

Usage Comparison of Childcare Support Facilities with Different Floor Material and the Arrangement Corner Portion

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Abstract

In recent years, it has been promoted the installation of childcare support facilities for 0-3 years old which have a variety of building types. However, there are no specific provisions in the indoor space, the space construction is determined based on the management policy and staff experience of each facility. This paper aims to clarify the influence of playing on differences in floor material and the arrangement corner portion in childcare support facilities. The first step in the survey process was implemented in questionnaire survey on childcare support facilities building form, scale and floor finish, etc. The survey is 140 childcare support facilities that have been installed in the Yamaguchi Prefecture in April 2014. The survey result was received responses from 102 facilities. The second step was implemented in action observation survey on facilities user in 2 facilities of differences in floor material. The results are as follows;

- 1) Many facilities have flooring only or of flooring and tatami as floor material of the playroom.
- 2) In the playroom which has only flooring, 0-year-old children spend the time at the space where a mat laid out. However, the boundary between the floor with a mat and other infants of the different age play in various kinds of way in the same space.
- 3) In contrast, in the playroom, flooring and tatami is clearly divided. Therefore, space has been used according to stage of infant development. For example, children more than 1-year-old play dynamically in flooring and 0-year-old children crawl and play statically.

Keywords: Childcare support; Space composition; Floor material; Corner placement; Usage

1. Introduction

Childcare support facilities for 0-3 years old have been promoted the establishment as a part of countermeasures to the falling birthrate in Japan. These facilities have a variety of building types.

The playroom¹⁾ specified in guideline for childcare support facility as follow; Securing area which can be used at the same time by 10 pair of parents and children. Arrangement corner portion is also specified in it. As follow; Installing nursing corner, sink, crib, play equipment and other plaything which can be used by users with infants.

However playroom area and floor material varies by facilities. Similarly, the number of users in these facilities varies by the time and day. Therefore, the space construction is designed based on the management policy and staff's experience of each facility.

2. Purpose and Method

The purpose of this study is to clarify the influence of playing on differences in floor material and the arrangement corner portion in childcare support facilities. We grasp relation between building form, playroom area and floor material from plural facilities. Then, we compare the usages in playroom by the development stage of the infants and the play based on actual cases.

The first step in the survey process was implemented in questionnaire survey on childcare support facilities building form, scale and floor finish, etc. The survey object is 140 childcare support facilities that have been installed in Yamaguchi Prefecture in April 2014. The survey result was received responses from 102 facilities.

The second step was implemented in action observation survey on facilities user of "Dainan-Kodomo-room" in Oita city, Oita Prefecture and "Childcare support center Hirohiro-ba" in Kure city, Hiroshima Prefecture.

As for action observation survey, investigators recorded the place to stay, traffic line and action of

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users and staffs in the floor plan every 10-minute. At the same time, investigators took pictures with a digital camera. The time period for questionnaire survey is October to December, 2015. The time period for Action observation survey is 27 to 29 November, 2014 (Hirohiro-ba) and 28 to 31 October, 2015. The response rate of questionnaire was 72.9%.

3. The relationship between building form, playroom area and floor material

3.1. Building form and playroom area

Table.1 shows the relation between building form and playroom area of 102 facilities that responded in the questionnaire survey. Childcare support facilities are often complexed with other facilities. Even amongst those, the most common facility was complexed with “Nursery school” (72 facilities), accounting for about 70% of the total. Second most popular facility was “Welfare facility” (6 facilities) and “Citizen center” (6 facilities), followed by “Preschool” (4 facilities). Playroom area has a wide range from 25m² or less to 100m² or more.

Many of childcare support facilities complexed with nursery school utilized existing spaces such as nursery room or hall. Especially, the case of utilizing the hall, the space is secured the wide space for 100m² or more. Apart from that, some facilities have the special room for child care support or utilize another building (Table.2). The facilities complexed with “Welfare facility” or “Citizen center” is secured 50m² or more for playroom. In particular, “Citizen center” had largest number of facilities (4 facilities) with playroom area more than 100m². In addition, 9 facilities are installed on detached house. Some of them are secured 100m² or more of playroom. However, the most often area is 25 to 100m². Because, detached houses have a facility space such as a bathroom or kitchen, the space is limited to set as a playroom.

