Designing and Building a Digital Literacy Park for Children in Ndalem Pulosari

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Abstract. Ndalem Pulosari is a subsidized residential area by the government located in RT 02, Pedukuhan Krebet. This residential area is predominantly inhabited by young families with small children and toddlers. The abundance of children in this settlement who are familiar with gadgets poses a problem for parents, as they are still in the process of learning how to care for their children. Therefore, an effort is needed to guide children in using gadgets appropriately according to their age limits. Enriching digital literacy in children is one of the methods that can address this issue. This service project focuses on designing and constructing a park that includes digital literacy enrichment for children, combined with various educational games to reduce children's dependence on gadgets. The applied method in this service project is Direct Action and Together Learning. The direct involvement of the community is crucial in determining the agenda of this service project. Some of the community engagement techniques include Participatory Rural Appraisal and Focus Group Discussion. This service project is in the initial phase of building the digital literacy park, so the outcomes of this project are currently limited to building design and material preparation.

Keywords: children, digital literacy, preschool

1 Introduction

Ndalem Pulosari is a residential area dominated by young families with small children and toddlers. There are at least 23 toddlers, 20 elementary school children, and 4 middle school children. The first issue arose when children and toddlers in the settlement frequently watched and played games on their parents' gadgets while their parents were engaged in domestic chores or work. However, research conducted by Vitrianingsih et al. (2018) states that the development of preschool children is greatly influenced by the duration of dominant gadget use. The second issue is the presence of unused vacant land owned by the housing complex. This is due to the high cost required to utilize the vacant land, while fundraising efforts only rely on the collection of "ronda" funds amounting to Rp 500,-, which is voluntarily contributed during routine night patrols. The final issue is the lack of social interaction between the residents of the housing complex and the surrounding community. According to Cahyono et al. (2010), social interaction between housing residents and the local community is greatly influenced by physical factors, such as the location of the housing complex, in terms of accessibility, availability of facilities and infrastructure, and even the shape of the fence. This is due to the limited shared interaction

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spaces that can foster a sense of togetherness between the housing residents, most of whom come from outside the Krebet village, and the residents of the surrounding village. Based on the situation that has been described, the problems, solutions, and targets on the community service agenda can be seen in Table 1.

<table>
<thead>
<tr>
<th>Problem Area</th>
<th>Problems</th>
<th>Solutions</th>
<th>Targets</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education</td>
<td>Lack of Digital Literacy regarding smartphone use</td>
<td>Provide space as a center for digital literacy</td>
<td>Digital literacy park</td>
</tr>
<tr>
<td>Psychology</td>
<td>High duration of gadget use by children</td>
<td>Providing children's themed books, Providing educational games for children</td>
<td>Availability of sufficient reading material and adequate play media</td>
</tr>
<tr>
<td>Governance</td>
<td>There is no design or plan for the use of vacant space/land</td>
<td>Design of space utilization plans, Digital Literacy Park site plan</td>
<td>Availability of design and site plan</td>
</tr>
<tr>
<td>Social</td>
<td>There is a lack of social interaction</td>
<td>The use of digital literacy parks for togetherness</td>
<td>Regulatory documents/ SOPs for using digital literacy parks</td>
</tr>
<tr>
<td>Institutional</td>
<td>There is no joint management in managing public space</td>
<td>There needs to be joint management of public spaces</td>
<td>Formation of a joint management structure for public spaces</td>
</tr>
</tbody>
</table>

2 Topic and focus

Based on the background outlined in the introduction, the focus of this community service project is on the development of a digital literacy and play park for children. With this topic, the issue of utilization and management of vacant land is resolved by utilizing the land as the location for the literacy park. The problem of limited interaction among residents is also expected to be overcome with the addition of public facilities that will be collectively managed. Meanwhile, the literacy park itself will address issues concerning children, with the hope that the facilities within it will divert children's attention away from gadget use. In its implementation, this community service project has not fully accompanied the community until the literacy park is established. The final outcome of this community service project is the fulfilment of the digital literacy park design and the collection of materials to be used. Further assistance is needed to ensure the establishment and operation of the literacy park. The methods, program implementation, and challenges will be described in the following points.

3 Program implementation

The implementation of the community service program will be explained in the following points, which include: socialization and coordination, measurement of the land to be developed, construction project management of the literacy park, inventory of material needs, and material preparation.
3.1 Socialization and coordination

The socialization and introduction of the community service team were conducted through a gathering forum between the team and the residents. During the agenda, several issues identified during the observation were also discussed. The meeting was attended by the community service team and representatives of the residents who played important roles in the housing community. The outcome of this forum was focused on finding solutions to prioritize issues.

![Figure 1. Socialization and introduction of the community service team](image)

3.2 Construction project management of the digital literacy park

The construction project management training was conducted with the aim of ensuring a measurable and well-directed process of building the digital literacy park. During this training, residents were also accompanied in creating the design of the digital literacy park. Additionally, to reduce the risk of accidents during the construction process, residents were also introduced to the basics of health and safety at work.

![Figure 2. Construction project management of the digital literacy park](image)

3.3 Digital literacy park design

The vacant land to be constructed is divided into two parts, the front, and the back (Figure 3), with a difference in elevation. The following are the modelling results for the condition of the vacant land.
The vacant land has a height difference between the front and the back.

The design result of the digital literacy park consists of two main buildings, namely the upper building and the lower building. The elevated front area would be used to construct a reading space equipped with various children's books arranged on shelves or cabinets. The cabinets would include storage for a Smart TV, projector, and writing tools to support children's cognitive development towards digital literacy. The lower back area is planned to be developed into a children's playground with various games. This park serves to divert children who are accustomed to playing with gadgets. After efforts to reduce children's gadget usage, parents are expected to guide or provide stimuli for children to move to the upper area where there are plenty of reading books.

Figure 3. The vacant land has a height difference between the front and the back.

3.4 Measurement of the land

The location measurement was conducted together by the residents. This measurement activity is important to be carried out considering that during the observation, the boundaries between the land intended for the digital literacy park and the land owned by the surrounding residents were not very clear.

Figure 4. Digital literacy park design
3.5 Material preparation

After the process of measuring the boundaries of the land was completed, the next step was to inventory the required building materials. Material preparation was done by inventorying the needs, purchasing the materials, and transporting them. The collected materials can be seen in Figure 6.

4 Challenges of community service.

The implementation of the construction of the Digital Literacy Park and Children's Playground in Ndalem Pulosari faced several obstacles. One of them was the attention focus of the residents. The ongoing construction of a shared warehouse on another vacant land within the housing area has become the top priority for the residents in improving the utilization of the vacant land they own.
Figure 7. The construction of a shared warehouse, which is still the focus of the residents.

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