

The Evaluation of UIN Maulana Malik Ibrahim Malang Library Physical Space Redesign as Digital Ecological Impact

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Abstract

This study investigates the level of quality changes in the function of the library's physical space to meet the user need. The research approach used quantitative with surveys methods. The instruments use the TEALS. Respondents numbered 200 students using the simple random sampling method. The results showed that overall the redesign of UIN Maulana Malik Ibrahim Malang library room had a positive impact of 76% on users of library utilization. Meanwhile, the most positive influence on quality criteria is a positive image and identity, and the least effect is flexibility and adaptability. Quality criteria that need attention and follow-up improvements are the quality criteria that get the lowest score. This is the first research in the UIN Maulana Malik Ibrahim Malang library. The study results can help improve the quality criteria of library space based on user needs.

Keywords: Academic Libraries, Library Space, Library Physical Space, Learning Environment

Introduction

Industry 4.0 is changing the function of space as part of the library ecosystem. The library needs to transform its function from a "book warehouse" to a place of social networking for visitors (Abbasi et al., 2012b). Recognizing this demand for change, Universitas Islam Negeri (UIN) Maulana Malik Ibrahim Malang Library redesigned its entire physical space. However, whether the change in the library space characteristics has an impacts conformity with users' needs or not is yet to be known. Therefore, the redesign of this library space needs to be evaluated to identify the utilization level and, if necessary, the follow-up improvement.

Redesigning the library space is the utilization of the ecological concept of digital information. This space redesigning combines information, IT assistance service, and flexible, formal and relaxed study rooms to be available in one place (Perpustakaan Pusat UIN Maulana Malik Ibrahim Malang, 2017). A digital ecological concept can be used as a means to reduce overlapping complexity (García-Marco, 2011).

The results of the evaluation study of library space redesign showed positive results by increasing more than 30% of students' visit to the Library (Abbasi et al., 2012b). This shows that library space redesign using a digital ecology approach has a positively impacts on increasing library utilization by users.

Based on the description above, the aims of this evaluation are:

- To find out the quality of UIN Maulana Malik Ibrahim Malang Library space redesign in meeting users' needs based on the criteria of quality within TEALS (Tool for the Evaluation of Academic Library Spaces).
- To help the library carry out the effectiveness of the library space design improvement program.

Thus, this study supports the realization efforts to develop a more planned library space of UIN Maulana Malik Ibrahim Malang Library and is expected to produce policy recommendations for the development of library space that reflects the needs of the current users. The spatial quality criteria expected by the visitors will contribute to the Library as feedback in making space development policy guidelines in accordance with the quality expected by the users.

Literature review

Previous studies about the overall spatial of a university library in Indonesia do not exist. Some of the results of previous studies only examined a portion of the university library layout. Meanwhile, comprehensive studies were conducted at a public library.

Research on library space planning at Indonesian universities

Two studies of library space were reviewed based on only the needs of users were found. The first study included research on the layout of Indonesian collection circulation in Andalas University Library, which found that the layout was less attractive (Deslina & Ardoni, 2012). The second study found results of spatial research in Padang State Polytechnic Library. The study found that the library's size did not meet the standards, reading tables were not equipped with dividers, there were no rooms of library material management, and the limited size of the building resulted in the void of conservation and preservation rooms (Wulandari & Rahmah, 2017). The two results of the studies showed that the existing library space was not meet its users' needs.

Research on library space in regional/public libraries

Two results of research related to the perspective of users that are relevant to this study. First, the research on comfort and health aspects in Bank Indonesia Representative Office Library in Central Java Province. This research found that visitors' perspectives to aspects of comfort and spatial health were influenced by five main factors, namely temperature, sound, colouration, lighting, and furniture (Anisatun & Jumino, 2017). Second, the research on library space planning at the Office of Maritime Affairs and Fisheries Library in Central Java Province in terms of users' perception. This study's findings indicated that space planning at the Office of Maritime Affairs and Fisheries Library is considered quite good by users (Saraswati & Jumino, 2016).

