Participatory Design in Interior Architecture; A Proposal for the Factors of Adaptive Reuse with User Participation

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Abstract

Nowadays, we are facing a huge number of old buildings which are abandoned or become demolished due to a change in their function or loss of resistance. Meanwhile, adaptive reuse offers sustainable strategies in which by spending less energy and money, not only is it possible to use the capacity of the building, but also, in heritage cases, it increases attention to the values of the building and has cultural and social effects. In addition, the participatory design approach can assist the designer in improving efficiency by engaging the user in different stages of the design process. In this paper, the specified process in adaptive reuse, and participatory design in the building environment are studied by referring to the library sources. We identified how the user engages in design planning with the descriptive-analytical method.

Keywords: Adaptive Reuse, User, Participatory Design, Interior Architecture

1. Introduction

The wellbeing of individuals and communities depends on shelter, a sense of security and vitality, and the ability to form meaningful relationships and to have some sense of connectedness. The physical environment can sustain or obstruct these benefits, and interior architects can maximize lasting good outcomes through socially responsible design process (Smith et al., 2012).

In terms of philosophy and practice interior architecture is a discipline that is heavily (although not exclusively) involved with the remodeling and repurposing of existing buildings and so has an important role to playing the sustainable reuse of the built environment. This reuse finds expression in an enormously wide range of buildings and activities (Coles & house, 2007). Making alterations to existing buildings, by introducing new functions or tampering with their original structures, is an old practice: in the past, many solid and immutable buildings were transformed when different need arose without any theoretical issue (Robiglio, 2017).

Broadly speaking, the balance of design agency is shifting from the all-knowing designer who creates things that are good for passively grateful consumers, to a dialogue which involves more careful and systematic processes of user consultation, research, co-design, testing, evaluation and continuous redesign (Teixeira & Cordan, 2014).

Theory of place argues that to enable places to come into being, one needs to have the tools to understand how people relate to space; to their surroundings that already exist and to surroundings that they anticipate to have through planned interventions of themselves and others. One of the key issues of people's participation is that ordinary people think quite differently from the professionals and often professionals will find it difficult to delineate other people's

perceptions about the places of interest (Dayaratne, 2016).

Design approaches that attempt to link people, interiors and their environments are now highly challenged by processes in contemporary society, technology and culture. Interiors, in particular, are often regarded as mere commodity or a mass product, isolated from its physical or cultural context (Zagora, 2011). As a result, in this study, to prevent the mentioned damage and increase user satisfaction with the creative remodeling of the interior space, after studying the history of the subject and definitions, the way of building reuse and user participation in the design process will be explored.

2. Research background

In recent decades, many studies have been done regarding user participation in the design process. In the architecture field, Woolner (2009) believes that the potential benefits of participatory design include the altered environment itself and the participants over the short- and long-term period and the relationship between the actor and setting is the one with the long-term effect. He argued that the key to real participation happens in an ongoing dialogue with various people. There are various purposes in employing the participatory design approach to which Vinio (2016) points, like participants' mutual understanding of design processes, transparency, and democratic decision-making. The technology could visually give the stakeholders a better vision of the subject and enhances democratic decision-making. Lommerse (2014) mentions this great potential of community engagement and believes this subject can integrate into interior architecture education and its working field. For instance, Zingoni's study (2019) is on engagement of some interior architecture students with elementary school pupils through games, collages, model making, narratives of their models, and interviews and their influence in a studio in Arizona. In another study in the academic area by Lens and Cleempoel (2015) a design assignment on the reuse of a monastery was organized for which students had to develop a master plan while external experts and various stakeholders were involved throughout the process. He believes that students should take a stand or participate as civil citizens because the issues concern them both as architects and citizens.

In addition, some studies have been done on user participation in heritage preservation. In one of them on heritage cases in Hong Kong, Chun (2010) discusses that the success of public engagement lies in identifying the varying involved stakeholders, their needs, and perceptions and then balancing their interests through conflict analysis and resolution mechanisms. In another study, Leong and Janssen (2022) used a web application prototype for citizens to upload proposals related to a heritage conservation case to see their votes and engage them in decision-making.

Despite the existing studies in architecture, heritage preservation, and the importance of user participation in the decision process at different levels, little research about the factors of adaptive reuse along with user participation exists. This paper's attempt is in this respect.

