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The Impact of User Digital Experience Management on Library Design and Architecture

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Abstract

Purpose: This study investigates the impact of managing users' digital experiences on library design and architecture.

Method: This applied research employed a mixed-methods approach, prioritizing qualitative data. Initially, data were collected and analyzed through focus groups with experts in digital transformation, IT, information science, and architecture. Subsequently, in the quantitative phase, 20 experts and library staff were selected and divided into four groups based on their expertise. Content Validity Index (CVI) exceeded 0.79 for all items, and reliability, measured by Cronbach's alpha, was 0.874. Data analysis involved descriptive statistics (frequency, percentage, mean) and inferential statistics (T-test for ordinal data).

Findings: The mean scores for component importance were above 3, while observance scores were below 3. The significant p-value (<0.05) confirms these differences are statistically meaningful. The "user's digital experience" component was highly important in designing entry, study, educational/collaborative, and administrative/technology spaces, but its implementation was low or average. The greatest alignment between importance and observance was found in "play/entertainment space," "website," and "educational/collaborative space." The

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"educational/collaborative space" and "website" were most influenced by the digital experience component.
Conclusion: Experts considered the user's digital experience component highly important for all library spaces except administrative areas. However, librarians at Allameh Tabataba'i University Library reported its implementation as low or average. Therefore, to align with evolving social needs in the digital era, fundamental changes in the design and architecture of library spaces are necessary.

Keywords: Digital Transformation, Digital Experience, Users, Library Architecture, Library Design

Introduction

Researchers consider user experience (UX) study as a fundamental approach in evaluating information systems. UX is defined as the perceptions and responses resulting from using or anticipating the use of a product, system, or service. Digital libraries represent a prominent example of such information systems (Samiei et.al, 2023).

The advancement of information technology and emergence of digital libraries have introduced new challenges for managers. While traditional library mechanisms were clear and guided by centuries of experience, the digital revolution has fundamentally transformed various aspects of library operations. Digital libraries employ modern tools and software to organize information and provide network access for users (Norouzi & Jafari Far, 2019).

Experience-centricity characterizes the digital age, where businesses prioritize creating customer experiences over merely offering products or services to remain competitive (Karimi et al., 2020). In libraries, digital transformation represents a profound shift in activities, processes, and leadership thinking, emphasizing innovation and technology adoption to enhance users' digital experiences (Samiei, 2021).

Users' digital experience encompasses the comprehensive mental response formed during online interactions with libraries through websites, blogs, and chat rooms. Positive digital experiences foster platform loyalty, leading to increased engagement and service reuse. Such experiences generate crucial outcomes including emotional attachment to the library brand, enhanced credibility, greater user satisfaction, and strengthened loyalty. Digital communication channels enable reciprocal interaction, allowing users to significantly impact the library's reputation.

In the rapidly evolving digital landscape, audiences now exercise full autonomy as decision-makers, selecting content according to their preferences regarding what, when, where, and how to consume information. This represents a fundamental transformation in library-patron relationships, contrasting sharply with the passive consumption model of traditional media. Creating engaging content and developing effective social media strategies consequently present ongoing challenges for libraries (Mirahmadi et al., 2024).

Transformative technologies have reconfigured library-user

communication in recent years. Digital trends enable global information access transcending temporal and spatial constraints, facilitating real-time searches. These advancements have transformed users from passive consumers of static data into active participants who interact, upload, and share user-generated content within extensive online networks (Straker & Wrigley, 2016).

Digital touchpoints now fundamentally reshape user interactions with library services, making it essential to identify which touchpoints most effectively create engaging experiences and which may undermine user relationships (Barari et al., 2020). Furthermore, digital transformation in library design and architecture, coupled with technological advancements, enables enhanced user experiences at these touchpoints. In this competitive environment, libraries must intensify efforts to attract and retain users by creating multiple pathways for positive experiences. Physical architecture and interior design represent crucial components influencing visitor perception.

