

## Research Paper

# The Assessment Possibility of Building Digital Libraries in Universities

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### Abstract

**Purpose:** The purpose of this study is the assessment of the possibility of building digital libraries in universities. **Method:** As an applied research, and descriptive survey using data collection was carried out by researcher-made questionnaire. The statistical sample was 17 people in charge of computer systems in colleges, and 75 students. Data was analysed by SPSS software version 22. **Findings:** Findings indicated that 84.2% due to lack of budget allocation, 71.2% high skills needed in using digital resources, 84.4% taking over 8 years to set up a correct system, 88.2% more than 31 devices, 53% 5 servers 76.5% of the devices have chosen over 75% internet connectivity, 47.2% ADSL, 1mb high bandwidth, high use of fiber optics. **Conclusion:** Lack of budget allocation can be considered as the main problem for not creating a digital library. The level of students' skill in using digital resources is at a good level and this can be a great advantage for the University of Tehran to be able to create information resources needed by students and researchers by creating a digital library and due to the technical infrastructure a digital library can be set up conveniently in colleges.

**Keyword:** Digital library, Faculties Of University of Tehran, Feasibility .

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## **Introduction**

Nowadays, the emergence of computer and technology has changed humans lives in many ways. Recent advances in the computer and information industry, the emergence of local, regional and international information networks, especially the Internet, and multimedia technology Communication have introduced new tools and methods to designers, planners, managers and executives of educational programs. The advent of the Internet and technology has affected all aspects of our daily life. Therefore, people's relationships have undergone many fundamental changes while other changes are taking place too.

Libraries have been created in order to respond to tangible necessities and have played an important social role in the development of modern civilization. This role is more a mutual relationship instead of a simple one. In societies where culture is highly developed, libraries are richer and more active. In addition, societies in which libraries have greatness, richness and prosperity, we do not witness scientific and cultural decline.

Since the ultimate goal of libraries in the context of the information society is to provide people with access to all kinds of information anywhere and anytime, performance appraisal is one of the most important aspects of managing libraries and information center, which is important to users. In other words, libraries should show argumentatively that their services effectively meet the needs of users, besides; the amount of financial resources allocated to that library should be compatible with the amount of the needs of clients that should be meet and their satisfaction. (Yousefi, 2011).

Nowadays, due to the main mission of libraries, meeting the information needs of users, new models are being used to design their space, and digital libraries have a special place in these sophisticated and digital world.

There is a link between libraries, information technology and education in developed countries to achieve their educational goals, and developing countries should pay more attention to it. Therefore, a society can conquer the gates of science and knowledge faster in which schools are of special importance and equip themselves with new information technologies (Ziaei and Seyed Kaboli, 2014). Education and learning is one of the main activities of universities and institutions of higher education and one of the essential and crucial

pillars of human development, as well as one of the basic human rights and a factor of social change and progress. Turning to e-learning and virtual education can be considered as a response to the need in the age of information and communication since traditional teaching methods alone do not meet the huge volume of demand for education these days. (Zamanpour and Nikonezhad, 2014)

According to research conducted in this field, it can be said that the digital library in its true sense does not exist in Iran. What has been introduced and created in Iran as a digital library is mechanized library systems that provide information about different books along with services available in a library such as search, lending, registration, book booking, etc. to users (Ismaeily Farsani, 2017). Virtual students who do not have face-to-face access to the university library or university faculties have doubled the need of having digital library in order to make progress in their field and meet their information needs (Vernaseri and Fahimifar, 2019). An important issue in e-learning is the needs of students, which should not be neglected.

In the absence of a digital library, most students have to use the Internet and other networks to meet their information needs, regardless of the quality and accuracy of them. Besides, creating digital libraries can be deemed a new approach to using new technology which in turn reduces costs and adds value to organizations, which use digital libraries. Considering researchers' experience in virtual part of university of Tehran, there is dissatisfaction among students who do not have access to digital library since it plays a significant role in their academic success. Therefore, the researchers decided to identify students' needs and show the necessity of creating a digital library in order to respond to their needs (Mohammadesmaeil and Rahiminezhad, 2009).

The performance of these tasks and the harnessing information technologies in the libraries of the University of Tehran relies on the evaluation of the facilities available in this university whereby they can study the equipment, manpower, budget, etc., also, to digitize the infrastructure, we should pay attention to the technical and network equipment of the university. Otherwise, the lack of technical resources and the university network will make it difficult to digitize the resources, also, digitizing the resources, save and retrieve a huge

amount of resources in such a way that Information should be made available to students and faculty as soon as possible, at the lowest possible cost. The aim of this study is to identify the budget, students' skills in using resources and the capacity of the technical infrastructure of the faculties of the University of Tehran to make an assumption about the possibility of building digital library to answer the following questions:

- 1) Do the faculties of the University of Tehran have an additional budget for creating a digital library?
- 2) Do the students of the faculties of the University of Tehran have the necessary skills to use the resources of the digital library?
- 3) Do the technical infrastructures of Tehran University faculties have the ability to create a digital library?

