge sharing. So, the results of the interviews were re-read in the first step and the primary codes were extracted. In the second step, different codes were categorized in the form of sub-themes (secondary). In the third step, the themes were reviewed. In the next step, the themes were named according to their semantic relation with the theoretical basics of the study, and finally, based on all the identified sub-themes, a more general classification was conducted based on the level of their analysis, which resulted in the creation of main themes. The following are the results of this analysis. The validity of the research instrument (interview) was verified using the content validity method. Finally, the Delphi-fuzzy technique was used for the consensus of the experts' opinions on the identified items. Research data were analyzed using SPSS24 and PLS3.8 software.

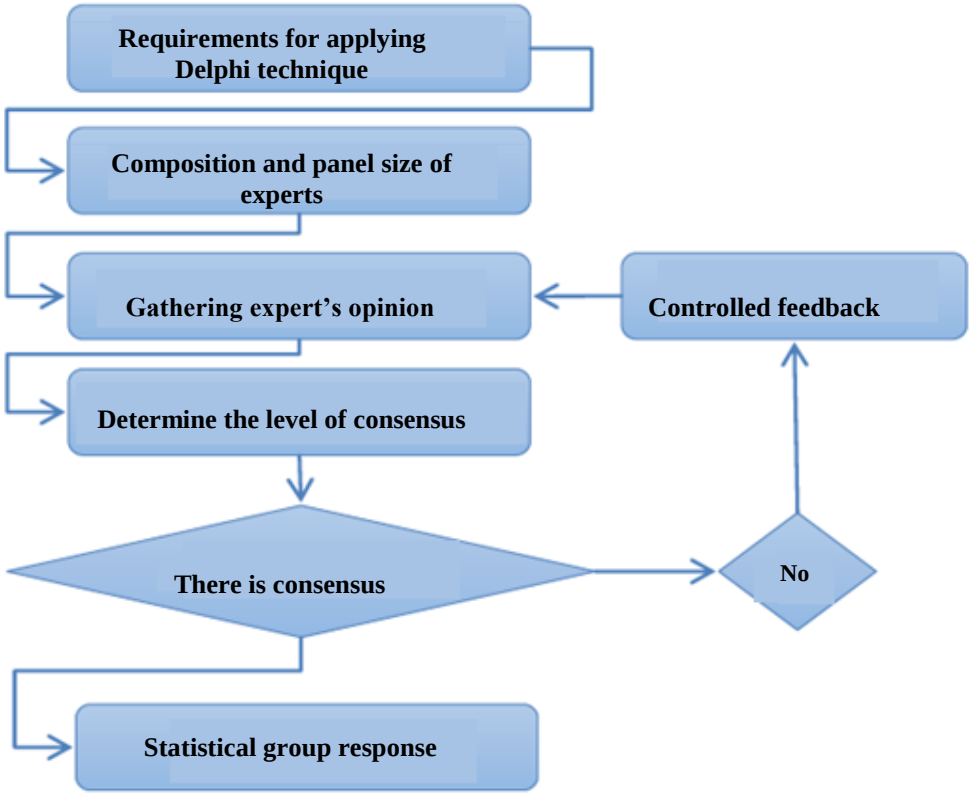

Figure 1: Theoretical framework of Delphi technique in qualitative research (Nadaf, Sharifi, Sinai & Qasemieh, 2018)

Results

In this study, to identify the factors affecting the web knowledge sharing in libraries, first, the experts were interviewed, then the interviewees that had the most complete and accurate answers were carefully selected among the interviews that were conducted. Also, a brief quote from each answer asked in relation to the interview question was mentioned using the thematic analysis method, and then the related concept was coded as a category. The interview consisted of two general questions about the factors affecting web knowledge sharing and their

categorization in libraries. As we had open questions here, there was no limitation in the time and method of responding, so the interviews were recorded and the factors were extracted while reviewing the interviews.

Interview questions

- In your opinion, what are the factors affecting web knowledge sharing in libraries?
- How do you categorize the factors affecting web knowledge sharing in libraries?

A summary of the interviewees and their answers was first written and then collected as qualitative and reliable data. By re-reading the interviews repeatedly, 48 initial codes were extracted. Table 2 presents how to open coding and extract the primary codes.

