

# The analytic study of librarian-user and importance-satisfaction on the use factor of complex cultural space in library

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## Abstract

**Purpose** – This study surveyed users and librarians who have been transforming libraries into a complex cultural space by reflecting the trends of the times, investigated and analyzed various status of complex cultural spaces, including perceptual differences among different groups and made an attempt to present a direction for the diversification of library's role.

**Design/methodology/approach** – This study analyzes the difference between the level of importance and the level of satisfaction for the operational style and use of complex cultural spaces, current status and use of programs and services of libraries as well as the perceptual difference between librarians and users. In order to do so, opinions were collected from librarians who operate complex cultural spaces and users who use the spaces.

**Findings** – First, the study compared to see if there is a difference between the preferred complex cultural space of libraries and the type of complex cultural space actually provided by libraries. Libraries do not only have data spaces but also made education space, performance space, exhibition space, rest space, community space and experience space available for users. Users were found to more frequently use exhibition space, performance space, rest space and education space among other spaces whereas the utilization rate of community space and experience space was identified to be significantly low. Second, this study also compared to see if there is a difference between users' preference for the type of programs operated by library's complex cultural spaces and the actual programs offered. The comparison of perceived differences between librarians who are the operators of the programs and users who participate in the programs is to compare and improve the consistency of supply and demand. As a result, it was found that the supply and demand for educational programs were most consistent, which would lead to higher participation rate and enhanced operational performance and satisfaction with libraries. Lastly, investigations were carried out to see whether there is a difference in the levels of importance and satisfaction for the operation of complex cultural spaces and perceptual difference between libraries and users. Comprehensively analyzing the results, in the first quadrant of "Keep the Good Work," librarians showed a higher level of perception compared to users. In particular, librarians were found to have a different perception towards programs (contents) compared to users. Based on such results, a systematic program must be considered when planning for library programs in order to increase users' satisfaction. In addition, in the second quadrant of "Concentrate Here," with a high importance and low satisfaction, users showed a high level of importance for programs (contents) whereas libraries identified accessibility as a more important factor, indicating a big perceptual difference between users and librarians.

**Research limitations/implications** – This study examines the differences between the opinions of operators who create complex cultural spaces and operate programs in the spaces and the opinions of users who participate in the spaces and programs, and it was found that no other studies in Korea and overseas have done the same yet. In addition, it carries a significant meaning in that it does not only investigate the perceptions towards importance and satisfaction, but also suggests improvement directions based on the

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perceptual differences between users and librarians. In other words, librarians who implement policies at actual sites seem to be able to reflect the results of this study and decide the operation direction of the library. **Originality/value** – Users also participate in various services and programs that library's complex cultural spaces offer and enjoy their cultural life. It carries a significant meaning in that the study evaluates the importance-satisfaction of factors affecting the use of complex cultural spaces of libraries by examining perceptions of those users who actually have the experience of using library's complex cultural spaces when the number of libraries attempting to transform into a multicultural space increases. The study made an attempt to enrich the knowledge and understanding of users' visit/use of libraries, suggest improvement directions and factors to focus. Continuous efforts and additional studies must be made in order to vitalize library's complex cultural spaces and secure the position of a cultural facility as well as a communication space located at the heart of regional society.

**Keywords** Satisfaction, Importance-performance analysis (IPA), Complex cultural space in library, Factors to use, Importance-satisfaction, User-librarian

**Paper type** Research paper

## 1. Introduction

Globally, libraries have continuously introduced and implemented new information technologies and systems to reflect the changing needs of the times and users and operated makerspaces in order to improve users' creativity while diversifying library spaces. Though, libraries used to be a quiet and silent place for reading and studying even back in a few years ago, it now serves the role of a complex community for residents through providing reading rooms, auditoriums, conference rooms, book cafes and exhibition rooms. In addition, libraries, going through various transformations, are becoming the third place which covers various specialty areas, provides residents with knowledge and brings a break from their lives.

Libraries are now going beyond its basic role in reading or borrowing books and transforming into a user-centered library through the complex acts of cultural and recreational utilization in public libraries such as viewing exhibitions, watching movies and performances, taking cultural lectures and having new experiences. Such complexation of public libraries does not merely refer to a facility that includes cultural functions but refers to a broader concept in which facilities having similar purposes, targets and characteristics are included, combined with public cultural and welfare facilities as well as commercial facilities (Ko and Lim, 2012).

Although, there are many reasons behind the organization of complex cultural spaces in libraries, recent statistics revealed that the number of users participating in cultural programs is the largest among other programs provided by public libraries, showing that the trend of library use is shifting to the use as a cultural life space instead of the mere use of books (The Ministry of Culture, Sports and Tourism, 2016a, b; Kim, 2017). Multicultural spaces in libraries improve the level of local culture by activating the use of libraries through bridging the knowledge and information gap between different regions and addressing diverse needs of residents for cultural welfare. Moreover, it plays the roles of a cultural medium which enhances regional competitiveness by livening up the cities and raising the sense of unity and pride among residents via forming diverse communities as a place for gathering and resting (Kwon, 2012).

Examining the status of complexation of public libraries investigated in previous studies, it was found that 9.4% of the entire public libraries have multiplexed as of 2012. Particularly, complexation was found among similar facilities such as cultural classroom, multipurpose room, exhibition room and learning room in the cultural education sector of spatial components, resulting in the expansion of continuity and functions of spaces and expandability of facilities (Ko and Lim, 2012). Furthermore, as of 2011, 9.8% of the public libraries went through complexation, showing an increase compared to 2010. Looking at it by region, the number of multiplexed libraries is Seoul and Gyeonggi-do areas was higher than other regions, demonstrating differences depending on the cultural level and economic development of the region (Ryu *et al.*, 2013).

As a result of the changes in the space of public libraries, studies on the complexation of public libraries have been actively conducted, but most of them have analyzed public libraries and other facilities based on the building type (e.g. integral type and separate type) classification by entrance (e.g. shared entrance and separate entrance) classification according to internal traffic flows (e.g. shared traffic flow and separated traffic flow) and mutual positional relationship of spaces from the viewpoints of architecture. However, no studies have yet investigated the composition status of complex cultural spaces in public libraries and programs carried out in each space or the perceptual differences between libraries who provide the services and users who receive the services.

But the concept of a complex cultural space is a concept that has recently begun to be used, and in Europe, the United States and the United Kingdom, it is called makerspace or hackerspace or by various other names, and one can think of it as a concept that adds this function. Therefore, there are few prior studies or cases, and it is a space that is rapidly being built to revitalize libraries in Korea (Maker Media and Deloitte, 2013; Maker Culture, 2020; Lang, 2013; Hatch, 2014; Anderson, 2012; Aliceonnet, 2015; Hong and Park, 2015; KOFAC, 2016; Chang, 2017; Me-Kyeong-Chun-Ch, 2012; Democratic Party of Korea, 2017; Noh, 2014).

Concepts and examples of this concept of a complex cultural space have recently been rapidly established and utilized in Korea for the revitalization of libraries, so there are few prior research studies or overseas cases. Therefore, to help understand the complex cultural space, section 2 deals with the concept of the complex cultural space, the function of the public library complex cultural space and the type of the public library complex cultural space.

Thus, this study surveyed users and librarians who have been transforming libraries into a complex cultural space by reflecting the trends of the times, investigated and analyzed various status of complex cultural spaces, including perceptual differences among different groups. Based on this investigation result, we made an attempt to figure out a difference between the type of complex cultural space that users prefer and the type actually provided by the libraries, a difference between the type of program, which is carried out in complex cultural spaces, that users prefer and the program actually provided by the libraries, a difference between the level of importance and the level of satisfaction on the operation of complex cultural spaces and a perceptual difference between librarians and users.

The results of this study are expected to contribute to spreading the concept of a complex cultural space around the world, which will contribute to the revitalization of libraries and the improvement of end-users' satisfaction.

## 2. Theoretical background

### 2.1 Concept of complex cultural space of library

The word "complex" refers to the state in which two or more entities are merged into one in dictionaries, and it is the case when two or more individual facilities having a unique function are located in a single building or a site from the perspective of space (Cho and Lee, 1994). The meaning of "complex" mentioned here does not only refers to arranging spaces with multiple functions in the same place, but it refers to effectively combining related functions and roles and inducing organic relations with each other to maximize the efficiency of space. It is recognized as a very important element in constructing a complex cultural space, indicating the need of an overall functional element connecting cultural producers and those who enjoy the culture. Complex cultural space is a necessary space for a society which can solve various problems arising from industrialization and urbanization as a space for culture and art.

Complex cultural space includes data space, exhibition space, performance space and community space (Baek, 1991), and it is important to provide environmental factors that can create a new culture while offering places to experience and appreciate the culture to each of those who want to enjoy. Therefore, when a complex cultural space is built in the center of a

city, information on the culture and art is exchanged centered on the space, creating an open and creative space for the public. In addition, complex cultural spaces located in the center of a city are an easily accessible place for leisure and hobbies in the urban environment, serving as a place for recreation and resting. Furthermore, it carries a meaning of a space which can satisfy various cultural desires of the public and provide retraining (Kim and Park, 2004).

Therefore, this study defined the concept of complex cultural space of libraries as a space that improves the level of the regional culture and builds various communities as a gathering and resting place through resolving residents' cultural welfare while organically combining existing functions of libraries with complementary functions of culture, education and leisure.

### *2.2 Complex cultural space function of public libraries*

Currently, newly built libraries and libraries undergoing remodeling are arranged with complex cultural spaces for various reasons, including residents' needs and library-specific topics. Thus, an attempt was made to understand the functions of a complex cultural space in public libraries should have by comparing and analyzing the functions of existing public libraries and complex cultural spaces. For this purpose, the previous studies conducted by the Ministry of Culture, Sports and Tourism (2016a, b), Park (2012), Baek (1991), Soh (2011), Jung and Park (1994) and Ji (2014) were compared and analyzed. As a result of the analysis, the functions of a complex cultural space of public libraries should have were derived with the keywords of creation, collaboration, sharing, support, connecting artists and residents, cooperation with other institutions, community and resting. Based on the derived keywords, the functions of a complex cultural space of public libraries, on the basis of the functions of lifelong education center and knowledge information center, which are the basic functions of the library, three functions of (1) realization and supporting culture creation activities (2) connecting cultural producers and those who enjoy the culture and (3) activating the community were derived. Library's complex cultural spaces are expected to contribute to the improvement of life quality of residents, expand the opportunities for cultural enjoyment and satisfy cultural desires while raising the level of the regional culture and vitalizing the local culture. Table 1 below shows the details.