3.2. Playroom area and floor arterial

Fig.1 shows the relation between playroom area and floor material of “Complexed with facility” type. The floor material of 71 facilities is divided into the flowing 4 types. It is as flows: tatami (1 facility), mat (5 facilities), flooring (34 facilities) and flooring and tatami (31 facilities).

The floor materials of facilities less than 25 m² were flooring in common. The floor materials of facilities over 25 to 50 m² were seen all of the 4 types. Even out of those, the facilities were mainly divided into “Tatami” and “Flooring and Tatami”. The floor material of facilities over 50 to 75m² is similar to that of facilities over 75 to 100 m². The most common material is the flooring in 10 facilities. However, “Flooring and tatami” were seen in 12 facilities which have more than 100m² playroom areas. In addition,

Table.1. Building form and playroom area

Playroom area	Building form						Total
	Nursery school	Paralleled with facility			House	Others ³⁾	
Welfare facility		Citizen center ²⁾	Preschool				
~25m ²	3						3
25~50m ²	14	1		1	4	1	21
50~75m ²	18	2	2	2	2	1	27
75~100m ²	20	1			1		22
100m ² ~	17	2	4	1	2	3	29
Total	72	6	6	4	9	5	102

Note1) The number of tables shows that the number of the facilities.

Note2) “Citizen center” includes Branch offices 3, Children’s centers 2 and Community center 1.

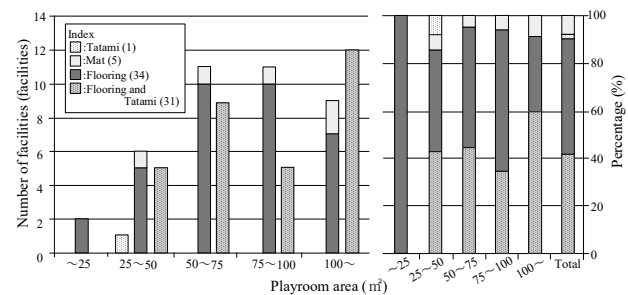
Note3) “Others” included a hospital, a old public hall, a commercial facility, a old library and a old nursery school.

Table.2. Use space in nursery room and playroom area

Playroom area	Nursery room	Use space				Total	
		Hall		Purpose-built room	Another building		Unknown
		Whole	Corner ²⁾				
~25m ²					1	2	3
25~50m ²	7	1		2	2	2	14
50~75m ²	4	3	2	3	3	3	18
75~100m ²	7		2	3	3	5	20
100m ² ~	2	8	3	2	1	1	17
Total	20	12	7	10	10	13	72

Note1) The number of tables shows that the number of the facilities.

Note2) “Corner of Hall” shows an area in the whole hall as a playroom because it was unknown how much area it used.



Note) The figure shows that 71 facilities which were able to grasp the floor material.

Fig.1. Playroom area and floor material of complexed with facility

“tatami” has been installed in 5 facilities out of 7 facilities which were able to grasp floor material in “House” type. Because tatami has been often installed since facilities was established. Moreover, the childcare support facilities that has been installed the tatami (“Tatami” and “Flooring and Tatami”) is accounting for about 50%, it is shown that tatami is effectively.

3.3. The reasons for not installing or installing Tatami

It was founded that “Flooring” and “Flooring and Tatami” is the main type as a floor material of the playroom by 3.2 section. So, this section shows the reasons for no installing or installing Tatami in facilities in each type, and clarifies the factors becoming the floor material.

Fig.2 shows the reason why there is no tatami room in 35 facilities that floor material is flooring. 24 facilities answered that "Tatami can be substituted

with mat.", accounting for about 70% of the total. In addition, 6 facilities answered that "The area of the playroom is narrow", it is thought that playroom area affected floor material.

Next, Fig.3 shows the relation between playroom area and tatami area of 35 facilities that floor material is "flooring and tatami". Tatami area is less than 30m² in 30 facilities (about 90%). On the other hand, 2 facilities have more than 70m². Consequently, the percentage of tatami area in playroom area was as follows: 0~10% is 11 facilities, 10~30% is 12 facilities, 30~50% is 7 facilities and more than 50% is 5 facilities. 30 facilities have playroom of tatami within a half the area. Therefore, tatami area is not necessarily proportion to playroom area. It is thought that layout is also a variety of tatami by facilities, for example, one of them has tatami area 15 m², although playroom area is more than 150 m².

