

Methodology of Personalizing Interior Spaces in Public Libraries

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Abstract—Creating public spaces which are tailored for the specific demands of the individuals is one of the challenges for the contemporary interior designers. Improving the general knowledge as well as providing a forum for all walks of life to exploit is one of the objectives of a public library. In this regard, interior design in consistent with the demands of the individuals is of paramount importance. Seemingly, study spaces, in particular, those in close relation to the personalized sector, have proven to be challenging, according to the literature. To address this challenge, attributes of individuals, namely, perception of people from public spaces and their interactions with the so-called spaces, should be analyzed to provide interior designers with something to work on. This paper follows the analytic-descriptive research methodology by outlining case study libraries which have personalized public libraries with the investigation of the type of personalization as its primary objective and (I) recognition of physical schedule and the know-how of the spatial connection in indoor design of a library and (II) analysis of each personalized space in relation to other spaces of the library as its secondary objectives. The significance of the current research lies in the concept of personalization as one of the most recent methods of attracting people to libraries. Previous research exists in this regard, but the lack of data concerning personalization makes this topic worth investigating. Hence, this study aims to put forward approaches through real-case studies for the designers to deal with this concept.

Keywords—Interior design, library, library design, personalization.

I. INTRODUCTION

IN the past, the sole purpose of libraries was to serve as a database for a society. Nowadays, however, with the expansion of electronic means of communication such as the internet, access to a numerous number of scientific resources has been greatly facilitated. With this explanation, it becomes evident that old methods will not guarantee the survival of a library and public libraries face new challenges in the technology-driven era. Add to this the ever-increasing demand for accessibility to various databases, not to mention the lack of attention given to the comfort of the attendees as well as the aesthetic features of interior designers, which can serve a powerful incentive, according to international standards. Therefore, a complete transformation in catering services as well as other pertinent measures should be adopted to preserve the prominent role of libraries in society. Personalization is one of the new methods which have been adopted by the libraries worldwide.

Personalized services increase satisfaction which lay the ground for the increased demand for the so-called services. It is

clear that when the specific demands of the consumers are well met through targeted services, the outcome is more desirable than the case when the same services is provided for all the customers [1].

Libraries and information centers have had personalization agendas for a long time. Based on the second rule of Ranganathan, readers of books and their associated services in libraries serve as an example of personalization. Bisbrouck and Chauveinc [2] view the foregoing approach as a means of utilizing artificial intelligence to gather demographic data concerning the group behavior so as to put forward suggestions and recommendations.

Personalization of spaces in a public library can contribute to identifying the type of information that attendees need which in turn, will result in providing better services and will balance the resources of the libraries and the satisfaction levels of readers. The current study explores the specifics of personalization in inner spaces of libraries worldwide. The so-called personalization parameter can be accounted as a measure of success in performance of public libraries.

II. METHODOLOGY

Descriptive and analytic approaches on some case studies around the world is the method adopted in this study. Attempt has been made to provide diagrams, illustrations and creative imaginations to better convey the desired concept since they are the best method to explain something. Numerous key factors namely, history of the libraries, circumstances governing society, design of interior spaces and personalization approaches should be accounted for so as to provide a comprehensive insight with regard to an architectural project. Analyses should be performed on datasets prior to making generalizations and reaching a conclusion as depicted in Fig. 1.

