Community Architecture: Synergizing Public Space and Community Education

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Abstract. Architecture is not just about the physical entities of buildings; it is also about the space of human life and all its activities. This paper is a lesson-learned gathered from field experience in assisting rural communities in building physical facilities and initiating various community activities. The method used was Participatory Action Research (PAR), which is oriented to the community's needs. The research is conducted in Cibeureum Wetan Village in Sumedang Regency, Indonesia. Mentoring begins with the planning process, design, and construction of public spaces, i.e., buildings for children's learning activities, which gradually being developed into various community activities from all age groups, especially children, women, and adolescents. The participatory concept developed shows an increase in activities, strengthening social capital, productive economic activities, and collective awareness to optimize public space as a joint activity space. The value of architecture in a broader meaning is indicated by the positive connectivity between space and its users.

1. Introduction

Issues and problems of society in developing their community service activities frequently occur due to the system, and development policies are still centred on the government (top-down). There are many instances where the local community is involved but in a very limited manner. Public participation, however, could be done in various ways and levels, including through a bottom-up approach where the local community is directly involved in the process.

Developing countries such as Indonesia have a large population with a high level of social and cultural diversity. The nature of the local community, specifically in Indonesia, is a potential that could not be ignored and should be utilized maximally. The highest level of public participation spectrum [1] is empowerment, where the public decides what kind of development should be carried out. To ensure this, the community requires a communal movement that involves active participation from all stakeholders, especially the community as beneficiaries of various policy products both physically and non-physically.

The local community is generally more perceptive towards the culture, condition, challenges, and opportunities in the area that can be beneficial to the development. However, there are some aspects that the general population does not have the expertise and technical knowledge in sometimes. It can hinder the willingness and abilities of the local people to overcome the shortcomings of the development. Therefore, the community needs facilitation and encouragement that provides opportunities for them to
develop their own potential and environment. Architecture is part of a social movement that can be an alternative in developing community programs through participatory planning and design [2]. The challenge of participatory design is how to create sustainable learning for the community so that social change can occur with their own strengths and roles [3]. The research results presented in this paper have provided an overview of the synergy of participatory design with the sustainability of learning by developing the potential and values that exist in society.

This paper is a lesson-learned gathered from field experience in the "Rumah Pintar Program." The program itself is a series of projects and activities that aim to assist the rural community in constructing a building for community study space and initiating various community activities. This program develops Eein Sukaesih (1963-2014) idea, a female educator figure who had an extraordinary enthusiasm and strength in mobilizing awareness among various groups about the importance of public education despite her physical handicap. The total paralysis she suffered for 30 years due to Rheumatoid Arthritis did not cease her from providing education to children around the area where she lived. Her strength, love for children, and the world of education have led her to win various awards as an inspirational figure from the government and several non-governmental institutions [4]. The program continues to this day after her passing in 2014 and becomes her legacy to empower the local community.

This paper presents an overview of the direct involvement process since 2013 through the planning, design, and construction of public facilities in Cibeureum Wetan Village, Cimalaka District, Sumedang Regency. Through this program, various learning activities in the community, especially for children and women, are being developed.

2. Methods
This study used Participatory Action Research (PAR), which focused on the needs of the community. The research is conducted in Cibeureum Wetan Village, Cimalaka District, Sumedang Regency. This method is used because it has the power to conduct research, design with community involvement. The Participatory Action Research (PAR) method represents a practical approach that explores existing knowledge in a community through design, planning, research, and participation. The theoretical grounding comes from action research that integrates theory and practice and represents a proactive strategy in which research has political and social relevance [2] [5][6]

PAR is widely used in research on various issues, including the construction of public facilities and education. Although varied, there are underlying principles commonly shared between PAR projects, including the consensus to involve in the collective and individual action to solve community problems and give the benefits to the people involved. PAR also use to build a partnership between the researchers and participants in the planning, implementation, and evaluation of the research/project [7]. As it forms the cycle of continuous improvement, it enables both the researchers and the participants to identify the problems and address them to create a grounded solution.