Fig.4 shows the reason for tatami has been installed. The most common answer is that "To make comfortable space for users." in 18 facilities accounting for the half of the total. The next commonest answer is that "To secure the space of creeping" and "To secure safety for infants", it is known that tatami has been installed in the playroom. In addition, there is the answer that "Flooring is cold" (8 facilities), it is considered that the environment of sitting position for infants and parents.

3.4. Usage of the mat

Fig.5 shows the usage of the mat of 35 facilities that floor material is flooring. 29 facilities are permanently installed the mat (about 80%). Consequently, it is seen that the mat is effectively utilized as the tatami substitute, because there are also facilities of using the mat as needed. Similarly, Fig.6 is the usage of the mat of 36 facilities that floor material is flooring and tatami. 25 facilities are permanently installed the mat and 2 facilities use the mat as needed. Consequently, it is seen that space is partitioned by the tatami and the mat. Mat is set on the top of flooring in 23 facilities (about 90%), it is thought to be the similar reason as the reason for installing tatami.

4. Comparison of usage by action observation survey

This chapter is shown that comparison analyze of usage in "Dainan-Kodomo-room" where floor material is flooring and tatami and "Hirohiro-ba" where floor material is flooring.

4.1. Summary of the facilities

Fig.7 shows arrangement of corner in "Dainan-Kodomo-room". This facility is situated in the suburb of Oita city, it was installed on the building when the new construction of "Dainan civic center".

The playroom area is 89.50m². This facility is

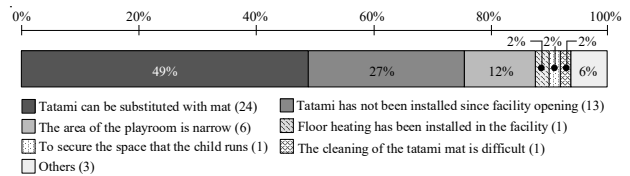
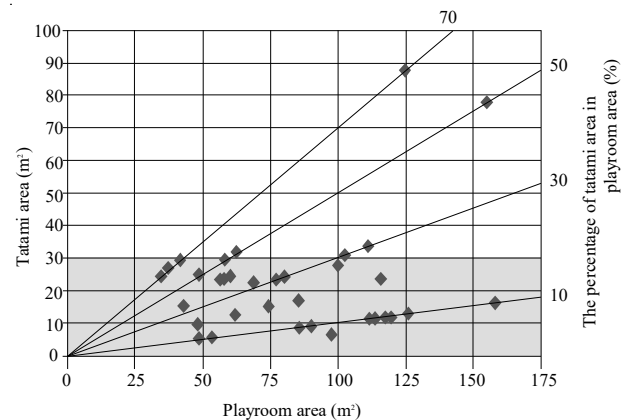


Fig.2. The reasons for not installing tatami to multiple answers (Flooring)



Note) The figure shows that 35 facilities which were able to grasp the tatami area.

Fig.3. Playroom area and Tatami area (Flooring and Tatami)

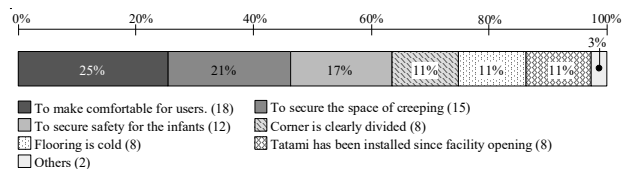


Fig.4. The reasons for installing tatami to multiple answers (Flooring and Tatami)

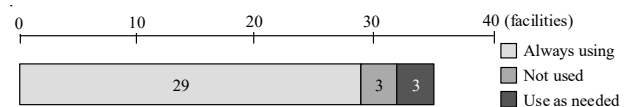


Fig.5. Usage of the mat (Flooring)