3. Theoretical foundations

3.1. Architecture

Architecture in its nature is shifting reversibly between theoretical and practical domains, inherently participatory, and acts as a social situation. Architecture is a comprehensive method of thinking and action, expanding theoretical knowledge and practice into one activity that is embedded in its (social) context (Katoppo & Sudradjat, 2014). We are observing new categories of practices emerge and more community stakeholders to be part of the design process. Architecture is no longer limited to being an exercise in the manipulation of form and the realization of function; instead, it is taking upon increasingly significant place in the resolution of real-world conflicts and problems (Kee, 2015).

3.2 Interior architecture

The term 'interior architecture' emerged in the 1970s as the description of a discipline that employs architectural theory, history and principles in the design and creation of interior space (Coles & House, 2007). In environmentally responsible practice, the discipline of interior architecture is defined as the relationship between person and environment. Opportunities for improving the quality of people's environment, and their interaction with it, are enhanced

when the actual and potential forces that impact on life are understood and included in design (Smith et al., 2012)

Interior architecture is a field that has much to contribute to the discussion and practice of social sustainability. The values and spiritual aspirations of the people should be complemented in their interior environment, and the processes and activities involved should respect their history, current needs and future potential beliefs and rituals (Smith et al., 2014).

3.3. Adaptive reuse

Changing and repurposing existing buildings for their continued use was quite common in the past and structurally safe buildings were adapted to meet new functions and needs (Masoud & Einifar, 2020). Adaptive reuse is relevant to the current climate change adaptation agenda because of its ability to recycle resources in place (Conejos, 2013) and there is no doubt that adaptive reuse is one of the most effective ways to promote new urbanism and resist urban sprawl (Stas, 2007).

When you design for reuse, you are in a completely different mindset. Place is already there, encumbered by existing structure, sometimes polluted, always loaded with dense memories, old pride, and new hopes, and often without any actual economic concept (Robiglio, 2017). To find suitable programs we need to understand current contextual demographic, ecological, economic and technological transformations. Architects and designers can play a role in analyzing transformations of the building and its context and in establishing suitable programs. Their scenarios and visualizations can open up a debate with all stakeholders (Lens & Cleempoel, 2015).

3.3.1. Adaptive reuse priorities

According to Masoud and einifar (2020), there are four main adaptive reuse priorities extracted from the reviewed literature: host space function, programmatic approach to new use, technical requirements and design-oriented strategies and solutions. These theoretical priorities do not negate each other; in fact, they are rather complementary. However, if one of them gains more importance in the process it can lead to many losses and one of most important ones besides the others is ignoring the human presence and its needs.

3.3.2. Adaptive reuse process

The given situation- location, existing buildings, site specific assets and infrastructures- is the starting point. Instead of being an obstacle, it is the frame in which reuse will happen and which will make reuse possible. To make the most of this potential, the reuse project has to find the best mutual adaptation between use, users, and spaces. This brings us to the core of successful adaptive reuses: an effective distribution of activities and spaces within and around the existing adapted container (Robiglio, 2017). The approach or the plan for the building is influenced or based upon the factors discovered within the analysis of the original situation. This strategic rapport can be catalogued into three general classifications: intervention, insertion and installation (Brooker & Stone, 2018).

The design process, which is based on analyzing, finding out, and understanding the dynamics of existing built environments and re-using them as physical entities can be generally summarized as: design research, analysis, identifying an appropriate function, programing, developing initial ideas and concepts, developing the interior architecture design proposal, detailing, visualization, and construction.

After gathering information about the site, subject, place, and people who are supposed to use the design proposal being developed, in the analysis process, the first step of redefining the new functions of an existing building includes the tasks below:

- Information gathering (written and/or visual) and documentation
- Determination of past uses
- Determination of the contextual relationship between the building itself and its existing natural, cultural, historical, and architectural environment
- Analysis of the physical condition, structural character, and space organization

- Definition of interior and exterior architectural characteristics
- Determination of physical traces and periods
- Investigation of the building's potential in terms of new spatial, functional, and structural interventions
- Determination of the value given to the new uses of the existing building through contextual parameters.