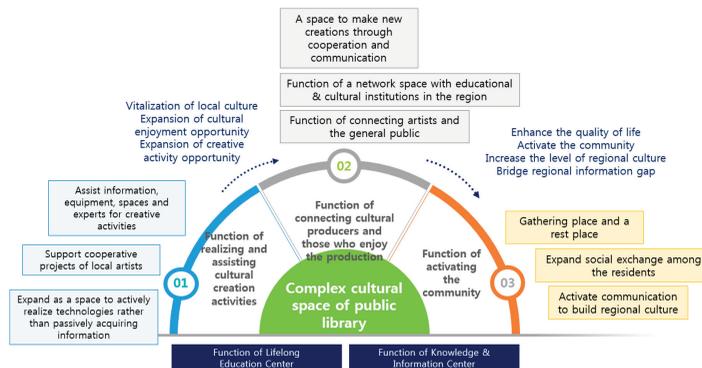
As above Table 1, complex cultural spaces of public libraries are a space where the production and consumption of the culture take place and various factors are integrated, combining overall activity factors of the culture and art. These complex cultural spaces do not only activate the use of libraries but also economically revitalize the region through connecting with the surrounding facilities in addition to serving as a communication space and creating a new culture for the region. The formation of a complex cultural space provides an open and creative space for the public, satisfying and retraining their cultural desires.

### *2.3 Type of complex cultural spaces of public libraries*

There are various criteria and methods for classifying the types of complex cultural spaces depending on the standpoint of researchers. As a result of analyzing previous studies, the type was found in the order of exhibition space, performance space, education space, rest space, information space and community space. Also, some researchers examined experience space, event space, watching space and culture space as well. In particular, resting space was not found in the initial studies, but it was found in the studies conducted in 2010 and later. Below Table 2 summarizes the space types of complex cultural spaces found in the previous studies.

Based on the previous studies listed above, this study classified the complex cultural spaces of libraries into exhibition space, performance space, information space, education space, community space, experience space and rest space. The characteristics of each space are summarized in below Table 3.

Function of Public Library Space	Category	Function of Complex Cultural Space
<ul style="list-style-type: none"> <li>- Library as an information intermediary who processes and delivers information for users of all level</li> <li>- Function of regional lifelong learning center</li> </ul>	Regional lifelong learning center	<ul style="list-style-type: none"> <li>- Function as a space to find, participate and share the most appropriate activities according to the needs and desires of participants.</li> </ul>
<ul style="list-style-type: none"> <li>- Function of collecting, organizing and preserving data to provide to users as a knowledge and information handling space.</li> <li>- Public libraries perform the function of handing down the culture by passing over to future generations.</li> </ul>	A knowledge and information handling place	<ul style="list-style-type: none"> <li>- It must help understand a wide range of the culture and have a comprehensive responsibility and understanding of cultural aspects by preserving and sharing cultural heritage handed down from the ancestors</li> </ul>
<ul style="list-style-type: none"> <li>- A space for making new creations through communication and collaboration among users as well as performing the task of making new experiences while talking about experiences</li> </ul>	A Space for cooperation (Makerspaces) and realization of creating (Story Doing)	<ul style="list-style-type: none"> <li>- Art creation activity support</li> <li>- It should perform the function of providing information, equipment and professional opinions for creative activities and improving cultural level.</li> </ul>
<ul style="list-style-type: none"> <li>- To respond to the needs of residents and improve local culture, public libraries should operate cultural spaces such as exhibition rooms, theaters and seminar rooms</li> <li>- Provide diverse cultural programs by cooperating with other educational and cultural institutions in the community</li> </ul>	Third space	<ul style="list-style-type: none"> <li>- Functions for artists</li> <li>- Connect artists and the general public</li> <li>- Diversify infrastructure to stimulate activities of artists</li> <li>- Function to increase cultural enjoyment</li> <li>- Enable the public to enjoy the culture and satisfy their cultural desires</li> <li>- Enable the public to enjoy arts and satisfy their desire to consume</li> </ul>
<ul style="list-style-type: none"> <li>- Provide necessary spaces and services as a community organization in the region</li> <li>- Implement the characteristics of commercial cafe spaces</li> </ul>	Rest area	<ul style="list-style-type: none"> <li>- Sociability</li> <li>- Ensure that everyone has the opportunity to participate and provide cultural and social environment to the public</li> <li>- Community space</li> <li>- Provide social exchange and cultural enjoyment</li> <li>- A gathering place for residents</li> </ul>



**Table 1.**  
Functions of complex cultural space of public libraries

2.4 Previous research

Although the role of libraries is changing, in line with the trend of complex cultural spaces of libraries, the number of related studies conducted is inadequate. A complex cultural space does not refer to a simple arrangement of spaces having a variety of functions in one place, but it means the effective combination of related functions and roles and inducing organic relations between them in order to maximize the efficiency of the spaces (Lim and Jeon, 2014). In addition, studies have found that the development and application of measures to clearly

Researcher	Classification of the type of complex cultural space										
	Exhibition	Performance	Watching	Information	Data	Education	Experience	Community	Rest	Others	
Korean culture and arts Foundation (1989)	0	0				0		0	0	0	
Jung and Park (1994)	0	0				0		0	0	0	
Cho (1995)	0	0		0				0			
Nam (2003)	0	0	0								
Shim <i>et al.</i> (2005)	0	0		0		0				0	
Lee (2006)	0	0					0				
Lee (2012)	0	0				0					
Moon (2013)	0	0		0							
Kang <i>et al.</i> (2018)	0	0				0					
Jung and Yoon (2016)	0	0	1	4	1	6	2	4	6	3	
Total	10	9	1	4	1	6	2	4	6	3	

**Table 2.**  
Type of complex cultural space classified by researcher

**Table 3.**  
Characteristics of  
complex cultural  
spaces of library  
by type

Type	Space
Exhibition space	- A space with cultural communication functions that enable sharing and exchanging the contents of exhibitions which are the cultural information and values of the society related to the object - It is desirable to provide exhibition spaces as a cultural space with a public character
Performance space	- Performance type includes plays and dances as well as those based on music (e.g. operas and musicals) - Performance spaces are closely related to functions such as performances and theater operations
Information space	- Provide comprehensive information services to those who need information - While promoting arts, it should be able to help the research and development of artists and cultural experts
Education space	- Space for educational purposes such as education focused on creation such as art and literature and educational events such as studying science and history
Communication space	- Space for rest or leisure, as well as serving the role of encouraging social exchange among urban residents

**Source(s):** Lim and Jeon (2014), Kim and Park (2004), Shim (2005) recombination

understand and meet users' detailed needs during the course of each usage process in accordance with the changes in physical facilities is one of the necessary processes (Kim, 2015).

As for the research on the operation and design of complex cultural spaces, studies were conducted to analyze the spatial composition and public space programs of complex cultural spaces (Shim and Yoon, 2005; Cho, 2015). As the time an individual spends for leisure has been increased, Kim (2015) suggested the design direction of complex cultural spaces by examining the impacts of the increase on the entertainment industry and new trends while other studies proposed complex cultural spaces for the elderly through analyzing domestic and overseas cases (Kim *et al.*, 2015).

Yun and Lee (2015) purported an establishment plan for Korean-style complex cultural spaces for the systematic cultivation of culture, proposing cultural and economic ripple effects and nationwide expansion. Kim (2017) presented the established concept, study on the laws, systems and cases, resource investigation, vision and mutual growth/development plan, detailed action plan, operation plan and master plan for each field.

Studies on library's multicultural spaces can be divided into the type of libraries forming multicultural spaces in a single building and libraries as a complex facility combined with other facilities. Previous studies on the complex cultural spaces of libraries were conducted focusing on university libraries and larchiveums.

The spatial composition of libraries, as a complex cultural institution, was examined by Kwak *et al.* (2017) and the study classified the types of complex cultural spaces of libraries into media tech, information commons, larchiveum and makerspace. Choi (2012) analyzed users' needs by investigating the spatial functions of larchiveum, which implements the complex functions of archives, libraries and museums, to propose the functional elements of larchiveum space to respond to the users' needs. Lee *et al.* (2009) studied the basic concept of applying information commons to public libraries, and Chung (2012) demonstrated the needs of pursuing "complex learning space" rather than "complex cultural space" in order to design and provide a new library space, considering the academical characteristics of university libraries. Ahn (2018), who studied public libraries as a subject, suggested the measures to develop public libraries in line with the changing demands of the time and society by examining the plan of developing libraries specialized in art and design, as a complex cultural space.

Studies on the complexation of libraries were more actively conducted compared to the studies on complex cultural spaces. [Ryu et al. \(2013\)](#) conducted research on the types of facilities and combinations of complex facility public libraries, which are combined with a minimum of one other facility, with other facilities. [Kim \(2014\)](#) surveyed public libraries located and operated in multipurpose buildings in Seoul and suggested the problems and improvement points of the public library construction policy in Korea. [Ryu \(2015\)](#) analyzed the types of combinations that libraries have with other facilities in order to provide directions for constructing public libraries with other facilities and construction guidelines for combining libraries with other facilities in Korea.

[Choi and Seo \(2016\)](#) comparatively analyzed to see if there is a difference between the level of satisfaction and recognition among the users of public libraries combined with other facility or facilities in Seoul. [Song and Kim \(2011\)](#) conducted a study on the impacts of complexation on the trends and spatial composition of public libraries. [Song and Kim \(2011\)](#) investigated the impacts of the complexation of public libraries on the structural changes of space by period to analyze and evaluate the effects of social demands, inherent to the changes, on the spatial composition and contemplated the direction to plan for complex spaces. Other studies, such as the study on complex cultural spaces as a support space for creation ([Kang et al., 2011](#)) and the case study on natural convergence type spaces as a new complex cultural space ([Lee and Kwon, 2018](#)) were conducted by introducing new concepts of complex cultural spaces.

Meanwhile, the concept of a complex cultural space is a concept that is rarely discussed abroad. As mentioned briefly in the introduction, the concept of a complex cultural space in the past is called Makerspace, and related studies are also found abroad. As a result of analyzing previous research performed related to makerspaces, numerous findings were reported. First, research on makerspaces' activities is still underway in the conceptualization process ([Ahn et al., 2014](#); [Hong and Park, 2015](#)). Second, there has been lots of research on the construction model and activation plan as another step taken toward conceptualization ([Noh, 2014](#); [Yoo and Lee, 2017](#)). Third, research is being conducted to apply makerspaces to individual libraries ([Kim and Kwack, 2017](#)). Fourth, research is being carried out to expand maker activities centered on public libraries to other types of libraries ([Kim et al., 2016](#)). However, we could not find any research on the makerspaces' facilitator and the users' perceptions and current situations.

When approached in terms of complex cultural space, there are no prior studies or cases related to overseas libraries and the concept of "CCSC: Cultural and Creative Spaces and Cities" is searched. [Cultural and Creative Spaces and Cities](#) is a policy project co-funded by the Creative Europe programme of the European Union. The project brings together a consortium of ten organizations led by [Trans Europe Halles](#), the European network of non-governmental cultural centers. The [European Cultural Foundation \(2020\)](#) is one of those ten organizations. This differs from the concept described in this study.