Consequently, architectural and design revisions aligned with national digital transformation policies and implementation documents have become necessary. Libraries can no longer attract audiences with simplistic, poorly designed facilities. Adapting library spaces and addressing emerging user needs is imperative. Since prior research has not examined the influence of users' digital experience on library design and architecture in relation to stakeholder needs and interests, this research aims to address this gap by investigating these effects and answering the following questions:

- What is the importance and current level of implementation of the user digital experience component in the library's entrance space design?
- What is the importance and current level of implementation of the user digital experience component in the library's educational and collaborative space design?
- What is the importance and current level of implementation of the user digital experience component in the library's administrative space design?
- What is the importance and current level of implementation of the user digital experience component in the library's information technology space and website design?
- What is the importance and current level of implementation of the user digital experience component in the library's public space design?
- What is the importance and current level of implementation of the user digital experience component in the library's play and entertainment space

design?

Literature Review

Forrester (2012) argues that competitive advantage now stems from user choice, not information production, necessitating a focus on user experience management in libraries (Rahimian et al., 2020). This management involves principles and processes for handling user interactions to create memorable experiences and secure a competitive edge. Concurrently, "Employee Digital Experience," a product of digital transformation, is reshaping organizations and creating new competitive frontiers (Gheidar & Shami Zanjani, 2020).

While studied abroad for a decade, digital user experience management remains under-explored in domestic LIS research. The researcher reviewed articles from international (e.g., EBSCO, ScienceDirect) and domestic databases (e.g., IRANDOC, SID) using keywords like "digital transformation," "user experience," and "academic library," as summarized in Table 1**.**

Table 1. Summary of research conducted in the conceptualization of user experience management

Researcher	Topic	result
Gheidar & Shami Zanjani (2020)	Factors influencing the formation of employee digital experience	In this research, 70 different factors were identified as effective in shaping the digital experience of employees in the organization, which were classified into 8 main categories: cultural, occupational, leadership, strategy, brand, technology, physical environment, and individual factors.
Maleki Gonadish et al. (2014)	Examining the status quo of the design of public libraries in Tehran	In their research results, they showed that librarians working in public libraries in Tehran are not satisfied with the library design situation and expressed their enthusiasm for a better library design. The results also showed that the level of user satisfaction with the components that are required in the design of libraries is low in the majority of cases and in some cases less than average, and they were hardly satisfied with the components considered in the design.

Behpoor & Siamak (2013)	Analysis of the architectural design of the National Library of Iran from the perspective of the path through which users could move	The overall conclusion is that there should be a significant relationship between the number of visits and the length of the route. The study showed that the National Library is slightly distant from this ideal situation.
Suthiprapa & Tuamsuk (2022)	Reference Service Design for Academic Library: A Case of Digital Learning Launchpad Development	The results showed that reference services in libraries have changed following users' needs and advancements in information and communication technology (ICT). Under the influence of ICT, the use of artificial intelligence (AI) technology integrated with question and answer services via Chatbot, the Voice of Customer (VoC) system for handling user complaints, clinical-like services such as support in accessing information resources and academic development, and information literacy training in Thai academic libraries have been observed to a small extent.
Adabi Firozjah & Radfar (2019)	Investigating the Effective Factors on User's Understanding of Digital Libraries (A Case Study: Digital Library of Allameh Tabataba'i University)	The results of the study indicate the overall impact of system quality, information quality, service quality, usefulness, ease of use, digital library dependency, user satisfaction, and user loyalty to the digital library of Allameh Tabataba'i University.
Lesser et al. (2016)	Staff experience model	The three components of the social environment, the physical environment, and the work environment; plus culture and strategy are regarded as factors influencing users' digital experience.
Meyerson et al. (2013)	Improving the user experience of professional researchers: Applying a user-centered design framework in archival repositories	The user-centered design (UCD) framework is designed and implemented to systematically improve the digital user experience for professional researchers in order to enhance usability.

Employee experience and digital transformation are increasingly

recognized as pivotal forces transforming organizations and establishing competitive advantages in the digital landscape (Gheidar & Shami Zanjani, 2020). In libraries, the advent of digital transformation has catalyzed the "librarian's digital experience," fundamentally shifting institutional priorities from a primary focus on managerial directives to encompassing the needs and workplace experiences of librarians themselves. This experience constitutes a holistic understanding derived from librarians' cumulative interactions—both direct and indirect—with their roles, colleagues, managers, users, organizational strategies, technological systems, and workplace culture.

While previous studies, such as those by Behpoor and Siamak (2013) and Bani Fatemeh and Ghaffari (2017), have examined library architecture through the lenses of user movement paths and biophilic design, the specific impact of digital transformation on library architecture remains unaddressed in the existing literature. Therefore, this research occupies a novel and unique position in the field.