Table 2
Initial concepts extracted in the open coding step

Code	Concept or description of primary code	Code of extracted interview
A1	Sense of competency and value	M3,M5, M6, M12, M15
A2	Web space information is easy to interpret and select	M3,M13,M7 , M6, M14
A3	Using web information increases the level and depth of my knowledge (added information)	M14,M2,M5,M1,M2,M12,
A4	It is a user-friendly and familiar environment.	M7, M14, M9, M8
A5	Web site information is useful and helps me make decisions	M13,M7,M1,M2,M6,M11,
A6	The information on the web is dynamic and up-to-date	M7, M6, M14, M4, M1
A7	High-quality web space information is presented	M8,M4,M3, M2,
A8	Specialized and selective information on the web	M1,M3,M6,M12,
A9	Feeling of self-confidence and self-esteem	M4,M5, M12,M14,
A10	Encourage others and acquire social status	M7,M5, M8,M14,M9,M15
A11	The web responds questions and ambiguities	M1,M3,M4,M5, M15,
A12	Web space design is clear and lacks complexity and information transfer is simple	M1,M2,M4,M5,M6,M11,
A13	Tendency to share and progress	M3, M6, M12, M18, M7
A14	Information richness is created using the Web space	M7,M1,M4,M5,M6,M12,
A15	Strengthening and developing knowledge	M3,M6,M8,M14,M7,M6,M15
A16	Expect rewards	M13,M7,M2, M4,M5,M11,
A17	I am sure of the information accuracy	M7,M1, M3,M4,M5,
A18	Eliminated	M8,M14,M10
A19	Communicating and using slides on the web is easy	M13,M7,M1,M2,M3,M4
A20	Quick and easy access to information	M7,M4,M5,M12,
A21	It is available through various communication networks	M3, M7, M5, M9, M11, , M15, M6, M4,
A22	Eliminated	M6,M12,M1
A23	With a few clicks, information and file transfers are provided for me	M2,M3, M4,M12,M14,
A24	Web knowledge sharing can be easily disseminated	M13, M7,M1,M2,M11,
A25	Full-text information is available on the web	M2,M3M5, M12,M15
A26	Security in information transmission	M2,M3,M5,M6,
A27	The information on the web is persuading	M2,M4,M5, M8, M11, M14,
A28	Synergy and mutual benefit	M7,M9,M1,M6,M8,M14,
A29	Disseminate clear and transparent information	M7,M9, ,M6,M12,M13
A30	Eliminated	M14,M13
A31	The information and content provided are relevant and	M7,M9,M2,M4,M5,M8,M14

Code	Concept or description of primary code	Code of extracted interview
	specialized	
A32	Encourage the presentation of useful content to the community	M2,M6, M4,M11, M8
A33	Searchability and customization on the web is possible	M7,M3,M6,M11,
A34	Ensure that measures are taken to prevent unauthorized access to information manipulation	M4,M5,M6,M14
A35	Job promotion	M3,M4,M6,M14, M7, M8
A36	How to work in the Web space is simple and I can easily use the Web space to meet our needs	M7,M4,M5,M6,M14,
A37	The information on the web is useful for me	M4, M12, M11, M13
A38	Security of shared content channels	M7, M4, M5, M6,
A39	The flexibility of the Web space leads to its frequent use	M7,M1,M2,M3,M4,M5, M8,
A40	We can receive information feedback on the web	M4,M12,M11,
A41	Receive and provide information in a short time	M13,M1,M2,M3,M6,
A42	I have a positive understanding of the information available on the web because it leads to sufficient information	M7,M1,M4,M6, M8, M11, M15
A43	Enjoy helping others	M4,M12,M15,M7
A44	I can rely on the web to access a great volume of information	M13,M7,M1,M2,M3,M4,
A45	No space and time restrictions	M9,M2,M3,M5, M8,M15,
A46	It is easy to use a variety of new technological tools to share knowledge on the web	M13,M7, M2,M5, M12,
A47	High-efficiency environment for information exchange	M3,M6,M12,M11,
A48	Ease of use leads to frequent use	M3, M4, M6,M14,M15

After extracting the primary codes and deleting the 3 themes (18, 22, and 30), the researcher in the search for secondary (sub) themes, with the assumption of how different primary codes can be combined to create secondary themes, categorizes the codes and determine the secondary themes by combining them. Table 3 shows the axial coding in the framework of identifying secondary themes.