In fact, in this study, the importance-satisfaction was analyzed by importance-performance analysis (IPA) technique which has been developed to analyze how consumers perceive important attributes of products or services ([Kang et al., 2011](#)) as an evaluation method that simultaneously measures, compares and analyzes the relative importance and satisfaction of each of the attributes ([Kwon and Nam, 2014](#); [Kwon et al., 2009](#); [Park and Kim, 2015](#)). In addition, it is one of the most widely used methods in consumer-related research ([Martilla and James, 1977](#)) and is actively applied to studies in various fields, including tourism, aiming to improve the operation of institutions or facilities ([Lee and Choi, 2013](#)). Libraries, as well as other similar institutions such as bookstores, are affected by the changes in media and smart media environments, the book price system and etc., and a number of studies has been carried out accordingly, focusing on measuring, analyzing, evaluating and improving the service quality of such institutions ([Hong and Baek, 2006](#);

Ahn and Seo, 2013). In particular, in the case of online and offline bookstores, the service qualities or factors that need to be improved are derived, or factors that should be considered first to increase customer satisfaction are identified and suggested based on IPA results. There are relatively few studies on libraries that have applied IPA technique. In those studies, i.e. the quality evaluation of online policy information services (Lee, 2016) and study on the measurement and analysis of the importance of the service quality of specialized libraries (Min, 2016), the technique is mainly used as a research method to evaluate the quality of services provided by the library and seek improvement directions through the evaluation. The research method can be also similarly used for studies on service and job improvement, such as the study on job improvement for efficient operation of libraries (Yoo, 2014) and investigation to underline the problems of the amount and allocation of workload within institutions by identifying the task areas of recording professions of the central administrative departments using IPA and analyzing it via an importance-performance method (Song and Kim, 2012).

In response, this study introduced the concept of a complex cultural space that emphasizes cultural functions and various activities in the concept of makerspace and tried to overcome the limitations that research that has been carried out so far is not based on the perception of librarians or users in the complex cultural space in Korea and is being dealt with from the perspective of policymakers or operators. In other words, not only did we investigate the perception of the complex cultural space of the users and librarians, but we also wanted to find ways to improve it by comparing the differences in perception between the two groups.

### 3. Research question

An attempt was made to identify the difference in recognition by comparing the roles, spatial composition and programs that users expect and the measures that librarians have for users' demands in the time when constructing complex cultural spaces are politically supported (Ministry of Culture, Sports and Tourism, 2017) and the number of libraries built as a complex from the beginning is on the rise. This comparative study can be used as a reference for the construction or remodeling of complex cultural spaces and establishing services and programs to provide by libraries.

- RQ1. Is there a difference between the type of complex cultural space that users prefer and the type actually provided by the libraries?
- RQ2. Is there a difference between the type of program, which is carried out in complex cultural spaces, that users prefer and the program actually provided by the libraries?
- RQ3. Is there a difference between the level of importance and the level of satisfaction on the operation of complex cultural spaces? Is there a perceptual difference between librarians and users?

### 4. Research design and methodology

#### 4.1 Research procedure

This study analyzes the difference between the level of importance and the level of satisfaction for the operational style and use of complex cultural spaces, current status and use of programs and services of libraries as well as the perceptual difference between librarians and users. In order to do so, opinions were collected from librarians who operate complex cultural spaces and users who use the spaces. And, below describes the research procedure set for the purpose.

First, previous studies related to multicultural spaces and library programs were investigated and analyzed. By thoroughly analyzing the research on complex cultural spaces and examining the concepts, types and characteristics of complex cultural spaces, the functions and types of the complex cultural spaces of libraries were derived. In addition, through analyzing previous studies related to library programs, the types of programs implemented in existing libraries and those in complex cultural spaces were deduced.

Second, based on previous studies, a questionnaire was developed in terms of the status of program operation and program structures of each complex cultural space. For the development of questionnaire, contents of research conducted and questionnaire used by Yun and Lee (2015) were referenced. As a result, areas were broadly divided into four and the details are as shown below Table 4.

Third, librarians and users of libraries were surveyed based on the developed questionnaire (The questionnaire for librarians is Appendix 1 and the questionnaire for users is Appendix 2). The procedure for selecting libraries and proceeding with the survey was as follows (See Table 5).

In Step 1, libraries having a complex cultural space were listed. This study listed libraries limiting the scope to a library that has its own multicultural space. Previous studies showed a list of libraries that form a complex with other facilities; they did not list libraries having internal complex cultural space on their own. Thus, online survey was conducted centering on related terms including “Library Complex Culture Space”, “Library Complexation”, “Library Exhibition Room” and “Library Experience Room”. As a result, a list of libraries was

Type	Item	User	Librarian
General information	- Gender, age and number of years working in libraries (librarian)	○	○
	- Gender, age, frequency of use, purpose of using complex community center (user)		
Status of complex cultural space of the library	Type of complex cultural spaces used (U) and type of provision (L)	○	○
	Preferred complex cultural space	○	○
Complex cultural space programs of the library	Expected effects of program (U)/purpose of operation	○	○
	Experience of using programs (U)/programs under operation	○	
	Preferred program construction type (U) (L)	○	○
	External institutions cooperating when running programs in complex cultural spaces (U)	○	○
Operation of complex cultural space of the library	Importance – Satisfaction of complex cultural space operation (U)	○	○
	Vitalization measures of complex cultural spaces (U)	○	○

**Table 4.**  
Structure of questionnaire

Variables	Number of items	Importance reliability	Satisfaction reliability
Information provision (collections)	4	0.925	0.891
Librarians (employees)	6	0.893	0.928
Space (facilities)	6	0.894	0.897
Programs (contents)	7	0.931	0.936
Accessibility	10	0.940	0.928
Services	5	0.889	0.900
Locality (openness)	3	0.879	0.873
Total	41	0.970	0.971

**Table 5.**  
Results of reliability analysis

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constructed through library websites, news articles and related blogs. The list construction period lasted for about four weeks starting from June 11 to July 5th, 2020, adding 54 libraries to the list.

In Step 2, survey calls were made based on the constructed list. After explaining the research purpose and questionnaire on the phone, three copies of the questionnaire were requested to each library agreed to participate. As a result, 91 questionnaires were distributed to librarians and 235 questionnaires were distributed to users by online. And 23 libraries of which returned the questionnaires composed of 67 questionnaires from librarians and 134 questionnaires from users, respectively, corresponding to the response rate of 73.62 and 57.02%.

#### *4.2 Validation and reliability verification*

On the other hand, in this study, APA technique is used to grasp the difference between importance and satisfaction between library users and librarians. To this end, validity and reliability were verified. Namely one of the purposes of this study is to identify the differences between the importance and satisfaction among library users and librarians regarding information provision (collections), librarians (employees), spaces (facilities), programs (contents), accessibility, services and locality (openness) in order to purport the factors to be improved in priority for libraries as a complex cultural space. To this end, reliability was analyzed using SPSS 22.0 K to ensure the validity of the tools selected for the measurement. As a result of the analysis, the reliability of all factors was above the criteria of 0.6, indicating that the measurement tools selected in this study have enough validity.

In this study, reliability was measured using Cronbach's Alpha coefficient to measure internal consistency. Nunnally (1978) argues that the alpha coefficient should be more than 0.60 in the field of exploratory research, 0.80 in the field of basic research and 0.90 in the field of applied research where important decisions are required. Furthermore, Van *et al.* (1980) generalize that there is have no problem with the reliability of the measurement tool if the alpha coefficient, which is generally required at the analysis level of the organizational unit, is 0.60 or higher. As a result of the analysis, the reliability of all factors was higher than the standard of 0.6 and it was determined that the measurement tools selected in this study were valid.

#### *4.3 Correlation between variables*

Correlation analysis on the importance and satisfaction of information provision (collections), librarians (employees), space (facilities), programs (contents), the convenience of access, service and locality (openness) is as shown in Table 6. As shown in the table, all variables showed a positive correlation. For example, it showed a positive correlation of  $\gamma = 0.709$  with program-importance and  $\gamma = 0.644$  for program-importance and accessibility.

## **5. Analysis result**

### *5.1 General characteristics of respondents*

The demographic characteristics of the respondents were consisted of gender and age and the responses can be summarized in Table 7. First, based on the responses of users, 68.5% of the respondents knew about the complex cultural space they use and 31.5% of them responded that they do not know well. By gender, 69.9% of the respondents were female and 30.1% were male.

Though it shows significantly fewer males than females, it does not cause considerable problems as the study does not compare the perceptual differences between men and

Table 6. Correlation analysis

Variables	Average	Standard deviation	Information													
			Books- importance	Librarians- importance	Space- importance	Programs- importance	Accessibility- importance	Services- importance	Locality- importance	provision- satisfaction	Librarian- satisfaction	Space- satisfaction	Programs- satisfaction	Accessibility- satisfaction	Services- satisfaction	Locality- satisfaction
Books- importance	4.2583	0.67060	1													
Librarians- importance	4.1500	0.65679	0.510 <sup>**</sup>	1												
Space- importance	4.1868	0.63693	0.517 <sup>**</sup>	0.633 <sup>**</sup>	1											
Programs- importance	4.1466	0.68005	0.572 <sup>**</sup>	0.613 <sup>**</sup>	0.709 <sup>**</sup>	1										
Accessibility- importance	7.2387	1.16261	0.572 <sup>**</sup>	0.521 <sup>**</sup>	0.673 <sup>**</sup>	0.644 <sup>**</sup>	1									
Services- importance	3.8432	0.71479	0.349 <sup>**</sup>	0.519 <sup>**</sup>	0.489 <sup>**</sup>	0.642 <sup>**</sup>	0.620 <sup>**</sup>	1								
Locality- importance	4.3105	0.68240	0.441 <sup>**</sup>	0.545 <sup>**</sup>	0.506 <sup>**</sup>	0.527 <sup>**</sup>	0.618 <sup>**</sup>	0.578 <sup>**</sup>	1							
Information provision- satisfaction	3.9492	0.66688	0.411 <sup>**</sup>	0.404 <sup>**</sup>	0.300 <sup>**</sup>	0.372 <sup>**</sup>	0.379 <sup>**</sup>	0.404 <sup>**</sup>	0.306 <sup>**</sup>	1						
Librarian- satisfaction	4.0445	0.66396	0.228 <sup>**</sup>	0.464 <sup>**</sup>	0.363 <sup>**</sup>	0.355 <sup>**</sup>	0.351 <sup>**</sup>	0.454 <sup>**</sup>	0.387 <sup>**</sup>	0.563 <sup>**</sup>	1					
Space- satisfaction	3.9931	0.67011	0.195 <sup>**</sup>	0.322 <sup>**</sup>	0.504 <sup>**</sup>	0.334 <sup>**</sup>	0.384 <sup>**</sup>	0.352 <sup>**</sup>	0.337 <sup>**</sup>	0.462 <sup>**</sup>	0.607 <sup>**</sup>	1				
Programs- satisfaction	3.8259	0.65594	0.281 <sup>**</sup>	0.407 <sup>**</sup>	0.372 <sup>**</sup>	0.534 <sup>**</sup>	0.386 <sup>**</sup>	0.475 <sup>**</sup>	0.343 <sup>**</sup>	0.667 <sup>**</sup>	0.649 <sup>**</sup>	0.582 <sup>**</sup>	1			
Accessibility- satisfaction	3.8589	0.69042	0.256 <sup>**</sup>	0.343 <sup>**</sup>	0.343 <sup>**</sup>	0.398 <sup>**</sup>	0.493 <sup>**</sup>	0.433 <sup>**</sup>	0.449 <sup>**</sup>	0.602 <sup>**</sup>	0.568 <sup>**</sup>	0.604 <sup>**</sup>	0.650 <sup>**</sup>	1		
Services- satisfaction	3.7615	0.75555	0.247 <sup>**</sup>	0.442 <sup>**</sup>	0.333 <sup>**</sup>	0.423 <sup>**</sup>	0.442 <sup>**</sup>	0.575 <sup>**</sup>	0.422 <sup>**</sup>	0.608 <sup>**</sup>	0.574 <sup>**</sup>	0.465 <sup>**</sup>	0.726 <sup>**</sup>	0.725 <sup>**</sup>	1	
Locality- satisfaction	4.1597	0.70398	0.317 <sup>**</sup>	0.431 <sup>**</sup>	0.408 <sup>**</sup>	0.418 <sup>**</sup>	0.515 <sup>**</sup>	0.448 <sup>**</sup>	0.639 <sup>**</sup>	0.513 <sup>**</sup>	0.515 <sup>**</sup>	0.459 <sup>**</sup>	0.538 <sup>**</sup>	0.661 <sup>**</sup>	0.616 <sup>**</sup>	1