The second step focuses on giving an appropriate function to an existing building. In this step, these are the issues to be handled:

- Decisions about the new use while considering the contextual, cultural, architectural, symbolic, structural characteristics, and so on
- Adaptation of new spatial, functional, and structural interventions to the existing use and intrinsic characteristics of the building.

The following step deals with developing initial ideas and concepts for the new adaptive reuse design proposal. The identification of contextual features – including the building and its environment, physical and historical period traces, and also any special characteristics – is the key factor that guides the designer. In the light of these features, the design process is completed by dealing with the issues below:

- Decisions about the design scenario and concepts
- Layout organization
- Space organization
- Structural and technological insertion
- Constructing interior space atmosphere
- Decision, application, and detailing of lighting elements, furniture, material board, color schemes, and so on.
- Visualization of the design proposal through physical models and 2D and 3D representation techniques.

(Teixeira & Cordan, 2014)

3.3.3. The relationship with people and society

In this sense, remodeling of existing buildings is an exceptionally stimulating interior design task, which comprehends creating a fusion of innovative solutions and sensitivity towards the spatial and historical context. Contemporary interior interventions in existing buildings can enhance the idiosyncratic identity of a place, and at the same time emphasize the idea of continuity, linking past, present and future (Zagora, 2011). The architect and interior designer can understand the needs of the new users and combine this with a thorough knowledge of the existing to create a new and appropriate environment that is easy to use (Brooker & Stone, 2018).

Lommerse (2014) believes that the very nature of the work of interior architecture has the potential to make invaluable contributions in community engagement. For example, interior architects deal all the time with:

- The people–environment interface
- Very complex issues (using systems thinking), and integrating these issues throughout the collection and establishment of the brief or program, design phases, construction and on-site work.
- Interior architecture has the potential to connect communities to their culture through facilitating cultural expression in their interior spaces; through consultation we can open up the discussion and seek to engage the whole community in the development of place. Our ability to turn idea and concept into visual expressions and propose real spaces allows clear communication with the community.

3.4. Participatory design

Co-design, or participatory design, is about the meaningful involvement of end users in the design process. By taking account of a wider range of perspectives and experiences, we can design more inclusive – more innovative - solutions, products and services that are better suited to users' needs (Brookfield et al., 2016). Participatory design is hands-on democracy in action. It is grounded in the everyday places and lives of people. For over half a century it has guided us in understanding communities, honoring difference, creating vibrant neighborhoods and ecosystems, challenging environmental injustice, and fostering citizenship (Peña et al., 2017).

The purposes of participation have been more modestly defined to include information exchange, resolving conflicts, and to supplement planning and design. Participation reduces the feeling of anonymity and communicates to the user a greater degree of concern on the part of the management or administration (Sanoff, 2021).

Nowadays, public opinions have grown stronger than before, once there is more agility in the exchanging of information by people. In a broader sense, people's demands have been pushing designers to a change of attitude toward the public of their creations (Paes, 2017).

Participatory design is still developing and consequently, its research design tends to be quite flexible. But three basic stages are present in almost all participatory design research:

- Stage 1: Initial exploration of work

In this stage, designers meet the users and familiarize themselves with the ways in which the users work together.

- Stage 2: Discovery processes

This stage allows designers and users to clarify the users' goals and values and to agree on the desired outcome of the project.

- Stage 3: Prototyping

In this stage, designers and users iteratively shape technological artifacts to fit into the workplace envisioned in Stage 2.

The stages can be (and usually should be) iterated several times (Spinuzzi, 2005).

The need for change has three different actor perspectives: the society, the owners and the users of the building. From the societal perspective the preservation of the use value of a building is of utmost importance. A building must be attractive for different generations of users as a guarantee for a long-life cycle. The owner of the building would like to have a long-term profitability and for the users it is important that their core business will continuously fit the building offered (Geraedts et al., 2014).

3.4.1. The challenges of participatory design in architecture

- Decisions about the design scenario and concepts
- Layout organization
- Space organization
- Structural and technological insertion
- Constructing interior space atmosphere
- Decision, application, and detailing of lighting elements, furniture, material board, color schemes, and so on.
- Visualization of the design proposal through physical models and 2D and 3D representation techniques.