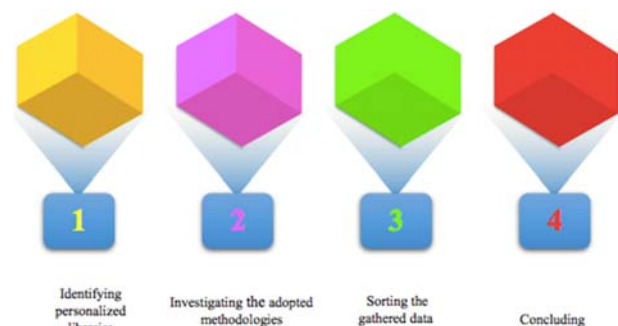


Fig. 1 Overall methodology of architectural projects

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III. DISCUSSION

A. The Concept Behind Personalization of Space

Personalization can be interpreted as a way of realizing the specific needs of the individuals through targeted scheduling and provision of services. Nonetheless, it is noteworthy that despite the high emphasis put on every individual in this definition, the responsible organization should decide regarding the specifics of its target population. Procedure of personalization, from another point of view, is regarded as gathering and analysis of clients' awareness from internal and external resources as well as the existing interactions in the meanwhile; preferential marketing elements in terms of the product, advertisement, location and the price based on the profile of the client and defining client-oriented objectives [3]. Although it is universally acknowledged that personalization is an inevitable component of high-quality service provision, the technical know-how behind its implementation is yet to be understood.

B. Different Types of Personalization Based on the Literature

Researchers have introduced three approaches namely, content-based, filtration, and social procedures. Polit et al. [4] showed that the focal point of personalization gradually shifted from technology-dominant to marketing-based design of commitments. Shen and Ball [5] introduced a type of personalization known as technology mediated personalization (TMP) which is sub-divided into interactive, trade-, and integrated-based personalization. *Interactive personalization* concerns the courtesy of the individual and his/her recognition of client-company interactions. Showing heart-felt desires, and calling out someone passionately are examples of this method based on the attributes governing relationships between individuals. *Trading-based personalization* is tailoring the products and services towards the desires of the customer. This type of personalization is parallel to the adaptive behavior of provision of service.

Continuous personalization is a permanent method of customization based on adaptive learning and knowledge of the priorities of the customer. As far as provision of services is concerned, no particular validation was observed for this type of personalization in the available research. In the following, methodologies of personalization will be outlined in public libraries.

C. Case Studies

1. Modern Library of Norway

Founded in 2012, the public library of Norway (Fig. 2) was designed by Helen and Hard at the center of Vennessla. The cultural house of this library comprises of 27 wooden chairs which houses book shelves and study benches. Big windows illuminate the space in a pleasant and efficient way.



(a)



(b)

Fig. 2 Modern Library of Norway (a) inner spaces, and (b) personalized sectors (source: archdaily)

2. National Library of Qatar

Founded in 2017, National Library of Qatar (Fig. 3) is inspired from a coolhouse architecture. National Library of Qatar includes the National Library of Doha, a public library and the library of the university. The heritage of the Arabic-Islamic civilization as well as ancient transcripts are kept in this complex. What is more, it has specific personalized sectors with due consideration to inner spaces.



(a)



(b)

Fig. 3 National Library of Qatar (a) public spaces, and (b) personalized spaces (source: archdaily)

3. Raheen Library of Australia

Founded in 2013, Raheen Library (Fig. 4) was recently expanded by Woods Bagot in the Catholic University of Melbourne, Australia to accommodate for the increase in the number of students which resulted in a 40% larger library space and 70% increased capacity. Entrance of the library was strategically modified. House-like designs, formal halls and shared spaces are design hallmarks of this library.



(c)



(a)



(b)

Fig. 4 Raheen Library of Australia (a) public spaces, and (b, c) personalized spaces (source: archdaily)

4. Central Library of McAllen

Founded in 2011, establishment of this library was a concomitant outcome of an abandoned large Walmart shop in Texas, US. Officials of the city transformed this shop into the main library of McAllen (Fig. 5). The primary challenge of the library was to create a pleasant, flexible atmosphere in a single floor of 125,000 square feet. To make this come true, mechanical systems were painted to provide a neutral shell for the new sectors outlined by specific colors. Main spaces include, rooms for convention, library of children, adult services and staff zone. Table I highlights the analysis of personalization methods.