Method

This study adopts an applied, mixed-methods research design, prioritizing the qualitative phase. Initially, qualitative data were gathered and analyzed using a focus group of experts in digital transformation, information technology, information science, knowledge science, and architecture. Subsequently, in the quantitative phase, a separate group of 20 experts in digital transformation, information science, and knowledge science was selected.

The data collection tool's validity was assessed through supervisor, consultant, and expert feedback. The questionnaire's face and content validity were qualitatively confirmed by the expert panel. Quantitative content validity was measured using the Waltz and Bausell method, where experts rated each item's relevance, clarity, and simplicity on a dichotomous Likert scale, and the Content Validity Index (CVI) was calculated.

$$CVI = \frac{\text{Number of specialists who have given a score of 3 and 4 to the item}}{\text{Total number of specialists}}$$

The survey results regarding the questionnaire's items and components indicate that all items possess a high index of 0.79 for relevance, clarity, and simplicity, confirming their acceptability. Based on expert feedback, some components were revised to enhance the clarity and comprehension of the wording and terminology used. The Likert scale was ultimately confirmed as appropriate for responding to the questions. To establish reliability and internal consistency, Cronbach's alpha coefficient was employed after the questionnaires were distributed and collected. The calculated Cronbach's alpha coefficient for the questionnaire is presented in Table 2.

Table 2. Reliability test for the questionnaire

Row	Summary of Cronbach's alpha test results for questionnaires	
1	Number of questionnaire items	7
2	Cronbach's alpha	0/874

The findings were analyzed according to the data collection method, involving separate qualitative and quantitative stages, with the results ultimately integrated for interpretation. During the quantitative stage, descriptive and inferential statistics were employed. Descriptive statistics utilized frequency distribution tables, percentages, and means. For inferential statistics, a T-test was applied to compare evaluation results across different groups, given the ordinal nature of the data. Content analysis was used to analyze the open-ended questions.

Findings

Question 1: What is the importance and current level of implementation of the user digital experience component in the library's entrance space design?

In response to the first research question regarding the importance and observance of users' digital experience in designing library entrance spaces, Tables 3 and 4 present the relevant components and items.

Table 3. The importance level of the user's digital experience component in the design of the library entrance space

Component	Item	Very low		Low		Medium		high		Very high		Average	Standard deviation
		Frequency percentage	Frequency	Frequency percentage	Frequency	Frequency percentage	Frequency	Frequency percentage	Frequency	Frequency percentage	Frequency		
The importance of the user's digital experience in the input space	Welcome area	0	0	0	0	12.5	2	00.0	0	87.5	14	4.750	0.683
	Self-service	0	0	0	0	00.0	0	6.3	1	93.8	15	4.937	0.250
	Smart booths	0	0	0	0	00.0	0	12.5	2	87.5	14	4.875	0.341

The data in Table 3 show that all items within the "User Digital Experience" component for the library entrance space had an average importance score above 4, indicating experts consider them highly important. Among these, "self-service" scored the highest (4.937), while the "welcome area" scored the lowest (4.750).

Table 4. The extent of adherence to the digital user experience component in the design of the library entrance space

Component	Item	Very low		Low		Medium		high		Very high		Average	Standard deviation
		Frequency percentage	Frequency	Frequency percentage	Frequency	Frequency percentage	Frequency	Frequency percentage	Frequency	Frequency percentage	Frequency		
Adherence to the user's digital experience in the entrance space	Welcome area	25.0	1	00.0	0	75.0	3	00.0	0	00.0	0	2.500	1.0000
	Self-service	50.0	2	50.0	2	00.0	0	00.0	0	00.0	0	1.500	0.577
	Smart booths	25.0	1	50.0	2	25.0	1	00.0	0	00.0	0	2.000	0.816

Table 4 data show that the average compliance score for the user's digital experience component in the entry space was below 3. This indicates that, from the librarians' perspective at Allameh Tabataba'i

University Library, this component has been observed only to a limited extent.

Question 2: What is the importance and current level of implementation of the user digital experience component in the library's study space design?

To address the second research question concerning the importance and observance of the user's digital experience in designing library study spaces, Tables 5 and 6 present the relevant components and items.

