Introduction to Children's Play Spatial Space with a Behavioral Approach Based on Shape, Color and Texture

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Abstract. Children's world is a world of play and fun for children. When playing, children need space to move and be creative to develop their creativity and imagination. Through play, children can recognize shapes, colors and textures which can then increase their creativity. Play activities are a learning process for children to explore their movements and body movements, so children need space that can facilitate all their movement activities. Children can recognize their spatial space based on a behavioral approach through the process of recognizing shapes, colors and textures. Children's perceptions in using their spatial space can form patterns and behavior through the process of seeing, observing, getting to know space and then exploring space with their imagination. The problem that can be developed is how children can recognize their spatial space by looking at their movements and behavior through recognizing shapes, colors and textures. The goal to be achieved is to determine children's spatial needs through the implementation of children's learning room designs that are oriented towards recognizing shapes, colors and textures using play methods. The approach is taken by observing and observing the spatial needs of children's play space which is then analyzed. Observation results show that children tend to be able to recognize their spatial space by recognizing the shapes, colors and textures found in the room. Children's ability to recognize shapes, colors and textures can increase their imagination of space which can then develop children's motor skills, literacy skills and can guide children's emotions. with a behavioral approach

Keywords: children's spatial space, play, shape, color and texture

1. Introduction

Playing is the most important activity for young children. Playing can provide stimulus for the development of the body and the development of knowledge. Playing can be a means of changing the energy potential within children which will form various kinds of mastery in future life, [1]. The playing, children gain experience in knowing the world and the environment. An

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effective way of learning for children is through playing, because the transfer of knowledge that is easy for children to carry out is playing while learning,[2].

Playing is a child's world and a fun activity, by playing children learn various basic abilities such as, children will be physically trained, cognitive abilities will develop, language skills will develop and the ability to interact with other people will develop, [3]. One form of play activity that can develop children's imagination and creativity through introducing space. Spatial space for children can develop with the child's understanding of space through spatial cognition with the spatial mapping process. This process is to help children get to know space through the availability of access or visual recognition in space.

Children's spatial space is a movement space that must be facilitated by schools to accommodate children's movement and physical exercise freely and cheerfully. A child who knows his space means the child has intelligence. This intelligence can develop through children's visual observations of space, so that children have the ability to understand, process and think to translate space into images of their minds in two or three dimensions. Spatial ability is seen as a type of intelligence or ability that is unique and different from other abilities, such as verbal ability, reasoning ability, and memory ability, [4]. The planned room must be flexible, not too dense, and supported by bright, light and neutral colors, [5]. Children's spatial space must be able to stimulate imagination and accommodate various children's behavior, [6].

2. Research Methodology

2.1 Research Location

The research location is located in TK Al-Muttaqien, Medan. Figure 1 is a map of the research location.

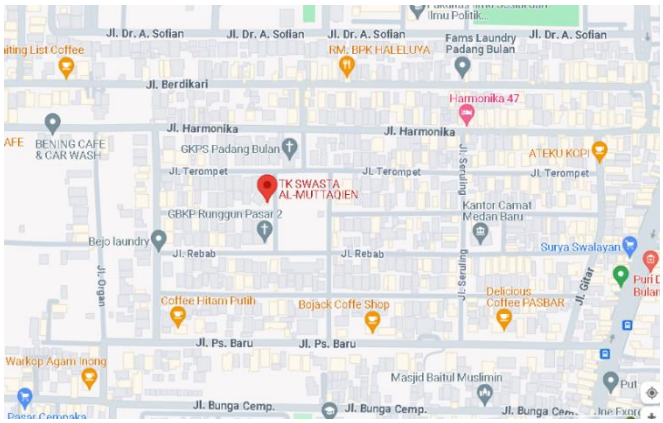

Fig. 1. Map of Research Location

2.2 Research Analysis

The analysis was carried out based on primary data based on surveys and observations at school, while perception data was obtained through direct observation of children's activities in using

the classroom. Next, interviews were conducted with teachers to strengthen the data obtained. Data were analyzed using qualitative descriptive methods to describe children's perceptions and views of space. Early childhood activity data was obtained using the place-centered behavior mapping method in each spatial setting studied, [7]. Determination of room settings is carried out by considering the high intensity of children's activities.

2.3 Situation and Conditions of Research Locations

School for children is a place to play and learn to develop creativity. At school children will get information about space and their environment. One of the schools that is a center for children's play and creativity in developing their imagination is Al-Muttaqien Kindergarten (TK) in Medan City. The condition of the school is in a residential area and has easy access. Physically, Al-Muttaqien Kindergarten has a permanent building consisting of several classrooms for children's learning rooms, Fig. 2. The number of classes available are three classes divided based on the age of the child, namely the three to four year old class (class B) and the age class five to six year old children (A) in two classes.

Fig. 2. Situation and Conditions of Al-Muttaqien Kindergarten Outdoor Space

3. Results and Discussion

3.1. Existing Classroom Conditions

Classrooms have direct access to hallways and other learning support spaces. The classroom is equipped with tables and chairs, a blackboard, and a cupboard to store games, Figure 3.

Fig. 3. Situation and Conditions of Al-Muttaqien Kindergarten Outdoor Space

3.2. Analysis of Children's Spatial Space Based on Psychological Aspects

Based on the physical analysis of the space, it can be concluded that the existing space is less attractive. The use of warm white color on the entire wall surface is less attractive, modification of the color combination is needed so that the space becomes more attractive and has an attractive impression. Warm white is a cheerful color, but is less attractive to attract children's interest and less inspiring for children. Walls are an architectural element that can play a big role in children's cognitive development, [8]. Below are the conditions of the children's study room, shown in Figure 4 and Figure 5.