The data was gathered using participant observations, interviews, and meeting communities to understand the community's needs, potentials, and problems. Communities are involved in planning, designing, construction processes, and designing program activities needed. The collected data was analyzed using the SWOT technique (Strengths, Weaknesses, Opportunities, and Threats). The analysis results are taken into consideration and solutions in designing and formulating programs and activities needed by the community.

3. Result and Discussion
Community architecture (community architecture) is one form of practice developed in various countries that underlies the planning and design of the built environment with a participatory pattern [8], [2][9]. The community, architects, and educators' involvement optimize the potential possessed as the strength of design [10]. Many programs and projects have been carried out successfully in this manner, especially in developing counties such as Thailand and Nepal [11]. The participatory planning and design paradigm does not only use rational technical approaches but also have moral and political elements, social justice, and citizen empowerment [12]. The participatory design reflects a more
progressive form of architectural practice in developing the future environment with all forms of community activities [13], [6].

Although there is the direct involvement of the professionals and parties outside the community, it has to be noted that the project is meant to empower the local people. Architects, researchers, and other professionals act only as facilitators for the community in the decision-making process and in managing the program. The program begins with the planning process, design, and construction of public space, i.e., buildings for children's learning activities, which gradually become the catalyst to other community activities from all age groups, especially children, adolescents, and women. They are vulnerable groups but have greater potential to develop various learning activities.

3.1. Planning and Designing Public Spaces

Community public space is a place to socialize, interact with one another, and carry out joint activities that can foster social capital power. However, the way it is designed and managed is not always ideal. The limitations of public space, especially in urban areas, often cause many problems in the community's social relations. Fortunately, unlike the city, rural areas still have enough open land to be used as public spaces. On the other hand, there is the privatization of public spaces by individuals or groups that diverts the functions of the public space into individuals or groups [14]. Therefore, the planning, design, and construction process should be done in a very democratic manner, where the communities have the platform to actively engage in the decision-making process. It is to ensure the community's needs are accommodated, and the public space is designed appropriately.

Originally, the development of children's study space in the Rumah Pintar Program was carried out in a very limited space belonging to Een Sukaesih before expanding into a larger area. This place was then designed and built to be a public open space for various community activities. As the program's concept is community empowerment, the schemes are carried out from the beginning by involving community leaders, government officials, and the surrounding community through meeting communities.

The community leaders, specifically the Head of the Village, act as the coordinator of the people. They also have a role in adjusting the existing village agendas and programs to ensure that the Rumah Pintar Program is in line with the community activities and needs. Other community leaders in the smaller scope, which are the heads of the Neighbourhood Unit (Rukun Tetangga and Rukun Warga, which also known as RT/RW); were responsible for coordinating the people on a smaller scale for easier task delegations and better monitoring. They also are responsible for being the middle person between the professionals, local government, and the people. Meanwhile, the rest of the people had various roles and responsibilities, from providing the materials to being the builders.

Interestingly, the women were also involved in bringing in the materials, which usually is done by men. On the other hand, the youth take part in being the tutor for the children and managing the place. Additionally, the local government helped in providing the fund for the project. The researchers, architects, and other professionals assist the whole process, especially in the need assessment and technical works. By maximizing local human resources and material resources, the project was able to minimize the development costs.

![Figure 1. (a) Community Meeting; (b) The design of Rumah Pintar (c) The 3D imaging of Rumah Pintar](image-url)
This public space was designed with the concept of uniting building space with outdoor space as a unit of activity. The natural environment in the form of fishponds and rice fields is a potential used as an environmental carrying capacity for the design. Discussions and need assessments were carried out with the community through several stages, resulting in two physical designs of buildings and outside space for outdoor learning and other productive activities. As the design process was carried out along with the community and the program itself is in line with the village agendas, it ensures that both the building and the activities are run sustainably. In addition, the community, along with other stakeholders, also founded the Rumah Pintar Foundation, which enables the community to manage the place and programs independently.