Table 5. The importance level of the user's digital experience component in library study space design

Component	Item	Very low		Low		Medium		high		Very high		Average	Standard deviation
		Frequency percentage	Frequency	Frequency percentage	Frequency	Frequency percentage	Frequency	Frequency percentage	Frequency	Frequency percentage	Frequency		
The importance of user digital experience in the study space	Archive	00.0	0	00.0	0	18.8	3	25.9	4	56.3	9	4.375	0.806
	Researcher	00.0	0	00.0	0	12.5	2	37.5	6	50.0	8	4.500	0.632
	Children	00.0	0	00.0	0	25.0	4	25.0	4	50.0	8	4.250	0.856
	People with special needs	00.0	0	00.0	0	18.8	3	12.5	2	68.8	11	4.500	0.816
	Loan	00.0	0	00.0	0	00.0	0	25.0	3	75.0	12	4.750	0.447
	Reference	00.0	0	00.0	0	00.0	0	18.8	3	81.3	13	4.812	0.403

The data show that all items in the "study space" had an average importance score above 4 within the user's digital experience component, reflecting their high importance from the experts' perspective. The "reference" item scored highest (4.812), while the "children" item scored lowest (4.250).

Table 6. The extent of compliance with the user's digital experience component in the design of the library's study space

Component	Item	Very low		Low		Medium		high		Very high		Average	Standard deviation
		Frequency percentage	Frequency	Frequency percentage	Frequency	Frequency percentage	Frequency	Frequency percentage	Frequency	Frequency percentage	Frequency		
Compliance with the user's digital experience in the study space	Archive	00.0	0	00.0	0	75.0	3	25.0	1	00.0	0	3.250	0.500
	Researcher	00.0	0	25.0	1	75.0	3	00.0	0	00.0	0	2.750	0.500
	Children	00.0	0	00.0	0	50.0	2	50.0	2	00.0	0	3.500	0.577
	People with special needs	00.0	0	50.0	2	50.0	2	00.0	0	00.0	0	2.500	0.577
	Loan	00.0	0	00.0	0	75.0	3	25.0	1	00.0	0	3.250	0.500
	Reference	00.0	0	00.0	0	75.0	3	25.0	1	00.0	0	3.250	0.500

The data indicate that the average compliance scores for the user's digital experience component in the "study space" items were generally above 3, except for "researchers" and "people with special needs." This suggests moderate observance from the librarians' perspective at Allameh Tabataba'i University Library. Specifically, the "children" item scored highest (3.500), while "people with special needs" scored lowest (2.500). A significant gap exists between the importance and compliance levels observed in the data.

Question 3: What is the importance and current level of implementation of the user digital experience component in the library's educational and collaborative space design?

To address the third research question regarding the importance and observance of the user's digital experience in designing the library's educational and collaborative space, Tables 7 and 8 present the relevant components and items.

Table 7. The degree of importance of the user's digital experience component in the design of educational and collaborative library space

Component	Item	Very low		Low		Medium		high		Very high		Average	Standard deviation
		Frequency percentage	Frequency	Frequency percentage	Frequency	Frequency percentage	Frequency	Frequency percentage	Frequency	Frequency percentage	Frequency		
The importance of the user's digital experience in educational and collaborative spaces	Individual	00.0	0	00.0	0	18.8	3	18.8	3	62.5	10	4.437	0.813
	Collective	00.0	0	00.0	0	18.8	3	12.5	2	68.8	11	4.500	0.816
	Consultation room	00.0	0	00.0	0	25.0	4	18.8	3	56.3	9	4.312	0.873
	Relaxation area	00.0	0	12.5	2	37.5	6	6.3	1	43.8	7	3.812	1.167
	Meeting room	00.0	0	6.3	1	18.8	3	31.3	5	43.8	7	4.125	0.957

The data show that the average importance scores for the user's digital experience component in the "educational and collaborative space" items were all above 3, indicating high importance from the experts' perspective. Specifically, the "collective space" item had the highest score (4.500), while the "relaxation space" item had the lowest (3.812).