TABLE I
ANALYSIS OF PERSONALIZATION METHODS IN THE INVESTIGATED CASE STUDIES

Name of the library	Personalization methods
Modern Library of Norway	<ul style="list-style-type: none"> -Individual furniture layout consistent with the general concept of the indoor architecture. - Positioning individual shelves in each individual space. - Two-way connection of spaces from the ceiling and a side of the corridor. -lighting from the ceiling and benefit of each individual sector from this overall lighting. -Ceiling windows and availability of natural light for each of the spaces. -Accessibility of electrical devices in each of the spaces.
National Library of Qatar	<ul style="list-style-type: none"> - Computers are accessible in a separate sector with a PC and a table available for each single individual.
Raheen Library of Australia	<ul style="list-style-type: none"> -Private furniture are available in public spaces of the main hall as well as mattresses for people to rest and interact with others. -Various types of furniture for public group use in main hall of the library. - Separate group spaces, accessibility to corridors and other spaces only from a single side. - Furniture in public spaces in connection with the corridor and other public spaces. - Partitioning of spaces with different flooring. - Partitioning of spaces with difference in elevation (i.e., steps). - Partitioning spaces based on age groups. -Efficient use of unused spaces in walls and book shelves as a single or dual seat. -Designing cafés for public group use and availability of various services. -Private furniture in corridors. -Separate space for children.
Central Library of McAllen	<ul style="list-style-type: none"> -Isolated group space with no connection route to other sectors. -Designing cafés similar to group spaces. -Partitioning spaces with colors.

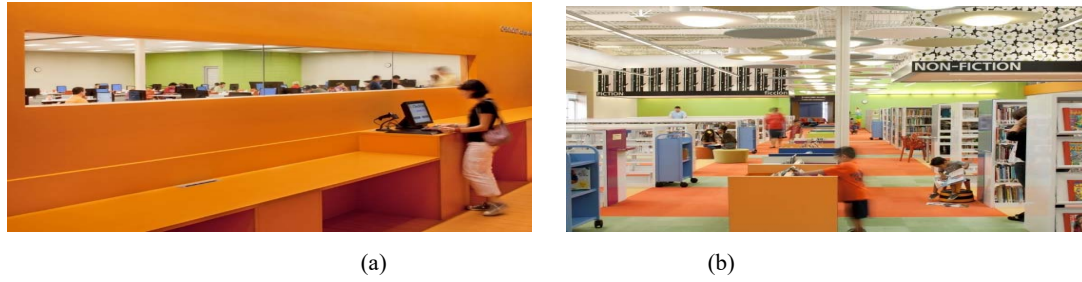


Fig. 5 Central Library of McAllen (source: archdaily)

5. Investigating the Spatial Atmosphere of Interior Architecture in Public Libraries

In this section, spatial diagram and performance of each library space is evaluated against personalized spaces.

Exploring the relationship of personalized spaces with other parts of the library is the reason behind studying the following plans (Figs. 6 to 10).