3.2. Alternatives Learning for Children

Besides formal education, Children need learning activities with their peers outside school, usually done in public space. Children need a more flexible learning environment and more open outdoor space to explore various information from their learning environment [15] [16]. Therefore, as the children's public study space, Rumah Pintar was designed to be open and interactive to maximize the surrounding environment. It elevates the concept of learning while playing and provides the children the opportunity to learn with fun.

![Figure 2. (a) (b) Children using a room in Rumah Pintar to learn (c) outdoor activity guided by tutors](image)

Alternative learning intended here develops the concept of non-formal education that can be followed by anyone. These learning activities are done under the guidance of tutors or by independent learning using available learning resources. Learning facilities are in the form of reading rooms, computer rooms, outdoor playrooms, performance halls, and various learning media in the form of books, playground equipment, musical instruments, and so on. Children who learn here are not tied to a schedule. However, several agendas have been prepared by the manager and youth volunteers to organize the use of space. The intention to provide local children a space for non-formal learning was not new. It was initiated by none other than Een Sukaesih. Along with the programs in it, the building is the manifestation to continue her legacy in education, especially for the local children. The enthusiasm shown by the children is the indication that the building was used for the intended purpose, especially since they were eager to learn and to be involved in various activities even before the building was erected. To this day, space was continued to be used to learn subjects taught in school and learn other activities such as art performances, music, and computer.

3.3. Women Empowerment

As the typical rural communities, Women in rural areas still hold to traditional values and have a strong connection with the community. They usually do many activities together, since they usually share the same occupation. In fact, it is usually women who are more tightly knitted in carrying out many activities. However, women's activities in public spaces are often faced with the unavailability of adequate space and the difficulty of access for them because women are still considered as a marginalized group [17]. Public space for women will be more powerful and attractive if it can facilitate various social, commercial, religious, and other communal activities [18].
The development of Community Space and Rumah Pintar Foundation is part of the solution to ensure that the women have an adequate space to carry out many communal activities. One of the major programs that Rumah Pintar offers is the production of local culinary products, which is marinated dried fish called kere jaer. It maximizes local women's potential to produce and sell their specialty products in a more organized manner. The program itself adopting the Group Based Entrepreneurship scheme (Usaha Berbasis Kelompok/UBK) and supported by UPI as the higher institution responsible for assisting the program. While the women in Cibeureum Wetan are mainly responsible for production, UPI provides assistance in providing the business with the equipment such as the drying machine. UPI also helps women to expand their business scope and build the marketing system. In fact, they are in the middle of developing the marketing system in the marketplace and e-commerce to adapt to the condition caused by the COVID19 pandemic.

Figure 3. (a) Community meeting with the program facilitators; (b) Composting Process (c) The process of Kere Jaer production.

The synergy of activities carried out in the same place with different time arrangements has shown the importance of public space for rural communities. Education and assistance for developing various social and commercial activities have increased enthusiasm and more diverse activities. Some training such as environmental management and training to develop local potential-based businesses have helped strengthen the women's business groups.

It has to be noted that participatory development is highly dependent on the people's desirability and the productivity of the system [19]. However, in this case, the social capital emerged from the women's interaction has a significant impact on creating people's willingness to come together in building their community. The people, especially the women, are no stranger when it comes to participating in various communal activities. In fact, they also are used to assist the construction of public facilities even though normally the tasks are done by men. The benefits generated by local women's productivity also help encourage them to stay involved and be empowered by the program. It creates a symbiotic mutualism between the program and the community. While the community, especially the women, are the powerhouse of the program in which they also help to sustain both the physical space and Rumah Pintar Foundation, the program provides space and facilities for them to carry out the community activities.

4. Conclusion
The value of architecture in a broader meaning is indicated by the positive connectivity between space and its users. Participatory design has made a positive contribution to collective awareness of rural communities in planning, designing, maintaining, and using public space for productive activities. This public space can also facilitate learning society and lifelong learning, with various community learning activities ranging from children, adolescents, adults, and the elderly. The participatory concept developed shows an increase in types of activities, strengthening social capital, productive economic activities, and the growth of collective awareness to optimize public space as a joint activity space.

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