

A Study of User Behavior in the Parent-Child Reading Area: A Case Study in Taipei Public Library

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Abstract. A library is a crucial place for children to learn. However, different environmental designs have differing effects on users. We used the Taipei Public Library (Main Library) as case to explore the environments of different reading areas and parent-child user behavior. Field survey and focus group methods were used to observe and analyze factors influencing parent-child interaction. The research results indicated that the table shape affected parent-child interaction. For example, a table in a shape of flower enabled the parent and child to work individually, whereas a round table improved parent-child interaction. Children tended to sit or stand by the bookshelf for reading. Comfortable and undisturbed reading space is the primary factor in seat selection by the users. Secondary factors included the dimensions of the table and chair set, style of the table and chairs, and illumination.

Keywords: Library · Reading environment · Focus group method

1 Introduction

Lushington and Mills (1980) reported that children's first impression on the library affects their subsequent user behavior and willingness to use the library. Thus, the spatial development of the reading area for children is crucial. The library space for children can attract children and satisfy their various reading needs. In the use of furniture, durability is necessary. Combined with lighting configurations, the space can create a safety and heart-warming (Sannwald 2007).

Wang (2007) suggested that a library should periodically evaluate the physical environments of each area in the library, including illumination, layout, traffic flow, and use rate, to promote the use of each area. The Taipei Public Library has undergone spatial planning and renovation of the Daan Main Library since 2002. In recent years, the overall spatial reform or local equipment update of child reading area is undertaken in each division library (Hung and Lin 2013). Thus, we used design intervention to explore the use of child reading area after renovation.

1.1 Objectives

The Main Library was used as the example of design intervention to explore the environment of different reading areas and the user behavior of children. The objectives of this study are listed as follows:

1. Observe and record the environment of different reading areas and parent-child user behavior by using a field survey method.
2. Analyze the parent-child user behavior and possible causes of such behavior by using a focus group method.

2 Literature Review

In addition to furniture such as tables, chairs, and book shelves, a comfortable reading environment is also affected by environmental factors, including indoor color and lighting. We explored the furniture and arrangement, and lighting in following sections.

2.1 Furniture and Arrangement

Furniture in the child reading area should conform to children's body size. Overly high or large furniture easily cause a sense of pressure and threat to children (Sannwald 2007). Comfortable chairs not only help maintain the balance and stability of upper limbs, but also help children concentrate (Allen et al. 1996).

Altman (1975) indicated that territorial behavior of personal space is a main approach to obtain privacy. People required different levels of privacy according to the time, location, and activity. In the reading room, different configuration of table and chairs, distance between table sets, and distance between table sets and bookshelves affected reader requirement of privacy (Tai 2009).

2.2 Lighting

Lai (2008) reported that lighting has positive attraction to children. Research has identified that children perceived that lighting and color of a library affected their willingness to access the library. Bright lighting generates a sense of safety and positive attraction in psychological aspect. Libraries can create a comfortable and cozy reading atmosphere through lighting of various levels of brightness (Sannwald 2007).

3 Methods

This study comprised two stages. The first stage was the field survey method. A non-participatory observation method was used to record the children's user behavior in different reading areas. The second stage was the focus group discussion method.

A group discussion on the observation outcome of the first stage was conducted to analyze the possible cause of the user behaviors.

3.1 Field Survey

We visited a child reading room at the first basement floor of the Main Library of the Taipei Public Library. The user behaviors (use condition and location selection) of the children and caregivers in the reading space (furniture, environmental color, lighting, and concealment) were observed and recorded using photographing, video recording, and written record.

3.2 Focus Group

The focus group method was used to analyze the result of the first stage. Six graduate students studying product design or architectural design for an average of 6 years were recruited to analyze the possible causes of the different user behaviors in the various reading areas.