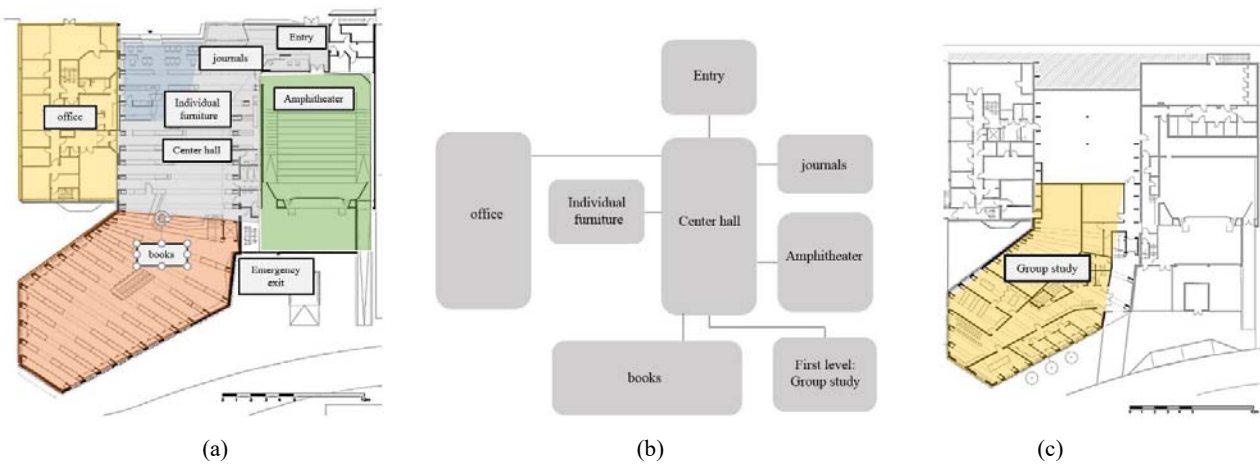
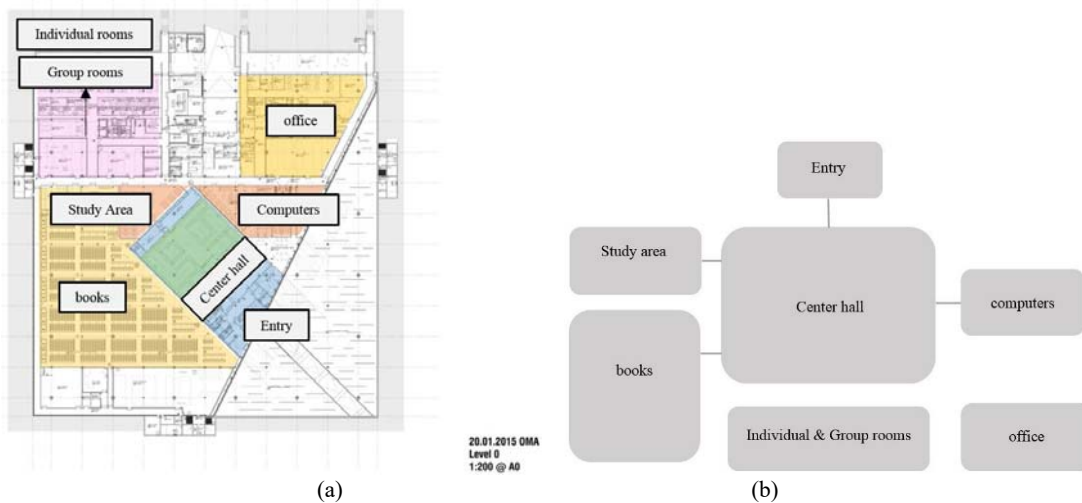


Fig. 6 Library of Norway (a) floor plan, (b) spatial diagram of spaces, and (c) first-floor plan



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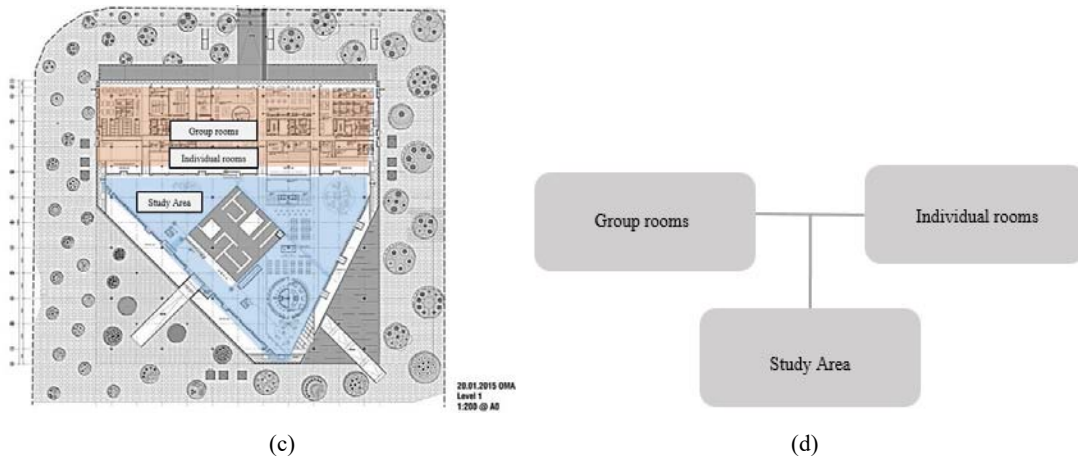