Note(6): \*\* p < .001

Characteristic	Type	<i>N</i>	%
Gender	Male	43	30.1
	Female	100	69.9
Age	10~9	6	4.2
	20~29	50	35.0
	30~39	27	18.9
	40~49	33	23.1
	50~59	23	16.1
	60 or above	4	2.8
Frequency of library visit (annual average)	Rarely	5	3.5
	1~2 times/month	40	28.0
	1~2 times/week	42	29.4
	3~4 times/week	29	20.3
	Every day (except holidays)	27	18.9
Recognize the library as a complex cultural space	Yes	98	68.5
	Not sure	45	31.5
Total		143	100%
Purpose of visiting library's complex cultural space (duplicated Question)	Cultural life	45	30.4
	Leisure time	44	29.7
	Learning space	36	24.3
	Communication space	18	12.2
	Others	5	3.4
Total		148	100%
Companion when visiting library's complex cultural space	Alone	60	42.0
	Friend	12	8.4
	Family	26	18.2
	Group visit from school	0	–
	Visit from work to socialize	0	–
	Others	0	–
Total		98	100%
Main time of using library's complex cultural space (duplicated questions)	Weekday morning	10	9.7
	Weekday afternoon	52	50.5
	Weekend morning	14	13.6
	Weekend afternoon	22	21.4
	Holiday	5	4.8
Total		103	100%
Number of hours staying at each time visiting library's complex cultural space	Within 1 h	9	6.3
	1~2 h	33	23.1
	2~4 h	39	27.3
	4~6 h	12	8.4
	All day	5	3.5
Total		98	100%

**Table 7.**  
Demographic and library visit characteristics of respondents

women. Nonetheless, it inevitably has some effects on the study and is a limitation of the study.

Analyzing by age, majority of the respondents were in their 20s, making up of 35.0% of the total, followed by those in 40s (23.1%), 30s (18.9%), 50s (16.1%), 10s (4.2%) and 60 or above (2.8%).

Next, the frequency of visits and hours of use on average and purpose of visits were investigated to identify the characteristics of the use of complex cultural spaces of libraries. First, respondents who responded to visit the library alone was 42 and 18.2% responded that they come with family members. In terms of time, majority (50.5%) of the respondents

responded to visit the library afternoon on weekdays whereas 21.4% responded to visit the library afternoon on weekend, showing more library uses on weekday.

Meanwhile, the purpose of visit was surveyed, and cultural life was identified as the most common purpose with 30.4%, followed by leisure (29.7%) and learning (24.3%). 27.3% of the respondents responded to stay at the library for 2–4 h for each visit and 23.1% of them responded to stay 1–2 h. In addition, the annual average of library visit by the respondents was 1–2 times a week (29.4%) and 1–2 times a month (28.0%).

A total of 66 librarians participated in the survey and their demographic characteristics were analyzed (See Table 8). The gender analysis showed that 80.30% were female and 19.70% were male. The gender ratio of the respondents is significantly different as it reflects the actual gender ratio of the librarians in Korea. And, 45.45% of the respondents were in the age between 30 and 39 whereas 28.79 and 15.15%, respectively, were in the age between, 20 and 29 and 40 and 49. 42.42% of the respondents responded that they have been working libraries for less than five years, while 21.21 and 19.70%, respectively, responded to have worked more than 5 years and less than 10 years and more than 10 years and less than 15 years in libraries.

## 5.2 Operation status and preference of library's complex cultural space

### 5.2.1 Types of use and provision of complex cultural spaces.

When libraries provide a service, it is very important to know how the program matches with the needs of users. This is because it is the basis of improving and activating service contents or items. Thus, this study compared the utilization rate of library's complex cultural spaces by the type of spatial composition. The result showed that libraries provide spaces in the order of education space, exhibition space, performance space and rest space whereas users use the spaces in the order of exhibition space, performance space, rest space and education space. This indicates that though the order is different between the two groups, provision and utilization rate are almost identical in the four spaces. Community space and experience space showed the biggest difference in the provision and utilization rates, indicative of low user preference. Because of the low user utilization rate, it is necessary to first understand the reason of non-use by users and devise measures to increase the utilization rate by improving the space design or operation program via reflecting the needs of users, rather than changing the spatial composition. This is because the creation of complex cultural spaces is a recent trend and perhaps users' awareness may need to be improved as there is a possibility that users are not aware of the usefulness of such spaces or operating programs. Therefore, it is necessary to consider active improvement measures through education or public relations (See Table 9).

Type		N	%
Gender	Male	13	19.70
	Female	53	80.30
Age	20~29	19	28.79
	30~39	30	45.45
	40~49	10	15.15
	50 or above	7	10.61
	Less than 5	28	42.42
Number of years working in libraries	5~10	14	21.21
	10~15	13	19.70
	15~20	5	7.58
	20 or more	6	9.09

**Table 8.**  
Demographic  
characteristics of  
librarians

5.2.2 Preferred complex cultural space. The result of analyzing preferred complex cultural spaces among users showed that information space was most preferred by users, followed by rest space, education space and performance space (See Table 10). Rest space was observed to have higher preference compared to utilization rate. In addition, experience space and community space showed a relatively high preference compared to utilization rate. Creative activities can be carried out in the experience space where users can have an experience with 3D printers, pens and robots. Cause analysis should be carried out to find out what caused the results and it seems necessary to make improvements.

5.3 Library's complex cultural space program

5.3.1 Operation purpose and users' expectation of programs. In complex cultural spaces of libraries, various programs are operated. The purpose of operating these programs in libraries and what users expect from the programs were investigated. The result showed that libraries operate the programs to improve the chance of meeting residents' cultural needs, increasing their use and enhancing their knowledge acquisition through various media other than books. On the other hand, users were found to participate in the programs for the purpose of improving their quality of life and enhancing their cultural level through education programs and classes and special lectures. It can be interpreted as libraries and users have somewhat different purpose for programs. Thus, libraries should put forth great efforts to develop programs that can improve the quality of life of residents, departing from existing service pattern.

5.3.2 Analysis of the difference between programs used and programs held in libraries. Libraries implement programs and users participate in the programs. In order to have

**Table 9.**  
Spatial composition  
type and space use of  
complex cultural space  
(multiple response)

Type	Librarian		User	
	N	%	N	%
Exhibition space	18	78.26	48	36.64
Performance space	17	73.91	42	32.06
Information space	10	43.48	35	26.72
Education space	19	82.61	37	28.24
Experience space	14	60.87	16	12.21
Community space	10	43.48	9	6.87
Rest space	15	65.22	41	31.30
Others	1	4.35	0	0.00
Total	104	100.0	228	100.0

**Table 10.**  
Preference for  
Library's complex  
cultural space

Type	Very low		Low		Neither low nor high		High		Very high		M	Std
	N	%	N	%	N	%	N	%	N	%		
Information space	1	0.8	5	3.8	24	18.3	45	34.4	53	40.5	4.12	0.904
Education space	8	6.1	9	6.9	49	37.4	43	32.8	19	14.5	3.43	1.032
Exhibition space	7	5.3	23	17.6	47	35.9	36	27.5	15	11.5	3.22	1.051
Performance space	7	5.3	19	14.5	47	35.9	39	29.8	16	12.2	3.29	1.045
Experience space	20	15.3	15	11.5	53	40.5	31	23.7	9	6.9	2.95	1.128
Rest space	6	4.6	14	10.7	32	24.4	42	32.1	34	26.0	3.65	1.125
Community space	17	13.0	12	9.2	46	35.1	38	29.0	15	11.5	3.17	1.171

effective programs, the supply should match the demand. Thus, the types of program libraries have and those that users have experiences in participating were investigated. The results showed that education program has the highest operation rate and participation rate, indicating a good performance with matching demand and supply. Similarly, exhibition program and performance program were observed to have similar operation and participation rates. However, a significant difference was found in experience program and community program. Therefore, a clear understanding of community program and specific promotion for the program should be made. In addition, the awareness that libraries are no longer a place merely providing education and information but a place where users can have various experiences and create communities should be raised, while carrying out diverse and multilateral promotion activities (See Table 11).

*5.3.3 Type of preferred program composition.* Sub-programs of each type of the programs operated in complex cultural spaces of libraries were derived by investigating various operational cases. Since the question item clearly reveals the difference between the suitability evaluated by librarians and the preference users have for specific programs of each type of program, this comparison is expected to result in thought-provoking findings (See Table 12).

First, librarians responded that sub-programs of education program are appropriate in the order of reading education, liberal arts education, lifelong education and leisure education whereas users responded in the order of liberal arts education and lifelong education, leisure education and information utilization education. For liberal arts education and lifelong education, the responses from the two groups were found to be consistent. However, librarians responded that vocational or professional education and computer related education are not suitable whereas users showed relatively high preference. On the contrary, users showed a low preference for educational programs for traditional cultural and schoolwork education program, but libraries responded with a high level of program suitability. The differences and agreements between the program suitability evaluated by librarians and users' preference should be analyzed for the improvement and maintenance of program vitalization.

The difference between users and librarians according to the sub-program was found to be that librarians' average was higher in Liberal Art Education with a *t*-value of  $-3.626$  and that users' average was higher in vocational and health education with a *t*-value of  $3.10$ , confirming that users' demands were higher. In addition, the average of librarians was found to be higher in family life education and reading education with *t*-values of  $-2.16$  and  $-5.63$ . In addition, the biggest difference was identified as reading education.