4 Results

4.1 First Stage: Field Survey

In this study, we divided the child reading room at the first basement floor into four areas, which were (1) staircase reading area, (2) child reading room, and (3) book reading area. The observation record and result of each reading area is provided as follows.

- (1) **Staircase reading room** (Table 1).
- (2) **Child reading area** (Table 2).
- (3) **Book reading area** (Table 3).

Table 1. Observation record of the staircase reading area

Environment description	User behavior	
	Caregiver and a single child	Caregiver and multiple children
<ul style="list-style-type: none"> • Three high and two low round tables • Warm-white lighting 	<ul style="list-style-type: none"> • Doing homework or leisure discussion is the primary task 	<ul style="list-style-type: none"> • The caregiver sits at the position nearest to the aisle. Younger children sit in more concealed position

Table 2. Observation record of the child reading area

Environment description	User behavior	
	Caregiver and a single child	Single child
<ul style="list-style-type: none"> • Six flower-shaped tables and two round tables. Stair seats are set at the rear • Bookshelves are at both sides of the right and front area • Warm-white lighting 	<ul style="list-style-type: none"> • The caregiver sits beside the child • The caregiver uses the cellphone and reads newspaper without joint reading behavior when accompanying the child 	<ul style="list-style-type: none"> • In addition to reading, most of the children in this area do homework

Table 3. Book reading area

Environment description	User behavior		
	Caregiver and children	Single child	Multiple children
<ul style="list-style-type: none"> • Two round tables between the bookshelves • A sitting area is provided in front of the bookshelves. Movable chairs are available between bookshelves • Warm-white lighting 	<ul style="list-style-type: none"> • The caregiver faces outward while the child faces inward reading 	<ul style="list-style-type: none"> • The child tends to sit at concealed places between bookshelves • Most of the children read near the bookshelf 	<ul style="list-style-type: none"> • When there are two children, they sit between the bookshelves in diagonal positions

4.2 Second Stage: Focus Group

The following discussion focuses on the environments and user behaviors of the four reading areas. Possible causes of such user behaviors were proposed.

(1) Staircase reading area.

1. The users prioritized selecting tables no. 1, 4, and 2 (Fig. 1). A possible reason was that the tables no. 1, 4, and 2 (Fig. 1) were designed conforming to users' body size and the lighting was installed above the tables.
2. The users picked the middle seats last (table no. 4 and 5, as shown in Fig. 1). A possible reason could be that activities on the seats easily disturb people on other seats and sitting on the seats was easily disturbed by others.

(2) Child reading area.

1. Parents and children sitting at the flower-shaped table exhibited less interaction compared with those sitting at a round table, possibly because the

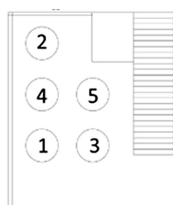


Fig. 1. Floor plan of the staircase reading area

flower-shaped table separated parents and children, generating a sense of isolation.

2. Round tables were less occupied possibly because of the placement at the main traffic flow of the library. Sitting there was easily disturbed by people passing by.

(3) **Book reading area.**

1. When reading, the children tended to sit or stand by the bookshelf. This was possibly because children easily forgot where the book belonged to after finishing reading the book.
2. In addition to reading at a place near to the bookshelf, the children also read at a corner. A possibly reason was that the children were not easily disturbed by people walking by or stared at.

5 Conclusion

We used nonparticipatory observation method to record user behavior in the child reading areas. The focus group method was used to analyze the user behavior and possible causes. The research result is shown as follows:

1. The shape of the table affected parent-child interaction. For example, flower-shaped tables separated parents and children, whereas round tables improved interaction.
2. The children tended to sit or stand by the bookshelf reading. Thus, arranging seats with high degrees of freedom that children can move easily conforms to the children behavior of reading by a bookshelf directly after picking a book.
3. Comfortable and undisturbed reading space is the primary factor for a user to select a seat. Secondary factors include the dimensions of the tables and chairs, style of the tables and chairs, and lighting.

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