Fig. 7 National Library of Qatar (a) floor plan, (b) spatial diagram of spaces, (c) first-floor plan, (d) spatial diagram of first floor

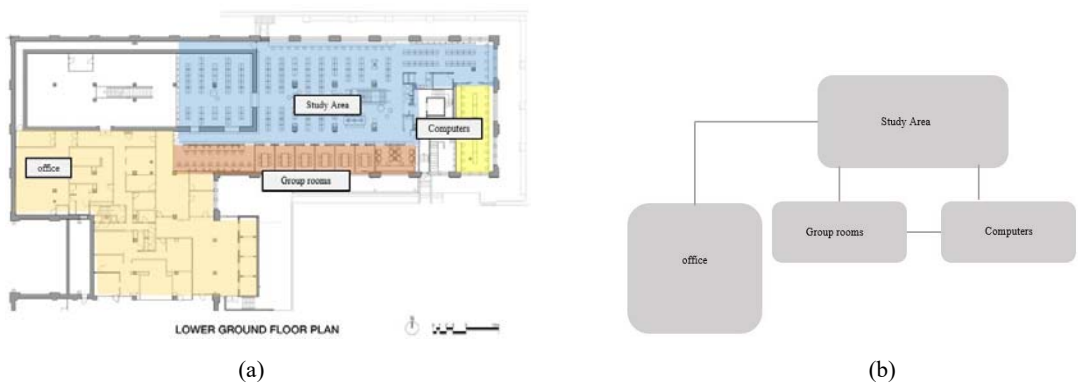


Fig. 8 Raheen Library of Australia (a) sub-floor plan, and (b) spatial diagram of sub-floor spaces

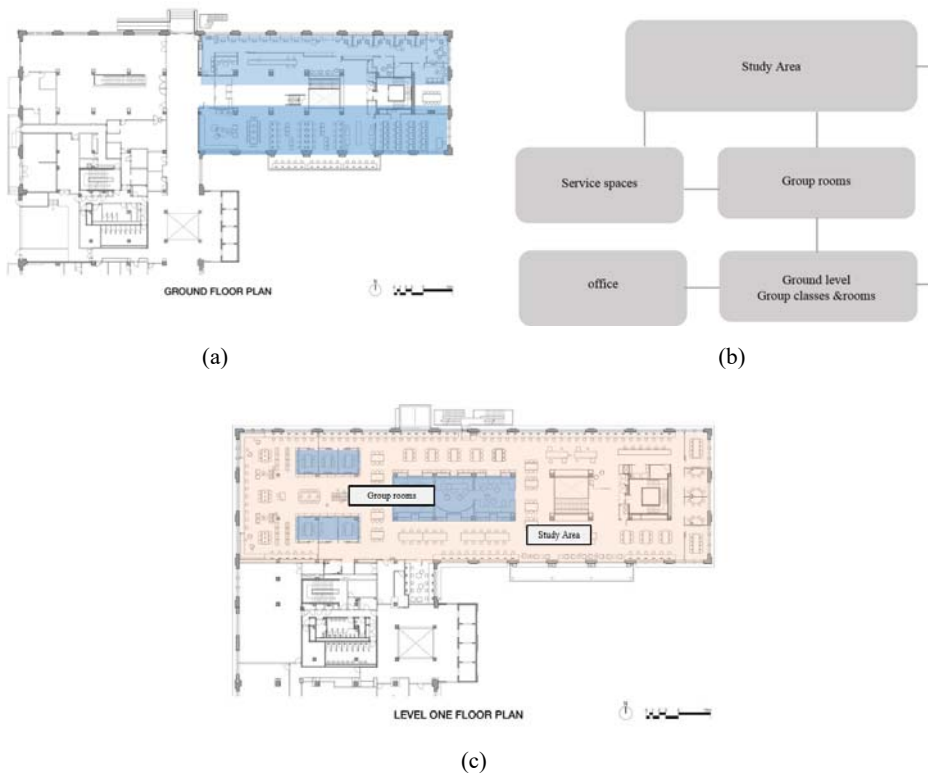


Fig. 9 Raheen Library of Australia (a) floor- and first-floor plan, and (b) spatial diagram of floor-, and first-floor spaces