Library space planning in digital ecology

The development of digital information technology has an impact on changes in the function of library space. This evolution is a response to a new culture of library users in using libraries. Changes on library environment can be understood through an ecological approach to information that is the approach that emphasizes the cultural, social and psychosocial, and technology process related to the system of information and documentation (García-Marco, 2011). Therefore, the

development of library space planning must understand users' needs who not only need information but also social interaction.

Transformation of physical space in university libraries

Changes in the ecology of digital information require libraries around the world to change the library space to be more conformable with the changing needs of users. There are four aspects that need transformation in the university library space today, namely the transformation of library from a “book warehouse” into a place of human interaction, creating a library space that is friendly and attractive, making an adequate library road map, and maximizing the creativity of spatial use (Abbasi et al., 2012b). These aspects can be understood that the current university library needs to provide space facilities not only for the collection of books but also for meetings, collaborative space, special room for researchers, relaxing room, and all spaces connected with adequate internet connection and bandwidth. Library room facilities must be designed to be attractive in accordance with the needs of millennial users.

Physical space redesign of UIN Maulana Malik Ibrahim Malang Library

In 2018 and 2019, the UIN Maulana Malik Ibrahim Malang Library redesigned the spaces to respond to digital information ecology changes that have influenced user culture in-library use. Based on statistics, before the redesign was carried out, the number of visitors to the library continued to decline drastically from year to year. However, the impact on the new library space changes in service improvement efforts has not been evaluated. Therefore, it is necessary to evaluate the new library space quality to determine how the impact is on the users and to know the shortcomings as feedback for future space development.

Evaluation of university library physical space

A good evaluation has good quality criteria (measuring instrument). TEALS (Tool for the Evaluation of Academic Library Spaces) is one of the university library spatial evaluation tools created by the School of Architecture, Deakin University, Australia. TEALS uses ten quality criteria to measure whether the library space functions properly and accommodates the users' needs. These criteria can be applied to university libraries in various contexts (Abbasi et al., 2012b). TEALS criteria were implemented as an evaluation tool to measure the library's physical space's effectiveness and utilisation in several libraries in Australia (Abbasi et al., 2012a, 2014).

The ten TEALS criteria are:

- 1) Positive image and identity. Criteria for library positive image and identity both in terms of interior and exterior.
- 2) Welcoming and inviting entry. Criteria about the design of library entrance that attracts users.
- 3) Functionality and efficiency. Criteria for space functionality and efficiency that adjust to the needs of users.
- 4) Flexibility and adaptability. Criteria for flexibility (openness) and space adaptability with information technology.
- 5) Variety of spaces to cater for different users and uses. Criteria for variety of spaces available to accommodate different uses and user groups.
- 6) Being social and people-centred. Criteria for library as a social and people-centred space.
- 7) A Sense of place and inspiration. Space criteria as an inspirational place.

- 8) Environmental comfort and sustainability. Criteria for the space atmosphere of a comfortable environment.
- 9) Access, safety and security. Criteria for access, safety and security provided.
- 10) Integration of technologies. Criteria for integration of space with technological facilities.