Table 3

Secondary themes identified in the axial coding step

Secondary theme code	Secondary theme	Combined primary codes
B1	Reliability and credibility	A11,A17,A27,A31
B2	Ability to understand	A2,A3,A29,A42
B3	Utility	A5,A6,A7,A8,A14,A18,A37
B4	Ease of use	A4,A12,A19,A24,A36,A46,A48
B5	Availability	A20,A21,A22,A25,A44,A45
B6	Usability	A23,A30,A33,A39,A40,A41,A47
B7	Security	A26,A34,A38
B8	Intrinsic motivations	A1,A9,A13,A43
B9	Extrinsic motivations	A10,A15,A16,A28,A32,A35

After creating the secondary themes based on the extracted primary codes, the researcher categorizes the codes and identifies the secondary themes, in search of the main themes, with

the assumption of how the secondary themes can be combined to create the main themes. These themes are at a higher level in terms of abstraction than in the previous stage. Then, by reviewing the secondary themes and analyzing the content of the themes, the main themes identified include the desirability of web information, the desirability of web space, and the desirability of individuals (Table 4).

Table 4

The main themes identified in the selective coding step

Main theme code	Main theme	Combined secondary themes
C1	The desirability of web information	Reliability / credibility / comprehensibility / usefulness
C2	The desirability of web space	Ease of use / accessibility / usability / security
C3	Desirability of people	Intrinsic motivations / extrinsic motivations

According to the results obtained in the three steps of the survey, it is observed in the first stage that the tolerance threshold of the expert's consensus value in 2 sub-factors 1 and 2 is less than 0.7, and these sub-factors were excluded from the research. In the second stage of the survey, as the score of consensus among the experts in the sub-factors was less than 70%, the relevant sub-factor was also removed. In the third stage, it is observed that the disagreement of the experts in the third and second steps was not significantly different and the score of the experts' consensus value in all factors was more than 70%, thus factors are verified (Table 5).

Table 5

Experts' opinion on the factors affecting the web knowledge sharing (three stages of the survey)

Components	Items	S_1	S_2	$\lvert S_1 - S_2 \rvert$	S_3	$\lvert S_2 - S_3 \rvert$
Reliability and credibility	The web responds questions and ambiguities	0.74	0.86	0.02	0.77	0.01
	I am sure of the information accuracy	0.78	0.79	0.02	0.79	0
	The information on the web is persuading	0.74	0.73	0.01	0.78	0.06
	The information and content provided are relevant and specialized	0.81	0.76	0.04	0.79	0.03
Ability to understand	Web space information is easy to interpret and select	0.81	0.80	0.01	0.82	0.02
	Using web information increases the level and depth of my knowledge (added information)	0.78	0.73	0.04	0.77	0.03
	Disseminate clear and transparent information	0.82	0.77	0.04	0.81	0.03
	I have a positive understanding of the information available on the web because it leads to sufficient information	0.82	0.78	0.04	0.81	0.03
Utility	Web space information is easy to interpret and select	0.73	0.72	0.01	0.73	0.01
	The information on the web is dynamic and up-to-date	0.81	0.81	0	0.79	0.01
	High quality web space information is presented	0.82	0.79	0.03	0.82	0.03
	Specialized and selective information on the web	0.82	0.76	0.06	0.81	0.04
	Information richness is created using the	0.79	0.79	0	0.78	0.01