### **Research background**

To collect the literature review and complete the content, the researchers have obtained the information needed in this paper by searching in some databases such as: Google Scholar, Science Direct, ProQuest and internal databases such as: Irandoc, Noormags, Magiran, the comprehensive portal of humanities. Among foreign research, some of them were used, which are mentioned in the following paragraph.

Sheeja, (2010) examined the perception of undergraduate students from the digital library in India. He figured out that students are more likely to use the digital library to find articles and study curricula. He also pointed out that students are satisfied with the current capabilities and features of the digital library. In addition, it is found that undergraduate students make extensive use of the digital library in comparison to other students (Sheeja, 2010).

Turan and Bayram, (2013) examined the accessibility to information and use the digital library in Ankara universities. It is concluded that Ankara University students do not possess positive perspectives about using the Internet for educational purposes, nor do they have sufficient information about the digital library and its resources and database; and they do not use the digital library effectively. The most important reason behind it is that they do not know how to use the Internet and foreign languages in this concept (Turan and Bayram,2013).

Appleton,( 2014) examines the future trends of digital library and scientific communication. In today's competitive world, digital libraries play a significant role in the growth and support of researchers. In today's complex information world, a digital library is essential in the term of success in research and study (Appleton, 2014).

Arafat and et.al, (2018) have discussed the role of educational resources in e-learning. This study is an example of digital resources shared with 100 textbooks in the fields of supply chain management, information management and information systems. The results show that this digital handbook can be used for the flexibility of e-learning media, educational information resources, such as PowerPoint slides and video clips (Arafat and et.al., 2019).

**Table1. Internal and external research backgrounds**

<b>Resear chers</b>	<b>Year</b>	<b>Research topic</b>	<b>Results</b>
Sheeja	2011	examined the perception of undergraduate students from the digital library in India	students are more likely to use the digital library to find articles and study curricula
Turan and Bayram	2013	Access to information and use of the digital library for the education in Ankara University students	It concluded that Ankara University students do not possess positive perspectives about using the Internet for educational purposes, nor do they have sufficient information about the digital library and its resources and database. They do not use the digital library effectively. The most important reason is that they do not know how to use the Internet and foreign languages.
Appleto n	2014	examines the future trends of digital library and scientific communication	In today's competitive world, digital libraries play a significant role in researchers' growth and support. In today's complex information world, a digital library is essential in the term of success in research and study
Arafat and et.al	2018	The role of educational resources in e-learning	This study is an example of digital resources shared with 100 textbooks in supply chain management and information management and information systems. The results show that this digital handbook can provide e-learning media flexibility and educational information resources such as PowerPoint slides and video clips.
Asemi and Riyahini a	2008	used digital resources in the libraries of medical sciences of the University of Isfahan	The findings showed that 70% of students are aware of digital resources, but only 69% use it.
Ziaei and Seyyed Kabuli	2011	feasibility of creating a digital library in public schools in Mashhad	The results show that despite the problems in terms of budget and human resource skills, the condition of facilities and equipment is moderate and the telecommunication facilities of these schools are in good condition; And showed that in the field of telecommunication facilities of

			schools, all schools are equipped with computers and also have a suitable connection to the Internet; And with these conditions, they are in a good position to digitize.
Varnaseri and Fahimifard	2019	need of creating a digital library for virtual students based on a variety of information sources and their retrieval	74% of virtual students need educational content of a digital library. 84.1% of students believed that the lack of a digital library directly impacts their learning. Also, 63.5% of students considered the impact of the digital library on virtual classroom presentations high and very high

**In Internal research, the following can also be mentioned:**

Asemi and Riahinia (2008) conducted a study in which they used digital resources in the libraries of medical sciences of the University of Isfahan. The findings showed that 70% of students are aware of digital resources but only 69% use it (Asemi and Riahinia,2008).

In the research Ziaei and Seyed Kaboli, (2014) has investigated the feasibility of creating a digital library in public schools in Mashhad. The results show that despite the problems in terms of budget and human resource skills, the condition of facilities and equipment is moderate and the telecommunication facilities of these schools are in good condition; And showed that in the field of telecommunication facilities of schools, all schools are equipped with computers and also have a suitable connection to the Internet; And with these conditions, they are in a good position to digitize (Ziaei and Seyed Kaboli, 2014).