Fig.4. Use of Shape, Color and Texture Elements

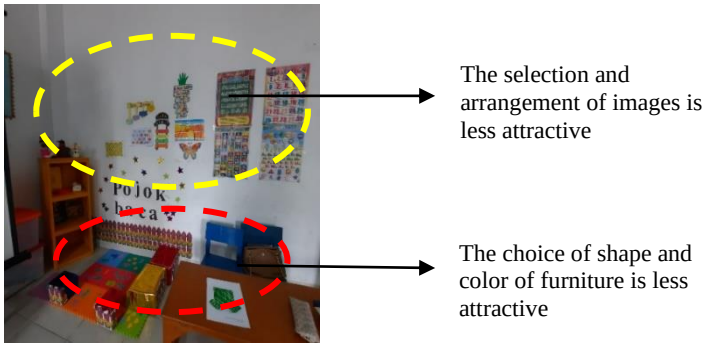

Fig. 5. Use of Shape, Color and Texture Elements

The design process is carried out by analyzing the child's needs in utilizing space based on the child's behavior and psychological aspects of the child. By paying attention to the psychological aspects of children, the resulting design can give the impression of a natural, pleasant and meaningful space. In the psychological aspect, there are several aspects that can be developed, namely the child's cognitive, affective and psychomotor skills. These three aspects can create the impression of a natural, enjoyable, challenging and meaningful space that is appropriate to the child's development and personality characteristics.

The psychological aspect in terms of the child's cognitive value or knowledge is the child's experience of space which can increase the development of the child's knowledge. Cognitively, design elements can be used to increase children's knowledge of space through recognizing lines, shapes, sizes, colors and textures. The design elements used can create the impression of

a natural space, namely that the space created is designed according to the dimensions of the child's body and design processing needs to be carried out so that the space created is more attractive and enjoyable for the child. Apart from that, the impression of the space is also pleasant because the space is designed taking into account location and distance so that children can easily recognize the space. By creating a pleasant space, the space becomes meaningful, namely a space that is designed according to the specified function.

The psychological aspect is viewed from the affective value, namely a space that can control the child's emotions and feelings so that the resulting space has value for developing the child's character. Design elements that can be used are shape, size, color, light and texture. From the affective value, the resulting spatial impression is natural and can be realized. The room is designed taking into account the child's body posture which can influence the proportion and layout of furniture in the room. Apart from that, the resulting space impression is pleasant through color modification and material selection according to the child's characteristics. From the above, a space that is designed by considering affective values is a space that has meaning because it applies a proportion scale to the child's body and takes into account the choice of colors and materials in the design.

The psychological aspect is viewed from the psychomotor aspect, namely the space is designed taking into account the child's movements. The space is designed taking into consideration the shape of the space, the width of the space, the length of the space, the interior construction used and the selection of materials. Space design must consider the physical space created and adapt it to the child's body posture.

3.3. Concept of Space Based on Children's Spatial Behavior

The main concept used is "play and learn", this concept was chosen because childhood is a time of playing activities. All learning processes are carried out by playing. From this concept, the concept of space can be structured based on the child's behavior in terms of the child's body size (anthropometrics), the child's social interaction distance (prosemics), the child's personal space (privacy), and the desire to protect himself by setting distance (territoriality). The following is a concept of space arranged based on children's spatial behavior, Table 1.

Table 1. Concept of Space Based on Children's Spatial Behavior

Behavioral Theory	Spatial Behavior	Design Response
Anthropometric	Physically, children's bodies experience development at school age	The design of the room and furniture is appropriate to the child's age and the anthropometric standards of normal children at school.
Proxemic	Intimate distance, personal distance, social distance and public distance vary	There is a need for space arrangements that take into account the proximity distance according to the child's class
Privacy	As children get older, their spatial behavior and privacy also increase	There is a need for privacy space for children, for example providing lockers for children so that they can use the space according to their privacy needs.

Territoriality	Children develop behavior and territoriality intuitively and consciously.	Interior space that provides space for children to mark their territory. This can reduce aggression, increase control, and generate a sense of order and safety.

Anthropometrics is a calculation of an early childhood child's body that is used to create an ergonomic space, namely a space that suits the child's body size. Children experience physical development at each phase, therefore there is a need to differentiate the interior arrangements for each class. Proxemics is the distance that is considered the most pleasant for carrying out social interactions. Each child has different distances in interacting based on the child's age stage. As children get older, children also need privacy space. Determining privacy space for children is related to proxemics and the child's personal space which is determined based on the child's age and gender. The child's personal space will increase as the child gets older.

3.4. Children's Spatial Space Design

The children's spatial design is designed based on the elements of shape, color and texture. The space is designed with aesthetics, comfort and security in mind. The use of bright colors can create a pleasant impression for children. Using varied shapes in furniture can increase children's exploration of an object shape. The dominance of attractive colors can arouse children's enthusiasm for playing and learning. This is accompanied by the dominance of cheerful colors with attractive color gradations that add to cheerfulness and raise children's enthusiasm for playing and learning. The use of wall decorations by choosing attractive shapes adds to the aesthetic value of the room and makes the space more attractive and interesting. The following are several illustrations of room designs for early childhood, Fig. 6.

Fig. 6. Use of Shape, Color and Texture Elements

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