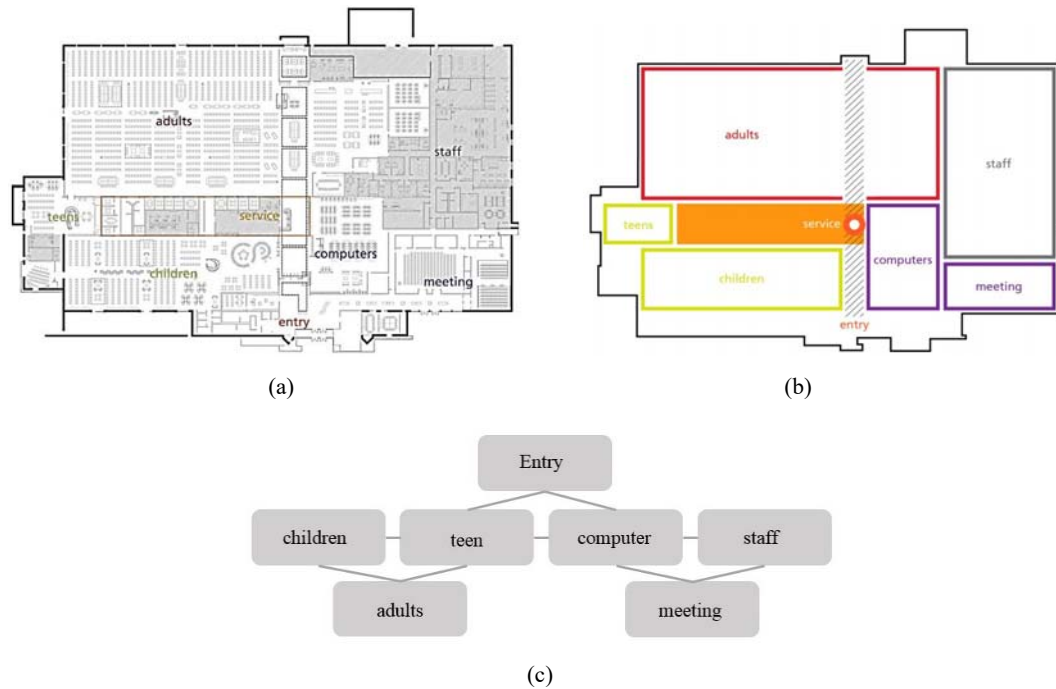


Fig. 10 Central Library of McAllen (a) plan, (b) partitioning of spaces, and (c) spatial diagram (source: archdaily)

TABLE II
 INFLUENTIAL FACTORS IN PARTITIONING SPACES IN THE INVESTIGATED CASE STUDIES

Name of the library	Artificial light	Natural light	Color	Elevation	Climate	Material	Furniture	Landscape
Modern Library of Norway	+	+	-	-	+	-	+	-
National Library of Qatar	+	+	-	+	+	-	+	+
Raheen Library of Australia	+	+	+	-	-	+	+	-
Central Library of McAllen	+	+	+	-	-	+	+	+

According to the data given in Table II, it can be deduced that principal components that govern the personalized spaces are considerations of artificial and natural light, color and furniture [6]-[10]. Remaining factors such as climate, landscape etc. differ based on different sites.

IV. RESULTS

Taking all the discussions from the case studies herein, it can be concluded that a set of factors are the same in all the designs.

The so-called factors are either accounted for creatively and/or through empirical observations.

The first step in data analysis is the knowledge of customers and their needs. Dividing personalization based on particular groups is important in this regard. It is advisable that, prior to the design of spaces, customers' needs be taken account so that consistent design approach be adopted. With this in mind, individuals can be categorized as follows:



Fig. 11 Categorizing attendees to the library

Dividing spaces of libraries is directly related to the climate, culture, etc. It can be understood from the case studies that categorizing people plays a dominant role in the type of personalization in indoor spaces. Hence, knowing customers and their needs takes precedence over other factors when personalization is concerned.