Research method

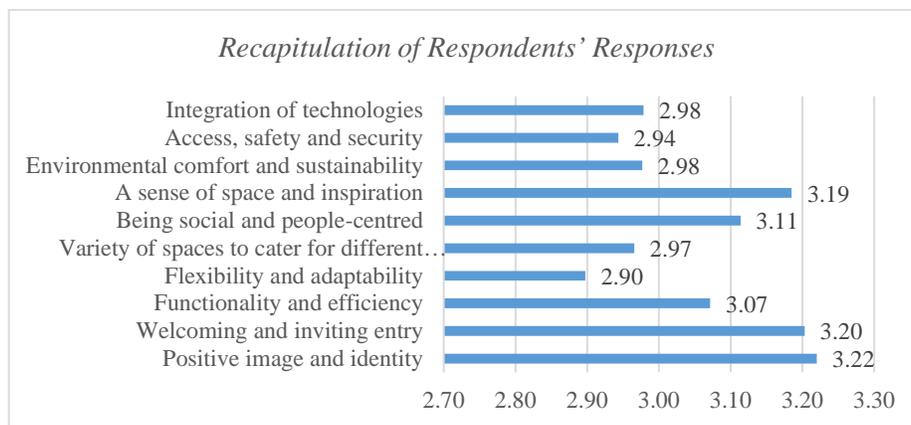
This study used a quantitative approach with a survey method. The population was all undergraduate and postgraduate students. The research sample used was *simple random sampling* (Sugiyono, 2013). Respondents were 200 students who were selected randomly when they visited the library. Data collection techniques used a questionnaire (closed-ended and open-ended questions), observation, and document analysis. The questionnaire-based on 10 TEALS criteria. Below is the table of provisions of value and percentage of respondents' answers.

Score	Percentage (%)	Remarks
0.00 - 1.00	25%	Poor
1.01 - 2.00	50%	Not good
2.01 - 3.00	75%	Good
3.01 - 4.00	100%	Very good

Discussion

The summary of respondents' answers to the ten criteria for evaluating the library's physical space is shown in Graph 1. Overall, respondents' average value to the ten evaluation criteria was very good with 3.05 (76%). Then, if seen from each evaluation criteria, identity and positive image has the highest value with 3.32 (81%) and the lowest is flexibility and adaptability with 2.90 (72%).

Based on this data, respondents rated very well on the redesign of the library's physical space that had shown the identity and positive image of the library. They also felt that their presence was very welcomed in the library, and the library could be used as a place to find inspiration.



Graph 1. Recapitulation of Respondents' Responses

Furthermore, criteria with low value include flexibility and adaptability, variety of spaces to cater for different users and uses, environmental comfort and sustainability, access, safety and

security, and integration of technologies. These criteria need to be addressed by library management to continuous space improvement in the future.

Evaluation of quality of library space redesign in accommodating the needs of library users

Based on this study's results, the physical library space redesign has met the majority of the library users' needs. In the majority, they stated that the redesign of first-floor space was very good. The space redesign quality of Library can be concluded as follows:

1. *Positive image and identity.* The library building and space redesign become significant factors in growing its positive image and identity. The library's proximity with a place of learning and students activities, outdoor area, and building architectural design that combines Javanese and the Middle East architectural styles are important factors that determine the library's identity as the centre of intellectual, knowledge and Islamic civilisation. Meanwhile, the library's first floor and exterior interior design is also very important in fostering a positive image of the library.
2. *Welcoming and inviting entry.* The welcoming entry design, spacious entrance, and waiting room received very good and positive responses from library users so that they became important factors in attracting them to visit the library. Through this redesign, visitors feel very welcomed by the library to impact their desire to use various facilities provided by the library.
3. *Functionality and efficiency.* The functionality of the library physical space redesign is considered to be very good. The space size is one of the most important factors in determining functionality and effectiveness. The library space size available is very appropriate to the function of the type of service and also the proximity and connectivity between the service rooms support various library functions.
4. *Flexibility and adaptability.* The space redesign is already flexible and adaptable to meet users' needs. Flexibility can be seen from the size, shape and features on furniture design that can be easily moved; the openness of space with transparent divider; and walls between library rooms made of partition.
5. *Variety of spaces to cater for different users and uses.* The redesign of the main and additional spaces was done to create various facilities that give library users choices to decide where, when, and how to use them while doing assignments, studying, and researching. The redesign and number of main rooms are very good, adequate, and comfortable. The main room includes study group rooms, individual rooms, formal collaboration rooms, and research support rooms. The number of additional rooms for social interaction is adequate.
6. *Being social and people-centred.* The library space redesign as a center for social interaction has been very good, attractive, and satisfying. This space is more often used for gathering and discussion, doing group work, relaxing, and meeting colleagues and the community.
7. *A Sense of place and inspiration.* The library space redesign also pays attention to environmental comfort. The quality of natural light, air circulation facility, and temperature humidity chamber are sufficient.
8. *Environmental comfort and sustainability.* The library space redesign also pays attention to the environmental comfort. The quality of natural light, air circulation facility, and temperature humidity chamber are sufficient.
9. *Access, safety and security.* Access, safety and security are also adequate. The lockers' availability has given visitors a sense of security in depositing their goods, and the existing service signage/information is also sufficient.
10. *Integration of technologies.* The integration of technologies in the redesigned space is adequate. This includes furniture design of tables, which is equipped with power plugs for