There are at least three significant challenges involved in using co-design approaches to design a building. Firstly, there are challenges in managing the changing role of actors in co-design approaches compared with more traditional approaches (Chun, 2016). In a participatory process, the first designer's role is to involve non-designers into the project (Schelings et al., 2020). In this respect, Calvo et al. (2022), by analyzing four participatory projects in the built environ-

ment, identified common strategies and tactics. Strategies include building trust and meaningful relationships, encouraging citizen participation, and activating citizenship, while tactics are employing immersion approaches, delivering sociocultural activities, and adopting a responsive approach.

Secondly, there are challenges for architects and designers in deciding which of the various tools and methods developed in participatory architecture to use at different design stages and for different types of projects (Chun, 2016). Sanders & Stappers (2014) introduces three categories of participatory methods applying in varying stages of the design process: probes, toolkits and prototypes. Probes are materials that have been designed to provoke or elicit response; for example, a postcard without a message. People use the toolkit components to make artefacts about or for the future. And prototypes are physical manifestations of ideas or concepts. Thirdly, there are challenges in ensuring that a high-quality design outcome is achieved in co-design approaches (Chun, 2016).

4. Method

The writers analyze the adaptive reuse approach in interior architecture, participatory design, and varying viewpoints in this respect. They try to adjust the adaptive reuse process by the participatory design. So, interior architecture and adaptive reuse, and then, user engagement in the design process are described. Collecting information in this study is based on library sources and written documents, in which the indicators in these two majors, challenges, and the way of planning the design process with the effect of user participation, are analyzed.

5. Discussion

5.1. Way of the user participation in adaptive reuse process

From Robiglio's study (2017), four main stages in adaptive reuse design can be concluded: design research, analysis, identifying an appropriate function and developing initial ideas and concepts. Furthermore, Chun's study (2016) reveals three challenging steps in building participatory design, including managing the role of actors, choosing tools and methods, and ensuring a high-quality design outcome. These three steps can be applied to the last two stages of the adaptive reuse design process. In the third stage, identifying an appropriate function, we should become familiar with some characteristics, such as culture. So, it is necessary to know the users, apply the right tactics and strategies to encourage them to collaborate in the process, and in general, manage their roles. In the fourth stage, developing initial ideas and concepts, the designer should decide about different aspects of the project, like creating an interior atmosphere, space organization, furnishing, and so on. To increase efficiency, they need to opt for suitable tools and methods to facilitate communication with participants and engage them in the process effectively. However, focusing on the participation of the user should not prevent a high-quality output, so the necessary measures should be taken to ensure that (Figure 1).

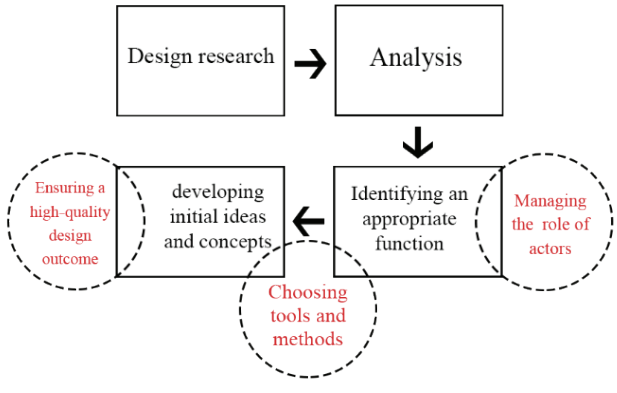

Figure 1: the combination of the building with stages of adaptive reuse design

5.2. The effect of the user engagement in the design planning

In adaptive reuse, the user seeks a space with different and better circumstances than before and they can guide the designer due to their experience of spending time in the existing place. This process, which is deployed and controlled by professionals, gives a deeper insight into varying aspects

of design to the designer. Therefore, this method not only contributes to the desired result and user satisfaction, but also assists the designer in the design process. At each stage, from selecting an adaptive strategy to interior details, the user plays an indispensable role. As a result, continuous dialogue with the user through the use of different tools and methods is essential.

6. Conclusion

To achieve the desired results in the adaptive reuse process, it is of great help to engage the user in the process. All actors, including society, the owner as well as the user, have different needs and challenges, which should be considered in the stages of identifying an appropriate function and developing initial ideas and concepts. With the help of participatory design, the designer is capable of having a better understanding of the building and its user. The user should be encouraged to actively present in the process and express their viewpoints through proper methods and tools. And in the end, we need quality control by professionals to ensure the output.

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