In another research Vernaseri and Fahimifar, (2019) have discussed the need of creating a digital library for virtual students based on a variety of information sources and their retrieval, which was done by survey, they concluded that 74% of virtual student need in educational content is needing a digital library. 84.1% of students believed that the lack of a digital library has a direct impact on their learning (Vernaseri and Fahimifar, 2019).. Also, 63.5% of students considered the impact of digital library on virtual classroom presentations high and very high. National and local research is summarized in Tables:

According to previous studies such as (Asemi and Riahi, 2002; Vernaseri and Fahimifar, 2019; Turan and Bayram, 2013; Arafat, 2018) in the field of digital library use, it shows an essential need to use this kind of library. Also in other researches (Appleton, 2014;

Ziaei and Kaboli, 2011) have dealt with the basic infrastructure required to build a digital library. And this shows that basic and important infrastructure is needed to meet user needs.

### Method

The ongoing research has been done by descriptive-survey method. The statistical population includes 17 employees, who are in charge of the faculty sites, to analyze the technical infrastructure of the faculties and 75 students to measure the level of their skills to use digital library. Data analysis was performed with SPSS software version 22 and the reliability of the study was done with Cronbach's alpha test and its value (0.78) was at an acceptable level.

### Findings

In this section, an attempt has been made to express the most important questions and the most basic facilities required to create a university digital library. In order to identify the individual ability and the existence of basic system and technology facilities in 17 faculties of the University of Tehran, the present study was conducted and the following findings were obtained.

#### Question 1- Do the faculties of the University of Tehran have an extra budget to build a digital library?

**Table. 2. extra budget**

Budget	Percent	Frequency
yes	•	•
No	82/4	14
No answer	23/6	4
Total	100	17

Findings show that 82.4% of the faculty libraries have chosen the no option because they do not have a separate budget to create a digital library, 23.6% did not answer this question and none of the faculty libraries have chosen the yes option since they do not have a separate budget and all of them are funded by the Central Library.

**Question 2: Do the students of the faculties of the University of Tehran have the necessary skills to use the resources in the digital library?**

**Table3. The amount of skills**

Too much	much	medium	low	Very low	The amount of skill students have
43/5	28/2	16/5	3/5	7/1	Percent
37	24	14	3	6	Frequency
<b>75(100 percent)</b>					<b>Total</b>

Findings show that the level of students' skills in using the digital library at a very low level is 7.1, low is 3.5 percent, owing to these low percentages, the level of students' skills is at a promising level.

**Question 3: Do the technical infrastructures of the faculties of the University of Tehran have the ability to create a digital library?**

**Table4. Frequency and percentage of distribution regarding the start-up time of the computer center**

Necessary time to build computer center	Frequency	Percent
2 to 4 years	0	0
4 to 6 years	1	0/9
6 to 8 years	2	11/7
Above 8 years	14	84/4
<b>Total</b>	<b>17</b>	<b>100</b>

Findings show that 4 to 6 years have chosen 5.9%, 6 to 8 years 11.7%, 8 years and above have chosen 84.4%. due to the fact that the operation time of most computer centers is over 8 years, this can also be a reason for the readiness of this university to build a digital library.

**Table 5. Frequent distribution of respondents' opinions about the number of computer devices**

the number of computer	Frequency	Percent
Less than 10	۰	۰
Between 10 -20	۱	۵/۹
Between 21 -31	۱	۵/۹
Over 31	۱۵	۸۸/۲
total	۱۷	۱۰۰

Findings show that zero percent have chosen less than 10 devices, 5.9 percent between 10 to 20 devices, 5.9 percent between 21 to 30 devices, and 88.2 percent more than 31 devices. Considering that more than 88% of the faculties have more than 31 devices, it indicates that there are basic system facilities in the University of Tehran.

Table6. Frequent distribution of respondents' opinions about the number of devices that can be connected to the Internet.

**Table 6. Frequent distribution of computers**

Number of computers which are able to connect to the Internet	Frequency	Percent
None	۰	۰
Less than 25%	۰	۰
Between 25%-50%	۱	۵/۹
Between 50%-75%	۳	۱۷/۶
Between 75%-100%	۱۳	۷۶/۵

Findings show that none and less than 25% have chosen zero percent, 5.9 percent between 25 to 50 percent, 17.6 percent between 50 to 75 percent, 76.5 percent between 75-100 percent. According to the obtained data, the capability of connecting the devices of the faculties in the University Tehran to the Internet is 94%, meaning they are at a suitable level.