Table 8. The degree of adherence to the digital user experience component in the design of educational and collaborative library spaces

Component	Item	Very low		Low		Medium		high		Very high		Average	Standard deviation
		Frequency percentage	Frequency	Frequency percentage	Frequency	Frequency percentage	Frequency	Frequency percentage	Frequency	Frequency percentage	Frequency		
Adherence to the user's digital experience in the educational and collaborative space	Individual	00.0	0	50.0	2	00.0	0	50.0	2	00.0	0	3.000	1.154
	Collective	00.0	0	50.0	2	00.0	0	50.0	2	00.0	0	3.000	1.154
	Consultation room	25.0	1	75.0	3	00.0	0	00.0	0	00.0	0	1.750	0.500

	Relaxation area	25.0	1	50.0	2	25.0	1	00.0	0	00.0	0	2.000	0.816
	Meeting room	25.0	1	25.0	1	50.0	2	00.0	0	00.0	0	2.250	0.957

The data indicate that the average compliance scores for the user's digital experience component in the "educational and collaborative space" items were all 3 or lower, suggesting limited observance from the librarians' perspective. The "individual space" and "collective space" items scored highest (3.000), while the "consultation room" scored lowest (1.750). A clear disparity exists between the high importance experts place on this component (Table 7) and its low level of implementation reported by librarians (Table 8).

Question 4: What is the importance and current level of implementation of the user digital experience component in the library's administrative space design?

Tables 9 and 10 present the data for the fourth research question, addressing the importance and observance of the user's digital experience component in the design of the library's administrative space.

Table 9. The level of importance of the user's digital experience component in the design of the library's office space

Component	Item	Very low		Low		Medium		high		Very high		Average	Standard deviation
		Frequency percentage	Frequency	Frequency percentage	Frequency	Frequency percentage	Frequency	Frequency percentage	Frequency	Frequency percentage	Frequency		
The importance of user digital experience in the office space	Technical services	00.0	0	6.3	1	12.5	2	31.3	5	50.0	8	4.250	0.930
	Studio	00.0	0	18.8	3	6.3	1	37.5	6	37.5	6	3.937	1.123
	Human Resources	00.0	0	6.3	1	18.8	3	18.8	3	56.3	9	4.250	1.000
	Management	00.0	0	18.8	3	12.5	2	12.5	2	56.3	9	4.062	1.236
	Public Relations	00.0	0	00.0	0	31.3	5	18.8	3	50.0	8	4.187	0.910

The data show that the average importance scores for the user's digital experience component in the "administrative space" items were all above 3, indicating high importance from the experts' perspective. The items "technical services" and "human resources" scored highest (4.250), while the "studio" item scored lowest (3.937).

Table 10. The degree of adherence to the user's digital experience component in the office space design of the library

Component	Item	Very low		Low		Medium		high		Very high		Average	Standard deviation
		Frequency percentage	Frequency	Frequency percentage	Frequency	Frequency percentage	Frequency	Frequency percentage	Frequency	Frequency percentage	Frequency		
Adherence to the user's digital experience in the administrative space	Technical services	00.0	0	25.0	1	00.0	0	75.0	3	00.0	0	3.500	1.000
	Studio	00.0	0	25.0	1	00.0	0	75.0	3	00.0	0	3.500	1.000
	Human Resources	00.0	0	25.0	1	50.0	2	25.0	1	00.0	0	3.000	0.816
	Management	25.0	1	00.0	0	50.0	2	25.0	1	00.0	0	2.750	1.258
	Public Relations	25.0	1	00.0	0	75.0	3	00.0	0	00.0	0	2.500	1.000

The data indicate that the average compliance scores for the user's digital experience component in the "administrative space" items were around or below 3, suggesting a moderate level of observance from the librarians' perspective. The "Technical Services" and "Studio" items scored highest (3.500), while "Public Relations" scored lowest (2.500). Overall, a gap exists between the importance experts place on these components and their implementation, with the exception of the "Studio" item, where importance and compliance levels are closely aligned.

Question 5: What is the importance and current level of implementation of the user digital experience component in the library's information technology space and website design?

Tables 11 and 12 present the data for the fifth research question, which concerns the importance and observance of the user's digital experience component in the design of the IT space and library website.