The difference between suitability of exhibition program evaluated by librarians and preference of users was analyzed (See Table 13). As a result, librarians responded that exhibition of books is most appropriate whereas users responded art exhibition is most appropriate. The result seems to reflect the tendency of users to have art in their mind when thinking about exhibition whereas libraries tend to think exhibition, which is prepared with

Type	Librarian		User	
	N	%	N	%
Education program	22	95.65	62	47.33
Exhibition program	16	69.57	61	46.56
Performance program	16	69.57	54	41.22
Experience program	13	56.52	28	21.37
Community program	10	43.48	12	9.16
Others	2	8.70	23	17.56

**Table 11.** Library's complex cultural space program operation and user participation experience (multiple response)

Item	Type	<i>N</i>	<i>M</i>	Std	<i>t</i>	df	<i>p</i>
Liberal art education	User	131	3.68	0.91	-3.63	195	0.000**
	Librarian	66	4.18	0.94			
Vocational skill and professional education	User	131	3.45	1.01	3.10	195	0.002**
	Librarian	66	2.97	1.07			
Health and hygiene education	User	131	3.33	0.92	-0.35	195	0.724
	Librarian	66	3.38	0.99			
Family life education	User	131	3.41	0.92	-2.16	195	0.032*
	Librarian	66	3.71	0.99			
Lifelong education	User	131	3.68	0.95	-1.72	195	0.087
	Librarian	66	3.92	0.93			
Leisure education	User	131	3.67	0.90	-0.85	195	0.397
	Librarian	66	3.79	0.92			
Global education	User	131	3.52	1.06	1.01	195	0.313
	Librarian	66	3.36	0.94			
Reading education	User	131	3.67	0.97	-5.63	195	0.000**
	Librarian	66	4.42	0.68			
Traditional culture education	User	131	3.18	0.92	-1.90	195	0.059
	Librarian	66	3.44	0.91			
Education program for schoolwork	User	131	3.19	1.02	-1.22	195	0.225
	Librarian	66	3.38	1.02			
Information utilization education	User	131	3.56	0.99	-0.91	195	0.365
	Librarian	66	3.70	1.07			
Education related to computer	User	131	3.41	0.95	1.57	195	0.117
	Librarian	66	3.18	1.01			

**Note(s):** \*\**p* < 0.01, \**p* < 0.05

**Table 12.**  
Difference between  
sub-program  
suitability evaluation  
and preference

Item	Type	<i>N</i>	<i>M</i>	Std	<i>t</i>	df	<i>p</i>
Art exhibition	User	131	3.62	1.021	1.50	195	0.136
	Librarian	66	3.39	0.959			
Book exhibition	User	131	3.55	0.941	-5.09	195	0.000**
	Librarian	66	4.24	0.842			
Exhibition of illustrated poems	User	131	3.21	0.954	-3.41	195	0.001**
	Librarian	66	3.70	0.944			
Exhibition of program outcomes	User	131	3.08	0.938	-5.55	195	0.000**
	Librarian	66	3.85	0.899			

**Note(s):** \*\**p* < 0.01

**Table 13.**  
Difference between  
exhibition program  
suitability evaluation  
and preference

library's resources, can increase users' level of interest, if themed with a specific topic, while achieving the original purpose of the library. On the contrary, art exhibition, for which users have a higher preference, was evaluated inappropriate for an exhibition program by librarians. Similarly, librarians evaluated exhibiting outcomes of various programs operated by libraries appropriate while users showed a low preference for such exhibition.

Looking at the results of identifying the differences by exhibition program, the average of users in art exhibition was higher than librarians, and the perception of librarians was higher in book exhibition, exhibition of illustrated poems and exhibition of program outcomes. In the difference analysis, book exhibition, exhibition of illustrated poems and exhibition of program outcomes were shown at *t*-values of -5.090, -3.409 and -5.547, resulting in significant differences, with exhibition of program outcomes showing the biggest difference.

There are quite a few cases of operating performance programs in libraries, and types of such programs were investigated to be diverse (See Table 14). In particular, as the number of cases that libraries create complex cultural spaces increases with the recent government policy, the types are also diversified, and users' reactions are also quite positive. The study analyzed how librarians assess and users perceive such trend in the library sector. As a result, both librarians and users evaluated movie screening as the most appropriate and most preferred. Similarly, both groups evaluated opera, dance and musical as unsuitable. It seems only logical, considering the environment and conditions of libraries. As a result of identifying the differences in the performance programs, the items that showed the highest difference were traditional art ( $t$ -value  $-2.184$ ) and the average of librarians was perceived higher than that of users. Although there was no statistically significant difference, we could see that play showed the highest difference.

Recently, libraries provide a variety of hands-on experience type learning. There are programs with books and reading competitions, but there also are experience programs based on 3D printers and various creation support tools in makerspaces (See Table 15). In addition, libraries operate exploration programs, camping inside the library or having specific themes. This study analyzed how librarians evaluate and users perceive such trend. As a result, it was found that both groups evaluated competition related to reading as the most suitable and preferred, and experience-type storytelling and exploration were also found to be similarly

Item	Type	<i>N</i>	<i>M</i>	Std	<i>t</i>	df	<i>p</i>
Play	User	131	3.32	1.179	-1.61	195	0.108
	Librarian	66	3.59	1.007			
Opera	User	131	3.08	1.193	1.40	195	0.163
	Librarian	66	2.85	0.996			
Musical	User	131	3.28	1.232	0.79	195	0.431
	Librarian	66	3.14	1.065			
Dance (Western, Korean and Contemporary dance)	User	131	2.95	1.030	-2.18	195	0.462
	Librarian	66	2.83	1.032			
Western music (Classic, Western musical instruments, etc.)	User	131	3.30	1.127	0.74	195	0.299
	Librarian	66	3.47	1.070			
Traditional art (Korean traditional music, Pungmul)	User	131	3.11	1.089	-2.18	195	0.030*
	Librarian	66	3.46	1.026			
Movie screening	User	131	3.85	1.000	-1.23	195	0.222
	Librarian	66	4.03	0.976			

Note(s): \* $p < 0.05$

**Table 14.**  
Difference between performance program suitability evaluation and preference

Item	Type	<i>N</i>	<i>M</i>	Std	<i>t</i>	df	<i>p</i>
Camp	User	131	2.98	1.176	-0.41	195	0.686
	Librarian	66	3.05	1.044			
Exploration	User	131	3.29	1.147	-2.03	195	0.044*
	Librarian	66	3.62	0.989			
Competition relation to reading	User	131	3.40	1.006	-5.20	195	0.000**
	Librarian	66	4.14	0.839			
Experience program with makerspace	User	131	3.16	1.017	-2.24	195	0.026*
	Librarian	66	3.50	1.011			
Experience-type storytelling	User	131	3.27	1.078	-4.00	195	0.000**
	Librarian	66	3.89	0.994			

Note(s): \*\* $p < 0.01$ , \* $p < 0.05$

**Table 15.**  
Difference between experience program suitability evaluation and preference

perceived by the groups. On the other hand, camp-type programs were not preferred by either group. As a result, we checked the difference between the perception of users and librarians and found that the perception of librarians was higher in tours, reading-related events, makerspace experience and hands-on storytelling, excluding camps. In addition, statistically significant differences have shown that reading-related events had the highest differences.

Libraries are no longer a place merely providing information. Users no longer go to libraries just for information. While gathering information from the library, users also participate in club activities and social gatherings. Users also create and take a part in various sport communities. This study analyzed how differently librarians evaluate and users perceive such programs. The results showed that both groups evaluate club activities and community gatherings as the most appropriate and preferred (See Table 16). In detail, there was a significant difference in all categories, but we could see that the perception of librarians was higher in club activities and local civic groups, while the perception of users was higher in sports and fitness programs.

*5.3.4 External facility cooperating with complex cultural space program.* As society develops in a converging/integrating manner and user demands are diversified, libraries have a complex function. This made libraries unable to resolve such changes and needs by itself, requiring libraries to cooperate with related organizations to find the measures to cope with the needs of users and diversify the roles of libraries. The same is likely to be true for other institutions. To this end, librarians and users were surveyed on the institution they think most appropriate to cooperate with when operating programs in a multicultural space. As a result, librarians responded that school is the most appropriate institute while users responded that school is the least advisable institution. It can be interpreted as librarians chose schools, considering user acquisition and budgeting, whereas users neglected schools which lack the institutional features to enrich programs. On the other hand, users indicated that they prefer various cultural infrastructure facilities (See Table 17).

**Table 16.**  
Difference between  
community program  
suitability evaluation  
and preference

Item	Type	<i>N</i>	<i>M</i>	Std	<i>t</i>	df	<i>p</i>
Club activity	User	131	3.47	1.071	-6.24	195	0.000**
	Librarian	66	4.38	0.739			
Community activity	User	131	3.22	1.096	-4.04	195	0.000**
	Librarian	66	3.86	1.006			
Sports club program	User	131	3.06	1.086	4.76	195	0.000**
	Librarian	66	2.33	0.900			
Fitness club program	User	131	3.00	1.110	5.85	195	0.000**
	Librarian	66	2.12	0.775			

Note(s): \*\*  $p < 0.01$

**Table 17.**  
Preference for external  
institutions when  
operating complex  
cultural space program  
(multiple response)

Type	Librarian		User	
	<i>M</i>	Std	<i>M</i>	Std
None	0	0.00	11	8.40
Cultural infrastructure facility	11	47.83	66	50.38
Culture and art organization	12	52.17	37	28.24
Related arts and cultural institutions in the region	12	52.17	27	20.61
School	17	73.91	12	9.16
Government and public institutions	10	43.48	20	15.27
Library	8	34.78	14	10.69
Others	4	17.39	1	0.76

#### 5.4 Activation measures for the operation of library's complex cultural space

Matters to be promoted in order to vitalize library's multicultural space in the future were investigated, and both groups responded to place the highest priority in expanding the operational budget for the services of multicultural space and securing spaces for the provision of multicultural space services. On the other hand, both groups showed a low response rate for the expansion of remodeling project of complex cultural space in libraries. This indicates that remodeling is not a problem when there is no space and securing a space should come first. Examining the overall response, it seems necessary for libraries to accurately establish the goal and vision of the services provided by complex cultural spaces, secure budget and dedicated manpower to support the services, promote multicultural spaces and improve user awareness in order to vitalize library's complex cultural spaces (See Table 18). It seems also to be necessary to promote complex cultural spaces and improve user perception. In the difference analysis, the *t*-value was 2.241 for connectivity with the local residents and 3.062 for systematic operation, indicating a statistically significant difference.