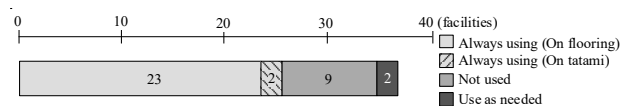
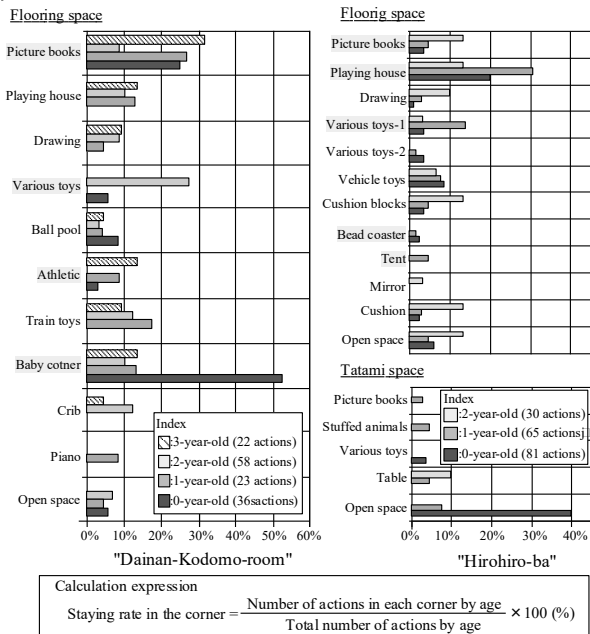


Fig.6. Usage of the mat (Flooring and Tatami)

spread mat on the flooring and to be arranged "Baby corner", "Picture books" and "Various toys" on the side of a wall. In addition, "Athletic cushion" is arranged on the center of playroom as dynamic playground.

Fig.8 shows arrangement of corner in "Hirohiro-ba". This facility is situated in suburb one minutes by walk from JR Shinhiro in Kure city, it was installed on the building when the new construction of civic center like "Dainan-Kodomo-room". A workshop was held to determine arrangement of corner in playroom at the



Note1) The left figure corresponds to corner names shows that fig.7 and fig.8. Colored corner names show the mat is installed.
 Note2) 3-year-old in "Hirohiro-ba" omit the number of action, because the number of action was few.

Fig.9. Staying rate in the corner by age

highest rate of stay at "Playing house" on the flooring space accounting for 30%, followed by "Various toys-1" and "Vehicle toys" accounting for about 10% respectively. 2-year-old infants stay at static playground such as "Picture books" or "Playing house". In addition, they stay at dynamic playground such as "Cushion blocks". Staying rate of 1-3-year-old infants at "Baby corner" or tatami space is about 10% in both facilities. Therefore, the staying place was observed difference according to the age.

4.4. Case analysis

Fig.10 shows the scenes of the playing action in the main corner that is based on Fig.9. In the corner of "Picture books", infants of 0-year-old to 2-year-old are stay there in both "Dainan-Kodomo-room" and "Hirohiro-ba", there are seen the scene of parent read to their children. However, the staying rate is difference that while about 30% in the "Dainan-Kodomo-room", whereas about 10% in the "Hirohiro-ba". The reasons underpinning this can be thought to be related to the area of the corner and the amount of books. In "Dainan-Kodomo-room", the corner area is 6.6m² and the bookshelf area is 0.9m². On the other hand, in "Hirohiro-ba", the corner area is 4.0m² and the bookshelf area is 0.4m². That is, "Hirohiro-ba" is the amount of about half of the picture books and the corner area of about 60% compared with "Dainan-Kodomo-room".

In the corner of "Playing house", different age's infants were playing playhouse with their parent.

However, the staying rate of 0-year-old was about 20% in "Hirohiro-ba", whereas 0-year-old were not