laptop/smartphones. This furniture design is considered to support students' collaborative discussion.

Library space design improvement program

Based on the analysis and feedback from the library users above, the library needs to improve the quality of each of the criteria used for the evaluation, namely:

Criteria	Improvement Program
Positive image and identity	Redesign the physical space on the second and third floors.
Welcoming and inviting entry	Automatic door opening and closing system, brighter colors, and additional waiting room chairs.
Functionality and efficiency	<ul style="list-style-type: none"> • Noise control • Additional LCD/TV screens and lockers facility
Flexibility and adaptability	<ul style="list-style-type: none"> • Increase the number of power plugs for laptops on the second and third floors • A faster and more stable internet connection
Variety of spaces to cater for different users and uses	<ul style="list-style-type: none"> • Increase the number of research private rooms (research carrels), collaboration room, online thesis room, medical room, praying room facilities, and good restrooms. • Access road and special space for users with special needs.
Being social and people-centred	<ul style="list-style-type: none"> • The furniture available such as tables and chairs are limited.
A Sense of space and inspiration	<ul style="list-style-type: none"> • Library needs to be equipped with photographs of successful Muslims in the field of education and science, batik design models, designs in accordance with Islamic culture, soundproof rooms, music, addition of motivational writing (quote), and redesign of second and third floors.
Environmental comfort and sustainability	<ul style="list-style-type: none"> • The library needs to be added with air-conditioning facilities, trash bins, free drinks, music, and ornamental plants. Furthermore, the lights do not need to be turned on during the day.
Access, safety and security	<ul style="list-style-type: none"> • Adding CCTV facilities • Adding signage about the library facilities and services • Providing lifts for users • Making an emergency evacuation route
Integration of technologies	<ul style="list-style-type: none"> • Power plugs should be added in each room that is easily accessed by visitors.

Conclusion

Based on the discussion above, it can be concluded that the evaluation results of the physical space redesign quality of UIN Maulana Malik Ibrahim Malang Library are as follows:

- a. The level of quality in the space redesign of UIN Maulana Malik Ibrahim Malang Library in meeting users' needs is an average of 3.055 (76%). This means that the library space redesign is now very good and in accordance with library space redesign criteria that has the highest quality is positive image and identity with 3.22 (81%). Subsequently, the criteria with the lowest quality are access, safety and security with 2.94 (74%), integration of technologies with 2.98 (74%), environmental comfort and sustainability with 2.98 (74%), and variety of spaces to cater for different users and uses with 2.97 (74%).
- b. The analysis and feedback from library users about library space design improvement can be used as a planning program in the future. The criteria that need enhancement and quality improvement are access, safety and security; integration of technologies; environmental comfort and sustainability; and variety of spaces to cater for different users and uses.

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Short Biography

Mufid is a librarian in library management system, having graduated a master's program in library and information science from the University of Indonesia (2011). He has participated in the Development of Library System Management program at the University of Queensland (2015). Currently, he is the head of the UIN Maulana Malik Ibrahim Malang library (2019-present) and the chairman of the East Java Islamic College Library Association (2019-2023).