## 6. Analysis on the importance-satisfaction of library's complex cultural spaces

### 6.1 Analysis on the importance and satisfaction difference of factors affecting the use of complex cultural spaces among users and librarians

The results of the *t*-test carried out to identify the perceptual difference between users and librarians are as shown in Table 19. First, the survey respondents' level of importance was determined by examining the ranks found based on the users' and librarians' average of each question item. As a result, users perceived the environment enabling everyone to use as the most important factor, followed by the restfulness of facilities/environment, contribution to the cultural life of residents, kindness of employees and restfulness of spaces. On the other hand, librarians selected provision of latest information as the number one factor, providing various information, restfulness of facilities/environment, accuracy of providing information and

Item	Type	<i>N</i>	<i>M</i>	Std	<i>t</i>	df	<i>p</i>
Expansion of remodeling business of library's complex cultural space	User	131	3.528	0.9497	-1.091	191	0.277
	Librarian	66	3.682	0.8972			
Securing dedicated manpower to support complex cultural space services	User	131	3.984	0.8034	-1.514	192	0.132
	Librarian	66	4.167	0.7763			
Expansion of operating budget for complex cultural space services	User	131	4.150	0.7462	-1.411	191	0.160
	Librarian	66	4.303	0.6556			
Securing space to provide complex cultural space services	User	131	4.102	0.7081	-1.884	192	0.061
	Librarian	66	4.303	0.7010			
Accurately establishing the goal and vision of library's cultural space services	User	131	3.929	0.8374	-1.235	191	0.218
	Librarian	66	4.076	0.6636			
Promotion and awareness enhancement for library's complex cultural spaces	User	131	3.827	0.8554	-1.651	191	0.100
	Librarian	66	4.030	0.7226			
Cooperation with the public for multicultural space services	User	131	3.858	0.8426	0.324	191	0.747
	Librarian	66	3.818	0.7628			
Connecting with residents	User	131	3.921	0.8127	2.241	191	0.026**
	Librarian	66	3.652	0.7543			
Developing library's complex cultural space programs differentiated from those of other libraries	User	131	3.976	0.8861	0.514	191	0.608
	Librarian	66	3.909	0.8176			
Systematic operation	User	131	4.126	0.7766	3.062	191	0.003**
	Librarian	66	3.758	0.8239			

Note(s): \*\**p* < 0.01

**Table 18.** Actions to be carried out to activate library's complex cultural space

**Table 19.**  
Analysis of the  
difference in the level of  
importance among  
users and librarians

Area	Item	Type	Importance			Satisfaction			<i>T</i>	<i>p</i>	
			<i>M</i>	<i>SD</i>	Rank	<i>M</i>	<i>SD</i>	Rank			
Information provision (collection)	1. Providing latest information	User	4.10	0.77	21	3.94	0.74	21	-3.988	0.000**	0.577
		Librarian	4.55	0.64	1	4.00	0.74	10			
	2. Providing various information (sufficiency)	User	4.14	0.78	15	3.90	0.79	23	-3.519	0.001**	0.818
		Librarian	4.53	0.64	2	3.92	0.77	19			
	3. Convenience of information access	User	4.15	0.73	12	3.97	0.79	16	-2.543	0.012*	0.909
		Librarian	4.42	0.70	10	3.95	0.79	15			
Librarians (employees)	4. Accuracy of providing information	User	4.11	0.72	20	3.436	0.001**	18	-3.436	0.001**	0.780
		Librarian	4.49	0.68	4	3.98	0.79	13			
	5. Employees' professionalism	User	4.20	0.76	9	4.13	0.74	8	-2.518	0.013*	0.268
		Librarian	4.49	0.68	4	4.00	0.77	10			
	6. Kindness of employees	User	4.31	0.80	4	4.36	0.65	1	-1.018	0.310	0.003**
		Librarian	4.42	0.68	10	4.05	0.69	5			
	7. Employees' flexibility	User	4.10	0.75	22	4.13	0.76	7	-0.594	0.553	0.004**
		Librarian	4.17	0.81	28	3.80	0.73	32	-3.233	0.001*	0.012**
	8. Employees' creativity	User	3.85	0.86	37	3.99	0.83	11	-1.911	0.058	0.100
		Librarian	4.26	0.79	25	3.68	0.77	38			
Space (facilities)	9. Employees' willingness to challenge	User	3.82	0.92	39	3.78	0.80	33	-2.486	0.014*	0.007**
		Librarian	4.08	0.85	32	4.21	0.78	5			
	10. Employees' active attitude	User	4.13	0.87	19	3.89	0.77	22	-1.946	0.053	0.361
		Librarian	4.44	0.70	8	4.10	0.81	9			
	11. Convenience of space	User	4.21	0.83	8	3.98	0.75	13	-0.326	0.745	0.217
		Librarian	4.44	0.66	8	4.00	0.76	10			
	12. Restfulness of space	User	4.23	0.82	5	3.97	0.84	16	-0.884	0.378	0.081
		Librarian	4.27	0.71	23	3.74	0.86	35			
	13. Diversity of space	User	4.06	0.86	27	4.23	0.74	2	-1.308	0.192	0.137
		Librarian	4.17	0.74	28	4.06	0.76	3			
	14. Restfulness of facility/environment	User	4.38	0.69	2	3.90	0.88	23	-0.826	0.410	0.891
		Librarian	4.52	0.66	3	3.88	0.83	23			
	15. Availability of computer/equipment	User	4.10	0.84	22	3.94	0.86	19	-0.447	0.655	0.038*
		Librarian	4.20	0.71	27	3.67	0.90	39			
	16. Degree of space sharing	User	3.91	0.85	34						
	Librarian	3.97	0.88	36							

(continued)

(continued)

Area	Item	Type	Importance			Satisfaction			T	p
			M	SD	Rank	M	SD	Rank		
Program (contents)	17. Faithfulness of program contents	User	4.23	0.78	5	3.94	0.72	19	-0.643	0.521
		Librarian	4.47	0.66	6	4.02	0.73	8		
	18. Diversity of programs	User	4.20	0.86	9	3.79	0.84	34	-1.103	0.271
		Librarian	4.29	0.80	21	3.92	0.81	19		
	19. Program operator's professionalism	User	4.16	0.84	11	3.82	0.78	30	-0.935	0.351
		Librarian	4.39	0.70	13	3.92	0.69	19		
	20. Differentiation from existing programs	User	3.96	0.91	31	3.78	0.85	35	0.883	0.379
		Librarian	4.02	0.83	33	3.67	0.79	39		
	21. Uniqueness of programs	User	3.90	0.91	35	3.65	0.82	39	-0.629	0.530
		Librarian	4.02	0.87	33	3.73	0.76	36		
	22. Sufficiency of program data	User	4.14	0.75	15	3.85	0.75	27	-0.262	0.794
		Librarian	4.14	0.76	30	3.88	0.73	23		
	23. Program suitability with complex cultural space	User	4.15	0.74	12	3.86	0.73	26	0.218	0.828
		Librarian	4.24	0.77	26	3.83	0.69	29		
	24. Appropriate information facility	User	4.03	0.76	29	3.98	0.82	14	0.368	0.713
		Librarian	4.30	0.68	19	3.94	0.76	17		
	25. Convenience of visit	User	4.15	0.84	12	3.79	0.96	32	-0.389	0.697
Librarian		4.38	0.67	14	3.85	0.86	26			
26. Suitability of location	User	4.07	0.87	25	3.83	0.92	28	-0.059	0.953	
	Librarian	4.36	0.69	15	3.83	0.83	29			
27. Connection with surrounding facilities	User	4.00	0.86	30	3.67	1.03	36	-0.899	0.370	
	Librarian	4.00	0.84	35	3.80	0.73	31			
28. Convenience of use	User	4.22	0.81	7	4.06	0.90	10	0.317	0.752	
	Librarian	4.35	0.67	16	4.02	0.71	8			
29. Convenience of information access system	User	4.14	0.82	15	3.92	0.85	22	-0.272	0.786	
	Librarian	4.32	0.75	18	3.95	0.75	15			
30. Service provision capacity	User	4.14	0.87	15	3.99	0.86	11	-0.313	0.755	
	Librarian	4.35	0.73	16	4.03	0.68	6			
31. Understanding of data through homepage	User	4.07	0.92	24	3.87	0.96	25	0.180	0.857	
	Librarian	4.30	0.82	19	3.85	0.88	26			
32. Sufficiency of electronic data	User	3.92	0.92	33	3.59	0.98	40	-0.237	0.813	
	Librarian	3.97	0.98	36	3.62	0.86	41			
33. Easeiness of using homepage	User	4.05	0.94	28	3.79	1.01	32	-0.475	0.635	
	Librarian	4.27	0.76	23	3.86	0.88	25			

Table 19.

Table 19.

Area	Item	Type	Importance			Satisfaction			<i>T</i>	<i>p</i>
			<i>M</i>	<i>SD</i>	Rank	<i>M</i>	<i>SD</i>	Rank		
Service	34. Exhibition service	User	3.82	0.87	38	3.83	0.91	28	-0.868	0.386
		Librarian	3.92	0.85	38	3.94	0.76	17		
	35. Performance service	User	3.75	0.86	40	3.67	0.90	36	-1.246	0.214
		Librarian	3.73	0.90	41	3.85	0.95	26		
	36. Education service	User	3.94	0.82	32	3.81	0.88	31	-1.721	0.087
		Librarian	4.11	0.81	31	4.03	0.76	6		
	37. Experience service	User	3.86	0.86	36	3.67	0.96	38	-0.741	0.460
		Librarian	3.86	0.93	39	3.77	0.84	34		
	38. Community service	User	3.73	0.87	41	3.57	0.97	41	-1.014	0.312
		Librarian	3.82	0.88	40	3.71	0.80	37		
39. Get the feeling of welcoming	User	4.07	0.88	25	3.98	0.86	15	-0.686	0.494	
	Librarian	4.29	0.78	21	4.06	0.70	3			
40. Environment enabling everyone to use	User	4.40	0.72	1	4.22	0.82	3	-0.694	0.489	
	Librarian	4.42	0.72	10	4.30	0.66	1			
41. Contribution to the cultural life of residents	User	4.34	0.69	3	4.22	0.84	3	-0.042	0.967	
	Librarian	4.47	0.73	6	4.23	0.70	2			

**Note(s):** \*. When the significance probability (*p*-value) is less than the significance level of 0.05

\*\*. When the significance probability (*p*-value) is less than the significance level 0.01

professionalism of employees, respectively, were found to carry a higher importance, in the given order. This indicates that users value locality and professionalism of librarians whereas librarians set a high value on information provision (collections) and spaces (facilities). In this respect, users and librarians were observed to have perceptual differences.

In addition, examining the results of analyzing the differences in the items related to information provision (collections) revealed higher averages among librarians compared to users in most of the analyses, indicating a higher level of recognition among librarians compared to that of users. It seems to be caused by the fact that librarians have richer background knowledge about libraries compared to users. In other words, users and librarians were found to have a perceptual difference for all items of information provision (collections), with  $t$ -value of  $-3.988$  for providing latest information as well as  $t$ -value of  $-3.519$ ,  $-2.543$  and  $-3.346$ , respectively, for providing various information, information accessibility and accuracy of providing information. In addition, providing latest information showed the biggest difference among other items.

As a result of the difference analysis on the items related to librarians (employees), the professionalism of employees showed a  $t$ -value of  $-2.518$  whereas employees' creativity and active attitude were found to have a  $t$ -value of  $-3.233$  and  $-2.486$ , respectively, showing perceptual differences between users and libraries. In addition, users were observed to have a lower level of perception compared to that of librarians. Among them, users and librarians showed the biggest difference in employees' creativity.