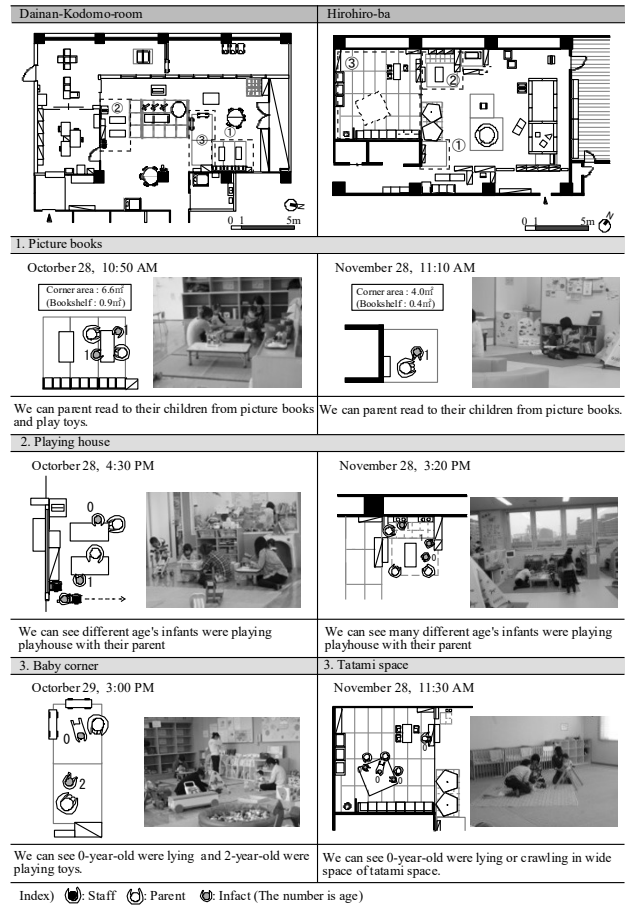


Fig.10. Comparison of playing by corner

seen the stay in "Dainan-Kodomo-room". The reasons underpinning this can be thought that install the mat or not install the mat, because 0-year-old mainly spend sitting. That is, 0-year-old were not seen the staying in "Dainan-Kodomo-room" where the mat has not installed on the corner, whereas 0-year-old were seen play sitting in "Hirohiro-ba" where the mat has been installed on the corner. "Dainan-Kodomo-room" has been installed "Baby corner" as the dedicated space for baby. However, it was seen over 1-year-old were playing toys beside 0-year-old were lying, because the corner is not clearly divided. On the other hand, "Hirohiro-ba" has been installed "Tatami space" as the dedicated space for baby, the space is clearly divided by the furniture and toys to prevent the entrance of over 1-year-old. As a result, it was seen that 0-year-old were lying in open space where other than the corner, but 1-year-old were not staying.

5. Conclusions

Findings of this study are as follows.

1) The buildings of 102 childcare support facilities in the Yamaguchi Prefecture are often paralleled establishment with other facilities. It was mainly "Nursery school", "Welfare facility", "Center" and "Preschool". Even amongst those, the most common facility was paralleled establishment with "Nursery

school” (72 facilities), accounting for about 70% of the total.

2) The floor material type is divided with following four, the tatami only, the mat only, the flooring only and flooring and tatami. The childcare support facilities that has installed the tatami is accounting for about 50%, it is seen that tatami is effectively. In addition, the facilities that playroom area of less than 100m² has been often installed the flooring only. On the other hand, the facilities that playroom area of more than 100m² has been often installed the flooring and tatami.

3) The reason for no tatami has been installed of the facilities that floor material is flooring, "Tatami is substituted for mat" is the most common response. In actuality, the facilities of always using the mat is accounting for about 80%. In the facilities that floor material is flooring and tatami, the tatami area is 30m² or less without regard from the playroom area in the facilities of about 90%. In addition, the ratio of the playroom area to the tatami area is 50% or less in the facilities of about 90%. Therefore, tatami area is not necessarily proportion to playroom area. It is thought that layout is also a variety of tatami by facilities.

4) In the playroom which has only flooring, it is spread mat on the flooring and to be arranged corner on the side of a wall. However, it has not been clear distinguished the dynamic playground and the static playground. Therefore, “Baby corner” where is installed the mat in the playroom is not clearly divided border of the corner, it was seen that over 1-year-old were dynamic playing beside 0-year-old were lying.

5) In the playroom which has flooring and tatami, it is has been divided the space by arranging the furniture and toys to the boundary of the floor material. The tatami space has been set the place such as mainly spending the baby, the flooring space has been set the place such as doing dynamic play and playing house, etc. Therefore, tatami is recognized as a clear boundary, it is 0-year-old and over 1-year-old the playground had been distinguished.

6. Note

- 1) “Playroom” is shown the place where the user spend for the purpose of play and exchange. Therefore, it is excluding office and toilets and the like which are provided as a separate room.

7. References

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