**Table7. Frequency and percentage distribution of server number**

The number of server	Percent	Frequency
Lack of server	0	0
About 2 server	5/9	1
Between 3-5	177/7	3
More than 5 server	53	13
Total	100	17

Findings indicate that zero percent did not have a server, 5.9 percent have about 2 servers, 17.7 percent have between 3 and 5 servers, and 53 percent have more than 5 servers.

**Table 8. Frequent distribution of respondents' opinions about the communication technology used to connect to the Internet**

The technology used to connect to the internet	Frequently	Percent
Dialup	۲	۱۱/۸
Leased-line	۷	۴۱/۳
ADSL	۸	۴۷/۲
Total	۱۷	۱۰۰

The findings show that 11.8% Dialup, 41.3% Leased-line, and 47.2% ADSL.

**Table 9. Frequency distribution of respondents' opinions about bandwidth**

Bandwidth	Frequency	Percent
kb ۰۶/۶	۰	۰
kb ۱۲۸	۰	۰
kb ۲۶۰	۰	۰
kb ۰۱۲	۱	۰/۹
Mb 1	۰	۲۹/۰
Mb 2	۱۱	۶۴/۹
Total	۱۷	۱۰۰

The results show that the options of 56.6 kb, 128 kb and 265 kb have selected zero percent, 5.9 percent kb, 29.5 percent Mb 1, 64.9 percent Mb 2. And due to the high percentage of bandwidth of the University of Tehran (Mb), it seems that the University of Tehran has the initial bandwidth to create a digital library.

**Table 10. Geographical scope of the faculty network**

Geographical scope of the faculty Network	Frequency	Percent
LAN	14	82.6
Metropolitan area network	0	0
Widespread network	3	17.6
Total	17	100

Findings show that 82.6% of the local network, 0% of the Metropolitan area network, 17.9% have chosen the wide network. The faculties of the University of Tehran do not use the urban cloud network and mostly use the local geographical network.

**Table.11. Use of optical fibers**

Optical fiber	Frequency	percent
Yes	۱۶	۹۴/۱
No	۱	۵/۹
Total	۱۷	۱۰۰

Findings show that 94.1% use fiber optics and 5.9% do not. In this section, we witness that the faculties of the University of Tehran are at an appropriate and complete level in terms of fiber optics.

**Table 12. The use of fiber optics**

Frequency	Percent	Percentage rate
۱	۵/۹	Less than 20
۱	۵/۹	Between 20-40 percent
۳	۱۷/۶	Between 40-75percent
۱۱	۷۰/۸	Between 75-100 percent
۱۷	۱۰۰	Total

Findings show that 5.9% have chosen less than 20%, 5.9% between 20 to 40%, 17.9% between 40 to 75%, 70.8% between 75 to 100%. According to the previous table and the appropriate level of optical fiber in the University of Tehran, in this table we see a high use of optical fiber and have a use of over 75%.

Due to the Development of technology, there are some needs that we have to meet appropriately. Libraries and other educational research centers, owing to their role and position, require to be accompanied by this large cycle of information in order to develop and fulfill their mission.

In the present study, more than 80% believe that there is no independent budget for building a digital library, which in turn can be deemed the main reason that hinders the establishment of a digital library for the University of Tehran. This budget is requested by the libraries or computer centers of the faculties from the research assistant of the faculties.

this budget is funded by the Vice Chancellor for Research from the Vice Chancellor for Administration and Finance of the University. According to the results obtained from 75 students, studying at faculties of the University of Tehran, the skill of using digital resources is over 70% and this can be a great advantage for the University of Tehran to be able to create a digital library, which can meet students and researchers need to information easily.

This, in turn, can reduce costs and add value to the university system. The time needed for launching the computer system in the colleges is 84.4% more than 8 years and 88.2% of the colleges have more than 31 systems, meaning these can help to create the digital library in a better way. Also, when more than 76% of the faculty systems have the ability to connect to the Internet, it benefits faculty in the term to build a digital library readily. Besides this advantage, with the 50% capability of the more than 5 servers of the faculties, we witness more digital environment to create it more than the past.

In dial-up and ADSL, telephone lines are used for connection, in leased-line, wired cable is used, in some cases, wireless fiber is used, the bandwidth of most colleges is relatively good (64%). They use the system of local geographical system. Also, according to the results obtained from the technical infrastructure of the faculties, it shows that these technical infrastructures are at a normal level and are ready to create a digital library. Considering the allocation of the desired budget and proper and strategic planning for the creation of a digital library and its improvement and development, serious measures must be taken. It is suggested that the creation of a comprehensive digital library with appropriate thematic coverage, the system with all search items (thematic; title; author, etc ...) can be searched and also accessible to all students and no restrictions to anybody,. In all stages of this research, the researchers have faced limitations such as the unavailability of students and the long time to complete the questionnaire.

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