Components	Items	S_1	S_2	$\lvert S_1 - S_2 \rvert$	S_3	$\lvert S_2 - S_3 \rvert$
	web space					
	Eliminated	0.69	-	-	-	-
	Web site information is useful for me	0.79	0.74	0.05	0.81	0.07
Ease of use	It is a user-friendly and familiar environment.	0.81	0.78	0.02	0.79	0.01
	Web space design is clear and lacks complexity and information transfer is simple	0.78	0.79	0.01	0.78	0.01
	Communication and using slides is done easily in the web space	0.78	0.77	0.01	0.79	0.03
	The web knowledge sharing can be easily disseminated	0.81	0.73	0.08	0.81	0.08
	How to work in the web space is simple and I can easily use the web space to meet our needs	0.81	0.79	0.01	0.79	0
	It is easy to use a variety of new technological tools to share knowledge on the web	0.77	0.78	0.01	0.79	0.02
	Ease of use leads to frequent use	0.81	0.76	0.04	0.82	0.06
Availability	Easy and quick access to information	0.81	0.79	0.02	0.81	0.01
	It is available through various communication networks	0.77	0.77	0	0.77	0
	Eliminated	0.65	-	-	-	-
	Full text information is available on the web	0.79	0.79	0	0.79	0
	I can rely on the web to access a great volume of information	0.77	0.74	0.03	0.78	0.04
	No space and time restrictions	0.79	0.81	0.01	0.79	0.01
Usability	With a few clicks, information and file transfers are provided for me	0.76	0.71	0.04	0.77	0.06
	Eliminated	0.73	0.68	0.06	-	-
	Searchability and customization on the web is possible	0.74	0.74	0	0.77	0.02
	The flexibility of the web space leads to its frequent use	0.70	0.70	0	0.78	0.08
	We can receive information feedback on the web	0.77	0.79	0.03	0.77	0.03
	Receive and provide information in a short time	0.74	0.79	0.04	0.77	0.02
	High-efficiency environment for information exchange	0.77	0.77	0	0.77	0
Security	Security in information transmission	0.81	0.81	0.01	0.81	0.01
	Ensure that measures are taken to prevent unauthorized access to information manipulation	0.77	0.77	0	0.77	0
	Security of shared content channels	0.76	0.72	0.04	0.75	0.03
Intrinsic motivations	Sense of competency and value	0.77	0.75	0.02	0.77	0.02
	Feeling of self-confidence and self-esteem	0.76	0.76	0	0.78	0.02
	Tendency to share and progress	0.81	0.78	0.03	0.81	0.03
	Enjoy helping others	0.77	0.77	0.01	0.78	0.02
Extrinsic motivations	Encourage others and acquire social status	0.79	0.79	0	0.79	0
	Strengthening and developing knowledge	0.78	0.75	0.03	0.81	0.06
	Expect rewards	0.76	0.78	0.02	0.78	0.01
	Synergy and mutual benefit	0.78	0.82	0.04	0.81	0.01
	Encourage the presentation of useful content to the community	0.77	0.77	0	0.78	0.01

Components	Items	S_1	S_2	$\lvert S_1 - S_2 \rvert$	S_3	$\lvert S_2 - S_3 \rvert$
	Job promotion	0.77	0.78	0.01	0.79	0.01

According to the results of thematic analysis and fuzzy Delphi technique, a conceptual model of factors affecting web knowledge sharing in libraries is presented (Figure 2).