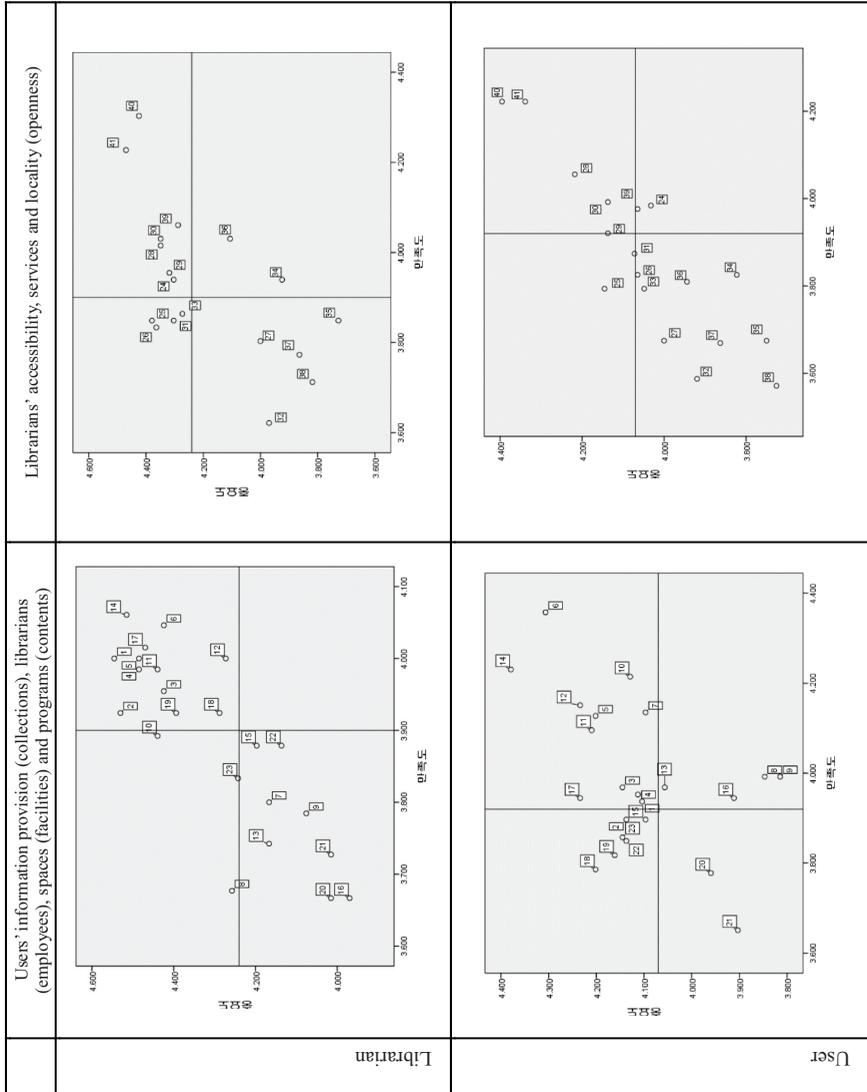
For programs (contents), a significant difference between users and librarians were found in the item of faithfulness of program contents with a  $t$ -value of  $-2.095$ . The level of perception was higher among librarians. As a result of analyzing the difference in accessibility, the  $t$ -value was  $-2.415$  for appropriate information facility and  $-2.410$  for suitability of location, showing a significant difference within the statistical range and a higher level of perception among librarians compared to that of users.

Overall, a significant difference between users and librarians was observed in terms of information provision (collections), librarians (employees), programs (contents) and accessibility. The biggest gap was found in information provision (collections), followed by librarians (employees) and accessibility. Based on the analysis results, it is deemed necessary to devise diversified measures for the level of importance related to information provision (collections).

### *6.2 IPA difference analysis of the factors affecting the use of complex cultural spaces between users and librarians*

The results of IPA analysis on information provision (collections), librarians (employees), spaces (facilities), programs (contents), accessibility and locality (openness) are as shown in [Table 20](#). To plot the results on an IPA graph, the importance average of 4.07 and satisfaction average of 3.92 were used for users and importance average of 4.24 and satisfaction average of 3.90 were used for librarians.

In addition, the results of identifying the level of satisfaction among users and librarians are also shown in above [Table 20](#). First, as a result of examining the rankings of users and librarians based on the average of each item, users ranked the kindness of employees the highest and showed a higher level of satisfaction in the order of restfulness of facility/environment, environment enabling everyone to use, contribution to cultural life of residents and employees' active attitude. Therefore, it can be interpreted as users have a high level of satisfaction for librarians (employees) and locality (openness). Among librarians, environment enabling everyone to use ranked number one, followed by contribution to cultural life of residents, getting the feeling of welcoming, restfulness of facility/environment and kindness of employees. Thus, it can be interpreted as librarians have a high level of satisfaction for locality (openness). Difference analysis of  $t$ -test showed a statistically significant difference in the kindness of employees with a  $t$ -value of 3.058 and users have a



**Table 20.**  
IPA difference analysis  
on the factors affecting  
the use of complex  
cultural space among  
users and librarians

higher level of satisfaction compared to that of librarians. With a *t*-value of 2.913 for employees' flexibility and 2.535 for employees' creativity, it was found that the level of satisfaction is higher among users compared to librarians with a statistically significant difference. Similarly, employees' active attitude showed a significant difference with a *t*-value of 2.721. In addition, space (facilities) showed a statistically significant difference with a *t*-value of 2.091 and a higher level of satisfaction among users.

If the contents of the picture in Table 18 above are further explained and explained, it is as shown in Table 21 below. First, the detailed results of user analysis showed that 16 items were

Quadrant	Item User	Total	Librarian	Total
1st quadrant keep the good work	<ul style="list-style-type: none"> <li>- Information provision (collections: 1 (providing latest information), 3 (convenience of information access), 4 (accuracy of providing information))</li> <li>- Librarians (employees): 5 (employees' professionalism), 6 (kindness of employees), 7 (employees' flexibility), 10 (employees' active attitude)</li> <li>- Spaces (facilities): 11 (convenience of space), 12 (restfulness of space), 14 (restfulness of facility/ environment)</li> <li>- Programs (contents): 17 (faithfulness of program contents)</li> <li>- Accessibility: 28 (accessibility of use), 29 (convenience of information access system), 30 (service provision capacity)</li> <li>- Locality (openness): 40 (environment enabling everyone to use), 41 (contribution to cultural life of residents)</li> </ul>	16	<ul style="list-style-type: none"> <li>- Information provision (collections: 1 (providing latest information), 2 (providing various information), 3 (convenience of information access), 4 (accuracy of providing information))</li> <li>- Librarians (employees): 5 (employees' professionalism), 6 (kindness of employees)</li> <li>- Spaces (facilities): 11 (convenience of space), 12 (restfulness of space), 14 (restfulness of facility/ environment)</li> <li>- Programs (contents: 17 (faithfulness of program contents), 18 (diversity of programs), 19 (program operator's professionalism))</li> <li>- Accessibility: 24 (appropriate information facilities), 28 (accessibility of use), 29 (convenience of information access system), 30 (service provision capacity)</li> <li>- Locality (openness: 39 (getting the feeling of welcoming), 40 (environment enabling everyone to use), 41 (contribution to cultural life of residents))</li> </ul>	19
2nd quadrant concentrate here	<ul style="list-style-type: none"> <li>- Librarians (employees: 2 (providing various information))</li> <li>- Spaces (facilities): 15 (availability of computers/equipment)</li> <li>- Programs (contents: 18 (diversity of programs), 19 (program operator's professionalism), 22 (sufficiency of program data), 23 (program sufficiency with complex cultural space))</li> <li>- Accessibility: 25 (convenience of visit), 31 (understanding data through homepage)</li> </ul>	8	<ul style="list-style-type: none"> <li>- Librarians (employees: 8 (employees' creativity), 10 (employees' active attitude))</li> <li>- Programs (contents: 23 (program sufficiency with complex cultural space))</li> <li>- Accessibility: 25 (convenience of visit), 26 (suitability of location), 31 (understanding data through homepage), 33 (easiness of homepage use)</li> </ul>	7

(continued)

**Table 21.**  
Analysis of IPA matrix for usage factors among users and librarians

Quadrant	Item User	Total	Librarian	Total
3rd quadrant low priority	<ul style="list-style-type: none"> <li>- Programs (contents: 20 (differentiation from existing programs), 21 (uniqueness of programs)</li> <li>- Accessibility: 26 (suitability of location), 27 (connection with surrounding facilities), 32 (sufficiency of electronic data), 33 (easiness of homepage use)</li> <li>- Service: 34 ((exhibition service, 35 (performance service), 36 (education service), 37 (experience service), 38 (community service)</li> </ul>	11	<ul style="list-style-type: none"> <li>- Librarians (employees): 5 (employees' professionalism), 7 (employees' flexibility), 9 (employees' willingness to challenge)</li> <li>- Spaces (facilities): 13 (diversity of space) 16 (degree of space sharing)</li> <li>- Programs (contents: 20 differentiation from existing programs), 21 (uniqueness of program), 22 (sufficiency of program data)</li> <li>- Accessibility: 27 (connection with surrounding facilities), 32 (sufficiency of electronic data)</li> <li>- Service: 35 (performance service), 37 (experience service), 38 (community service)</li> </ul>	13
4th quadrant overkill	<ul style="list-style-type: none"> <li>- Librarians (employees: 8 (employees' creativity), 9 (employees' willingness to challenge)</li> <li>- Spaces (facilities): 13 (diversity of space, 16 (degree of space sharing)</li> <li>- Accessibility: 24 (appropriate information facility)</li> <li>- Locality (openness): 39 (getting the feeling of welcoming)</li> </ul>	6	<ul style="list-style-type: none"> <li>- Service: 34 (exhibition service), 36 (education service)</li> </ul>	2

Table 21.

included in the first quadrant. Three of the items were found in information provision, four items of librarians, three items of spaces (facilities) and one item of programs (contents). Three items of accessibility and two items of locality were also found, indicating that users have a high level of importance and satisfaction for library's complex cultural space.

Examining items included in the second quadrant, one item of librarians, four items of programs (contents), two items of accessibility and one item of spaces (facilities) were found. It indicates that users perceive the total of eight items included here as having a high importance and a low level of satisfaction, requiring concentrated efforts to be made.

A total of eleven items were identified in the third quadrant composed of two items of programs (contents), four items of accessibility and five items of services. In other words, users were found to have a low level of importance and satisfaction for those eleven items included in the third quadrant.

In the last fourth quadrant, all six items were found including two items of librarians, two items of facilities, one item of accessibility and one item of locality (openness). The result can be interpreted as users have a high level of satisfaction for the six items though they perceive them as having a low level of importance.

On the other hand, as a result of analyzing librarians, it was found that nineteen items were included in the first quadrant of "Keep the Good Work", showing more items in the quadrant compared to users. Specifically, four items of information provision (collections) two items of librarians, three items of programs (contents) and four items of accessibility and

three items of locality (openness) were included in the quadrant. The results indicate that librarians have a higher level of importance and satisfaction for the nineteen items.

Examining the items included in the second quadrant, it was found that librarians have a high level of importance but a low level of satisfaction for the seven items included in this quadrant, including two items of librarians, one item of programs (contents) and four items of accessibility. Thus, these items can be identified as the areas in need of improvement.

In the third quadrant, a total of thirteen items were found, including three items of librarians (employees), two items of spaces (facilities), three items of programs (contents) two items of accessibility and three items of services. In other words, librarians have a low level of importance and satisfaction for the thirteen items which are those items not having the need of additional investment.

In the fourth quadrant of “Overkill,” only two items of services were found. These items correspond to those items having a low importance but a high level of satisfaction. And the effort and budget planned for these items should be moved for the items in the first quadrant.

## 7. Discussion and implications

Libraries are innovating a variety of services and spaces to meet the changing needs and demands of the times, but above all, they are constantly pursuing bold challenges and various transformations to change the existing stereotypes and perceptions that users have towards libraries. As a part of such efforts, one of the new paradigms and prominent trends in libraries is the “transformation of space”. One of the most representative spatial changes is the fact that libraries pursue comfort and restfulness in spaces in order to serve the roles of the center space for regional communication and strive to establish themselves as a space in the daily life of residents through lifestyle spaces. In addition, libraries also support the diversity of spaces which encourages users to visit libraries for various reasons and purposes such as sharing joys and enjoying the culture thorough the complex cultural spaces of libraries, instead of visiting libraries for simple reading or learning. Furthermore, libraries help users actively and proactively utilize libraries by providing creative and creation spaces such as makerspaces.