Given that part personalization demands realization of customers' needs, due consideration should also be given to individual or group personalization. From another perspective, personalization may be illustrated as Fig. 12:

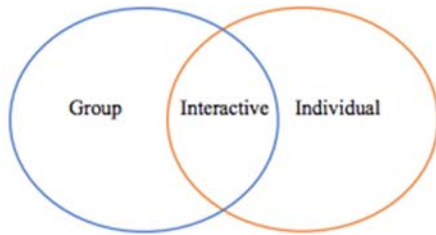


Fig. 12 Different types of personalization

As illustrated in Fig. 12, each of the individual, interactive and group spaces can be, directly and/or indirectly, in connection with one another. Consequently, it is vital to pay attention to the connection of spaces in the interior design of libraries since the core of personalization lies within the connection of spaces.

In subsequent, spaces for which the foregoing personalization methods have been adopted will be discussed. Analyzing the planes, one can imply that personalized spaces have been scattered or are included separately among inner spaces of the library. Spaces which require working with laptops and public study areas are examples of public spaces and some private spaces are located in the second floor and/or other separate parts of the floor. Additionally, partitioning of spaces can be done in various ways. What has been achieved herein for partitioning of spaces is illustrated in Fig. 13.

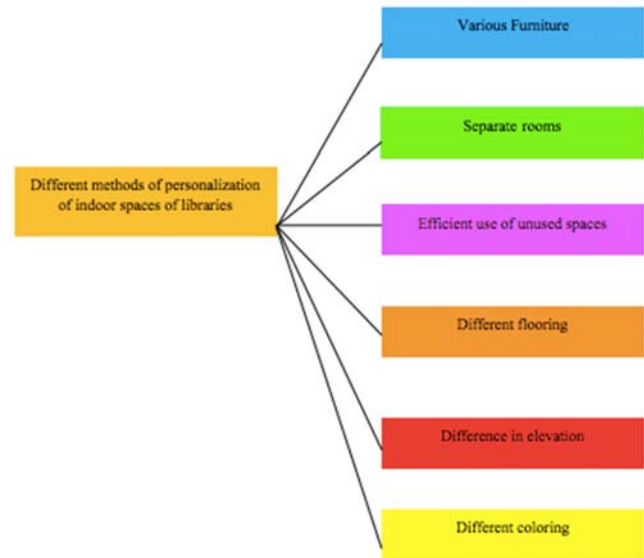


Fig. 13 Different methods of personalization

Paying attention to the above factors are important in personalization of spaces. Fig. 14 presents personalization methods based on the investigations.

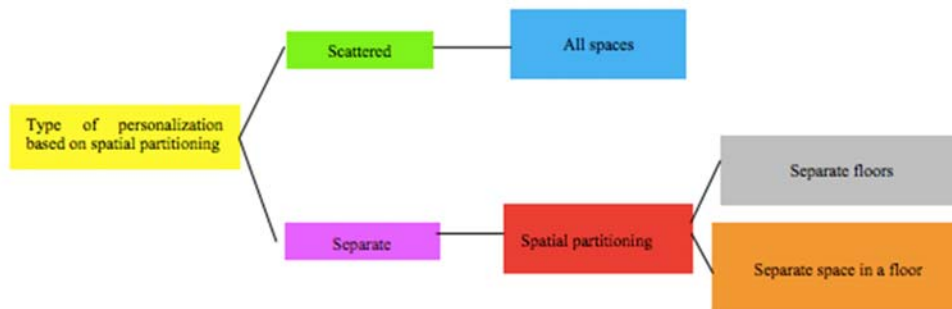


Fig. 14 Types of personalization

It can be generalized that personalization is one of the primary factors which demands further attention in public places. Finding an appropriate location for private sectors in public spaces is a challenging issue. In this study, findings from plan and spatial spaces of several case studies were discussed and illustrated in diagrams. These approaches can serve as a guide for interior-design architectures who seek creativity and innovation. In the meanwhile, new approaches with the ever-changing patterns and demands of societies are also other issues that creative architectures should have on their mind.

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