Table 11. The degree of importance of the user's digital experience component in designing the library IT space[1]

Component	Item	Very low		Low		Medium		high		Very high		Average	Standard deviation
		Frequency percentage	Frequency	Frequency percentage	Frequency	Frequency percentage	Frequency	Frequency percentage	Frequency	Frequency percentage	Frequency		
The importance of user digital experience in IT space and site	Server room	00.0	0	00.0	0	18.8	3	18.8	3	62.5	10	4.437	0.813
	IT room	00.0	0	00.0	0	18.8	3	12.5	2	68.8	11	4.500	0.816

The data show that the average importance scores for the user's digital experience component in the "IT space" items were all above 4. The "IT room" had the highest importance score (4.50), while the "Server room" had the lowest (4.37).

Table 12. The degree of compliance with the user's digital experience component in the library IT space design

Component	Item	Very low		Low		Medium		high		Very high		Average	Standard deviation
		Frequency percentage	Frequency	Frequency percentage	Frequency	Frequency percentage	Frequency	Frequency percentage	Frequency	Frequency percentage	Frequency		
Consideration of the user's digital experience in the IT and website space	Server room	00.0	0	00.0	0	25.0	1	75.0	3	00.0	0	3.750	0.500
	IT room	00.0	0	00.0	0	25.0	1	75.0	3	00.0	0	3.750	0.500

[1] . The term "IT space" refers to computers, computer peripherals, and data centers.

The data indicate that the average compliance scores for the user's digital experience component in the "IT space " were slightly above 3, suggesting a moderate level of observance from the librarians' perspective. A comparison of Tables 11 and 12 reveals that components deemed highly important by experts are only implemented to a moderate extent in the library.

Question 6: What is the importance and current level of implementation of the user digital experience component in the library's public space design?

Tables 13 and 14 present the data for the sixth research question, addressing the importance and observance of the user's digital experience component in the design of the library's public space.

Table 13. The degree of importance of the user's digital experience component in designing the public space of the library

Component	Item	Very low		Low		Medium		high		Very high		Average	Standard deviation
		Frequency percentage	Frequency	Frequency percentage	Frequency	Frequency percentage	Frequency	Frequency percentage	Frequency	Frequency percentage	Frequency		
Importance of user digital experience in public spaces	Commuting route	00.0	0	25.0	4	12.5	2	37.5	6	25.0	4	3.625	1.147
	Restroom	00.0	0	31.3	5	12.5	2	37.5	6	18.8	3	3.437	1.152
	Buffet	00.0	0	25.0	4	25.0	4	37.5	6	12.5	2	3.375	1.024

The data show that the average importance scores for the user's digital experience component in the "public space" items were slightly above 3, indicating moderate importance from the experts' perspective.

Table 14. The degree of adherence to the user's digital experience component in the design of the library's public space

Component	Item	Very low		Low		Medium		high		Very high		Average	Standard deviation
		Frequency percentage	Frequency	Frequency percentage	Frequency	Frequency percentage	Frequency	Frequency percentage	Frequency	Frequency percentage	Frequency		
Adhering to the user's digital experience in public spaces	Commuting route	25.0	1	00.0	0	25.0	1	50.0	2	00.0	0	3.000	1.414
	Restroom	25.0	1	00.0	0	25.0	1	50.0	2	00.0	0	3.000	1.414
	Buffet	25.0	1	50.0	2	25.0	1	00.0	0	00.0	0	2.000	0.816

Question 7: What is the importance and current level of implementation of the user digital experience component in the library's game and entertainment space design?

In response to this question, two tables, 15 and 16, were delineated including the user's digital experience component and the " game and entertainment " items, which are presented to answer the seventh question, specifically "The importance and observance of the user's digital experience component in the design of the library's play and recreation space."

Table 15. The Importance of User Digital Experience Component in Designing Library game and entertainment Space

Component	Item	Very low		Low		Medium		high		Very high		Average	Standard deviation
		Frequency percentage	Frequency	Frequency percentage	Frequency	Frequency percentage	Frequency	Frequency percentage	Frequency	Frequency percentage	Frequency		
The Importance of User Digital Experience in Gaming and Entertainment	Individual	00.0	0	18.8	3	12.5	2	37.5	6	31.3	5	3.812	1.108
	Group	00.0	0	12.5	2	31.3	5	25.0	4	31.3	5	3.750	1.064

The data show that the average importance scores for the user's digital experience component in the "game and entertainment space" items

were slightly above 3, indicating these items are considered relatively important from the experts' perspective.