Such “complex space” does not refer to a simple arrangement of spaces having a variety of functions in one place, but it means the effective combination of functions and roles that are related to each other (Lim and Jeon, 2014). In fact, providing a space for those who want to enjoy and experience the culture through such combination and further making environmental elements to create a new culture are very important (Lim and Jeon, 2014). In this regard, building a complex cultural space in the middle of cities will start the exchange of cultures and arts, creating an open and creative space for the public (Lim and Jeon, 2014).

The changes in libraries, which were found a lot at home and abroad, do not merely refer to the changes in functions and spaces, but it refers to the transformation of functions as a complex cultural space providing spaces where users can enjoy various cultures. Furthermore, libraries should agonize to serve the role of invigorating regional economy by leading the regional culture. In fact, the sample groups of the present study responded that their purpose of visiting the complex cultural spaces of libraries in the order of enjoyment of cultural life (30.4%), utilization of leisure time (29.7%) and learning space (24.3%). This can be interpreted as the roles of libraries have already changed and residents perceive that libraries perform their tasks as a cultural space.

Thus, this study surveyed users and operators (librarians) of libraries who have been transforming libraries into a complex cultural space by reflecting the trends of the times. In doing so, an effort was made to identify perceptual differences among users and librarians towards the roles and spatial composition of libraries and the programs expected by users compared to those planned librarians by comparing their perceptions.

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First, the study compared to see if there is a difference between the preferred complex cultural space of libraries and the type of complex cultural space actually provided by libraries. Libraries not only have data spaces but also have made education space, performance space, exhibition space, rest space, community space and experience space available for users. Users were found to more frequently use exhibition space, performance space, rest space and education space among other spaces whereas the utilization rate of community space and experience space was identified to be significantly low. Libraries which recently combined the trends of complex cultural space or complex community space, aim to provide various cultural activities such as book cafes, performances and exhibitions, club rooms and experience halls in one space. As such, libraries provide residents with a wide range of cultural programs and spaces by utilizing its strength as a cultural space most closely located in their living space, recently expanding its usage as a campsite for reading. In addition, the library's characteristics as a data room have also been diversified, and the number of specialized libraries including libraries specialized in fairy tale books, history, culture and humanities is on the rise (Ministry of Culture, Sports and Tourism, 2017; Kim and Han, 2016). Experience space and community space are the spaces which most suitably reflect such trends. However, the study revealed that these spaces have not yet been widely applied to libraries and users' perceptions towards the spaces have not improved much. Therefore, it is necessary to disseminate the vibe of utilizing complex spaces by making successful cases through continuous promotion and education. Especially in the case of foreign countries, makerspace is equivalent to this type of space, but considering the changing tendencies of the digital-native generation, including diversified needs by the users, the worldwide spread of the complex cultural space presented by this study seems to be significant.

Second, this study also compared to see if there is a difference between users' preference for the type of programs operated by library's complex cultural spaces and the actual programs offered. The comparison of perceived differences between librarians who are the operators of the programs and users who participate in the programs is to compare and improve the consistency of supply and demand. As a result, it was found that the supply and demand for educational programs were most consistent, which would lead to higher participation rate and enhanced operational performance and satisfaction with libraries. On the other hand, while 56.52 and 43.48% of libraries, respectively, operated experience program and community program, user experience rate was only 21.37 and 9.16%, respectively, for the experience and community programs, showing a significantly big gap. In fact, the low level of recognition for the programs operated in the spaces can be understood in the same context of the preference for spaces previously mentioned. As elaborated earlier, though libraries have made efforts to reflect the stream of times which is shifting the trends of library from passive to active and from material-centered to activity-centered, users' awareness still falls short. As promotional activities may be insufficient or there is a problem in the operation program, libraries, therefore, need to clearly identify the cause of the results.

Lastly, investigations were carried out to see whether there is a difference in the levels of importance and satisfaction for the operation of complex cultural spaces and perceptual difference between libraries and users. Comprehensively analyzing the results, in the first quadrant of "Keep the Good Work," librarians showed a higher level of perception compared to users. In particular, librarians were found to have a different perception towards programs (contents) compared to users. Based on such results, a systematic program must be considered when planning for library programs in order to increase users' satisfaction. In addition, in the second quadrant of "Concentrate Here," with a high importance and low satisfaction, users showed a high level of importance for programs (contents) whereas libraries identified accessibility as a more important factor, indicating a big perceptual difference between users and librarians. This can be interpreted as users perceive qualitative

improvement such as diversity of programs provided by libraries, professionalism and suitability of programs more important than accessibility when they visit libraries. Based on these analysis results, it is necessary to plan and develop programs that reflect the characteristics of the complex cultural space, considering that the introduction and operation of the library as a complex cultural space has been carried out in earnest relatively recent years. In addition, as there is a high demand for improvement of professionalism and quality of programs, the training and recruitment of professionals to meet these needs should be done at the same time. In the third quadrant where lie low levels of importance and satisfaction, both users and librarians were found to have a low level of importance for services. However, there found a difference in that users perceive accessibility with a lower importance compared to librarians whereas librarians showed a lower importance for librarians (employees) compared to users.

Based on the results of the response, a comprehensive look at what library users think about the complex cultural spaces currently created in some public libraries is as follows. First, the importance average for most library complex cultural space usage factors was found to be higher than the satisfaction average. This means that the satisfaction level is not sufficiently high compared to the degree to which users are aware of the factors of use of the library complex cultural space currently being provided. However, considering the fact that the average difference between importance (4.12) and satisfaction (3.92) does not represent a huge gap, it can be interpreted as a remarkable result considering that the library complex cultural space is introduced not long ago. Next, one of the most basic characteristics of a complex cultural space is a multipurpose complex. The results of response related to this showed that four of the five factors related to space were located in either 1st quadrant (the “Keep the Good Work” domain) where both importance and satisfaction were high, or in 4th quadrants (the “Overkill” domain) where satisfaction was higher than importance. In this regard, users believe that the complex cultural spaces at libraries are up to a certain level of satisfaction as a complex space and provides various cultural and rest areas. Finally, in the case of sample groups, it is shown that they positively evaluate the overall operation of the library complex cultural space, and if the library implements efforts to improve the complex cultural space by the factors used in the future, the users’ satisfaction is expected to further increase gradually.

This study examines the differences between the opinions of operators who create complex cultural spaces and operate programs in the spaces and the opinions of users who participate in the spaces and programs, and it was found that no other studies in Korea and overseas have done the same yet. In addition, it carries a significant meaning in that it does not only investigate the perceptions towards importance and satisfaction, but also suggests improvement directions based on the perceptual differences between users and librarians. In other words, librarians who implement policies at actual sites seem to be able to reflect the results of this study and decide the operation direction of the library.

## 8. Conclusion and suggestion

In these days, changes in the knowledge ecosystem, along with a multitude of media where information can be obtained from such as digital, mobile and cloud and diversified cultural spaces for leisure time, have initiated the discussions of roles and functions that libraries have and the direction points for libraries as a facility of knowledge and information as well as a cultural space. Libraries are seeking strategies for changes at various angles. One example of this is the transformation of libraries into a complex space of culture and art, rather than a space for simple reading and learning. Now, libraries are turning into a place in which users do not only acquire information and knowledge but also enjoy a part of their daily life as their cultural spaces, community spaces and comfortable rest spaces. As if reflecting this trend, some libraries put forth “complex cultural space” and “complex community space,” wanting

to act as the landmark of the region. Users also participate in various services and programs that library's complex cultural spaces offer and enjoy their cultural life. It carries a significant meaning in that the study evaluates the importance-satisfaction of factors affecting the use of complex cultural spaces of libraries by examining perceptions of those users who actually have the experience of using library's complex cultural spaces when the number of libraries attempting to transform into a multicultural space increases. The study made an attempt to enrich the knowledge and understanding of users' visit/use of libraries, suggest improvement directions and factors to focus.

Continuous efforts and additional studies must be made in order to vitalize library's complex cultural spaces and secure the position of a cultural facility as well as a communication space located at the heart of regional society. Further studies comparing the perceptions of users and librarians towards library's complex cultural space and suggesting detailed improvement directions for each area should also be conducted. In addition, a study is needed on how to increase library utilization rate based on the revitalization of complex cultural space through library marketing or various promotions.

On the other hand, the concept of complex cultural spaces is an extended concept of infinite creative space, such as the existing makerspace and hackerspace, which is still not being implemented in several countries including the US, the UK, Canada and Japan. Therefore, efforts to build and revitalize complex cultural spaces that are more than makerspace, where convenience, communication and cultural aspects are added beyond an infinite imagination room, should be made in the global library communities.

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**Appendix**

The Appendix material is available online for this article.

**About the author**

Younghee Noh has an MA and a PhD in Library and Information Science from Yonsei University, Seoul. She has published more than 56 books, including 3 books awarded as Outstanding Academic Books by Ministry of Culture, Sports and Tourism (Government) and more than 210 papers, including one selected as a *Featured Article* by the Informed Librarian Online in February 2012 (“Digital library user privacy: changing librarian viewpoints through education” in *Library Hi Tech*)/ March 2018 (“A Study of the Effects of Library Creative Zone Programs on Creative Thinking Abilities” in *Journal of Librarianship and Information Science: Editor in Chief is Prof. Ann Goulding*). She was selected as a distinguished scholar by the *Korea Research Foundation* (The number of outstanding scholars selected by the Korea Research Foundation is not 100 in history). She was listed in the Marquis *Who’s Who in the World* in 2012-Current and *Who’s Who in Science and Engineering* in 2016-Current. She received research excellence awards from both Konkuk University (2009) and Konkuk University Alumni (2013) as well as recognition by “the award for Teaching Excellence” from Konkuk University in 2014. She received research excellence awards from “Korean Library and Information Science Society” in 2014. One of the books she published in 2014 was selected as “Outstanding Academic Book” by Ministry of Culture, Sports and Tourism in 2015. She received the Awards for Professional Excellence as Asia Library Leaders from Satija Research Foundation in Library and Information Science (India) in 2014. She has been a Chief Editor of *World Research Journal of Library and Information Science* from March 2013 to February 2016 and has been an Assistant Chief Editor of *International Journal of Knowledge Content Development and Technology* since January 2011, the *Korean Biblia Society for Library and Information Science* in since January 2015, a President of the Society of Transdisciplinary Studies since September 2017. Since 2004, she has been a Professor in the Department of Library and Information Science at Konkuk University, where she teaches courses in Metadata, Digital Libraries, Processing of Internet Information Resources, and Digital Contents. Before that, she taught courses in Using Information in a Knowledge-Based Society, Information Resources in Social Science, and Information Resources in Humanities in the Department of Library and Information Science, Yonsei University. From 1997 to 2004 she was Head of the International Information Center, Ewha Women’s University. Younghee Noh can be contacted at: [irs4u@kku.ac.kr](mailto:irs4u@kku.ac.kr)