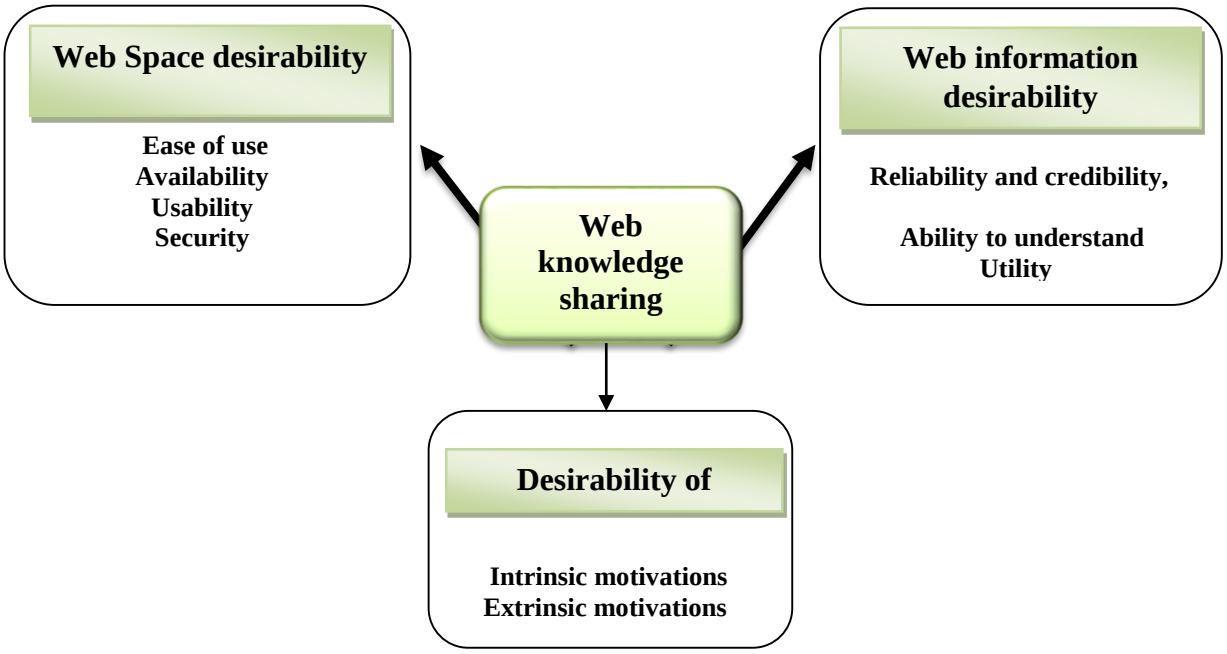

Figure 2: Conceptual model of factors affecting web knowledge sharing in libraries

Discussion

The purpose of this study was to identify, analyze and categorize the factors affecting web knowledge sharing in libraries. Findings obtained from theme analysis as well as the fuzzy Delphi technique showed that the three main factors of web information desirability (with dimensions of reliability, credibility, ability to understand, and utility), the desirability of web space (with dimensions of ease of use, availability, usability, and security) and the desirability of individuals (with dimensions of intrinsic motivation and extrinsic motivation) affect the web knowledge sharing. In this regard, web space desirability had the highest impact and was the priority, web information desirability in the second priority and the individuals' desirability was the third priority of impact. Comparing the present study with previous research, it can be said that no research has been conducted to identify the analysis and classification of factors affecting web knowledge sharing. Thus, the present study is different from the previous studies and is one of the rare studies having a comprehensive review and design of the web knowledge sharing model, so existing backgrounds have chosen similar topics to the subject of our study. In this regard, research by Kazemi et al. (2014) and Rasekh research (2017) concluded that ease of use leads to information sharing on the social network. The results of Lee's (2021) research show that intrinsic motivations have a significant impact on knowledge sharing in cyberspace. Hosseini and Hashempour (2012) showed that ease of use is one of the reasons for using Web 2 tools in knowledge sharing. Also, the results of Arif et al. (2022) showed that the joy of helping others and ease of use affect knowledge sharing. The study of Maheshwari et al. (2020) emphasizes individual motivations for knowledge sharing. The study of Singh et al. (2018) emphasizes intrinsic motivation, the joy of knowledge sharing, and the usefulness of knowledge

in motivating knowledge sharing via the Web. Lin et al. (2016) found that extrinsic and intrinsic motivations affected web knowledge sharing. Wu (2016) showed that perceived usefulness has a positive impact on knowledge-sharing goals and the results of that study are in line with the present study.

The following is a list of studies that are inconsistent with the results of this study and have received different results. Afjeh et al. (2016) revealed that group factors, individual factors, and environmental factors affect knowledge sharing in the social network, respectively. Keikha (2018) showed that interpersonal trust (ability, benevolence, integrity, predictability, competence, shared vision, knowledge growth) has a positive effect on increasing knowledge-sharing behavior in virtual communities. The results of Ahmadi Gharabolagh (2019) showed that extraversion, reputation, altruism, and the predicted relationship have a significant impact on explicit and implicit knowledge sharing. Ghaffari and Valizadeh Dehkharghani (2020) concluded that human factors, organizational factors, and the use of information technology tools, respectively, affect the knowledge sharing of library websites. Mohammadi et al. (2017) in examining the components affecting the knowledge sharing of employees on websites showed that human factors are in the first rank, organizational factors are in the second rank and then the use of technology tools is in the third rank and the most important result is creating a sense of responsibility and commitment concerning knowledge sharing in the organizational environment. The results of Davidavičienė et al. (2020) showed that culture, motivation, conflict, information and communication technology, trust, and leadership are factors that have a direct effect on knowledge sharing in virtual communities. Tabajen (2020) showed that the structure of technology is an effective factor in the use of web portals in knowledge sharing. Pedro et al. (2014) also investigated the factors affecting web knowledge sharing and its impact on innovation and emphasized the impact of technological and organizational factors, IT expertise, and human resource management practices on web knowledge sharing. Lee (2021) referred to the role of management and motivation strategies in examining the factors affecting knowledge sharing.