Table 16. The degree of observance of the user's digital experience component in the design of the library's ga,e and entertainment space

Component	Item	Very low		Low		Medium		high		Very high		Average	Standard deviation
		Frequency percentage	Frequency	Frequency percentage	Frequency	Frequency percentage	Frequency	Frequency percentage	Frequency	Frequency percentage	Frequency		
Consideration of user digital experience in the game and entertainment space	Individual	00.0	0	00.0	0	50.0	2	50.0	2	00.0	0	3.500	0.577
	Group	00.0	0	00.0	0	50.0	2	50.0	2	00.0	0	3.500	0.577

A T-test was employed to determine if a significant difference exists between the average importance scores from experts and the average compliance scores from librarians regarding the user's digital experience component. The results are summarized in Table 17.

Table 17. T-test on the importance and observance of the user's digital experience component

The importance of the component	T-test		
	Average	T statistic	p-value
User digital experience	4.092	6.693	0.000
Compliance with the component	T-test		
	Average	T statistic	p-value
User digital experience	2.921	10.248	0.002

Table 17 shows that the average importance scores are above 3, while the average compliance scores are below 3. With a significance level (p-value) below 0.05, this difference is statistically significant. Specifically, components such as the "welcome area," "self-service," and "smart kiosks" in the entrance space are deemed highly important yet demonstrate very low levels of observance in the library.

Conclusion

The digital experience of librarians is now critically important for talent retention, evolving workforce characteristics, employer branding, client communication, staff satisfaction, and performance enhancement

(Morgan, 2017). In this era of digital transformation, libraries, like other institutions, must adapt. This study investigated the importance and observance of the user's digital experience component in library design, yielding the following key results:

- The "user digital experience" component was deemed highly important by experts for the "welcome area," "self-service," and "smart booths" in the entrance space, yet librarians reported very low observance. Notably, the "self-service" item, rated as highly important by experts, received the lowest compliance score from librarians. These findings align with Behpoor and Siamak (2013) on optimizing user pathways and Firoozjah and Radfar (2019) regarding the lack of smart booth implementation.
- Experts considered the component highly important for items like "Archive," "Researchers," "Children," "Individuals with Special Needs," "Loan," and "Reference" in the study space. Librarians, however, reported only a moderate level of observance. The "Individuals with Special Needs" item, of high importance to experts, received the lowest compliance score. These results support Suthiprapa and Tuamsuk (2022) but contrast with Meyerson et al. (2013).
- For the educational and collaborative space ("Individual Rooms," "Group Rooms," "Consultation Room," "Rest Area," "Meeting Room"), experts affirmed the component's high importance, while librarians reported non-observance. The "Collective Space" item scored highest in compliance among these. This aligns with Bani Fatemeh and Ghaffari (2017) on the importance of such spaces.
- In the public space ("commute route," "toilet," "buffet"), experts assigned medium importance to the component, and librarians confirmed a medium level of observance. The "buffet" item had the lowest compliance score. This specific finding has not been previously addressed in the literature.
- For the administrative space ("technical services," "human resources," "public relations and marketing," "reference and information services," "resource provision"), experts rated the component as highly important, but librarians reported non-observance. "Public relations and marketing" had the lowest compliance score. This supports Maleki Gonadish et al. (2014), who found low librarian satisfaction with design components.
- Experts considered the component important for the "server room" and "IT room" in the IT space, while librarians reported moderate

observance. The "IT room" received the highest compliance score. These results are consistent with Gheidar and Shami Zanjani (2020) and Lesser et al. (2016).

- In the game and entertainment space ("individual" and "group" elements), experts rated the component as relatively important, and librarians reported a moderate level of observance, indicating a consistent, moderate impact. This aspect had not been explored in prior research.

The closest alignment between importance and observance was found in the "game and entertainment space," "IT space," and "educational and collaborative space," where the experts' importance ratings and librarians' compliance scores were very close. This suggests that the "educational and collaborative space" and "IT space" have been most influenced by the user's digital experience component. Given its educational mission, the Allameh Tabataba'i University Central Library should prioritize enhancing these areas, particularly the "play and entertainment space" where both importance and observance are moderately rated. It is recommended that the library's design focus on strengthening technological, cultural, physical, environmental, strategic, and innovative infrastructure in the entrance, study, public, and administrative spaces to foster a more useful and intelligent digital experience for users.

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