Examining the studies conducted in this field, it is obvious that most of the studies conducted on human, organizational and environmental factors have an effective role in sharing web knowledge, which is different from the findings of this study, which identified three factors of web information desirability, web space desirability and people desirability on web knowledge sharing. Regarding the explanation of the findings of this study and concerning the desirability of web information, it can be said that web information, especially in recent years, has been one of the most important channels for searching and receiving scientific information and research and most students and researchers fulfill part of their needs in information through existing information on the web. Therefore, the desirability of web information has a very important role in the use and information sharing for users of the information. Also ensuring the accuracy of web information, convincing nature of information available on the web, relevant and specialized information and content provided on the web, ease of interpretation and selection of web space information, increasing the level and depth of knowledge, disseminating clear information, clarity and transparency of web information, positive perception of available information, usefulness of web space information, dynamic and up-to-date information, high quality of web space information, specialized and selective information of web space, information, richness, and usefulness of the information available in web space increase the satisfaction and use of web information users, as well as increase the number of

visits to the web. Finally, these factors can provide the ground for web knowledge sharing. Also, some of the special and unique features of the web in the dissemination of information are the rapid updating of the disseminated information, the possibility of presenting information in the form of multimedia, quick and easy search of the information provided, which have led to the dissemination of a large amount of information in this way, which has resulted into an increasing number of web users.

Regarding the web space utility factor, it can be said that many users expect the web space to be easy to use and highly available. A high percentage of web users are those who have been forced to leave because of the inability to find the right path when working with the web. Davis (1989) states that ease of use is the degree to which the user expects to achieve his goal without the least effort. There are two general aspects to the structure of ease of use. The first is that the web pages are easy to read and understand, and the second is that the movements between the pages and, in general, the process of working with the website are easy. On the other hand, accessibility depends more than anything on the possibility of using tools and systems, therefore, it mostly manifests in the discussion of interaction and communication with tools and systems. Web accessibility makes them easier to use for ordinary users. The accessible web removes obstacles in the way users use the web. These barriers include visual, auditory, physical, cognitive, and sensory aspects, and help them enjoy the same features and services as other users. The implementation of the principles and standards of availability on the web may increase the cost of design by one to two percent, but increase web visitors by up to twenty percent (Hassanzadeh & Hosseini, 2010). Regarding web security, it can be said that in web design, it is necessary to consider privacy, secure communication, and protection of personal information because, in the absence of proper security on the web, individuals may refuse to work on the web, even other features of the web are positive. On the other hand, regarding the web space factors, it can be said that user-friendly and familiar web environment, clarity and non-complexity of web space, ease of communication and use of slides in web space, ease of sharing knowledge in web space, simplicity in working, ease of access to new technological tools for knowledge sharing in the web space, fast and easy access to information, access to various communication networks, access to large volumes of information, no space and time restrictions in working with the web space, fast data transfer capability, ability to search and customize the web space, its flexibility, the ability to receive and provide information in a short time, high efficiency of the web space for information exchange, high security in data transfer and taking measures to prevent unauthorized access or manipulation of role information have an effective role in sharing knowledge among users. Finally, in interpreting the factor of people's desirability as an effective factor in web knowledge sharing, it can be said that the sense of competence and value in using the web space, the sense of self-confidence and self-esteem in using it, enjoy helping others while working in the web space, synergy and mutual benefit in using the web space and being encouraged to provide useful content to the community in the web space play an effective role in web knowledge sharing.

Conclusion

Therefore, as mentioned, it is suggested that planners and library managers, by observing the results and recognizing the factors affecting web knowledge sharing, develop and predict new strategies, perspectives, and strategies for efficient and effective implementation of the web knowledge sharing process. These strategies can include the implementation of facilitating

and encouraging policies of web knowledge sharing, increasing the attention of managers to the change of employees' belief about web knowledge sharing, and materialistic and spiritual support for web knowledge sharing in the libraries. As web knowledge sharing can lead to the fundamental changes in the libraries, it is necessary that the librarians consider this new, developmental and flexible approach and by using it to solve most of the existing challenges and develops the performance of libraries, improve the quality of services and enhance the user's satisfaction.

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Endnote

1. The present study is taken from Taherkhani, Lily (1400): Exploratory analysis of factors affecting web knowledge sharing (WKS) and its effect on knowledge entrepreneurship by modulating information technology acceptance based on the model (TOE) Case study: Public Libraries in the Department of Information Science and Knowledge. Ph.D. Thesis. Islamic Azad University, Babol Branch, Babol, Iran.

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