

Behaviour and Interaction of Autism Children with Interior Design Aspect at Therapy Room

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Abstract

A room should be appropriate to the behavior that is owned by its users. In this field, an interior designer should be able to make sufficient room for the user as well as the activities undertaken in room. Intrinsically for normal users or who have special needs, for example is autism. The case of the birth of children with autism from year to year was increase. Now governments are increasingly concerned with the existence of such cases so that the target to build thousands of special schools with autism in Indonesia. This study aims to investigate further the behavior of children with autism in the therapy room so this research can knowing the frequency of the lowest and the highest behavior of children with autism and the distraction of interaction between children and aspects of interior design that happens to be an autism child can make the process of therapy with more leverage. The method used is qualitative by observation in the field of children with autism (n = 9) the category of low, middle and high function of age 3-12 years who are conducting behavioral therapy and noted the response and behavior of the child with one case study in Bandung. At the end of this study resulted in a conclusion that the most high frequency current behavior of autistic children in the therapy room is seeing a therapist's eyes and the lowest frequency is playing lip and scratched his forehead. Meanwhile, most children with autism are get distraction when interacting with the aspect of the interior design is the floor (like stomping to the mat, saw a mattress on the floor) and sound (such as pat of objects and listen to the sound, covering the ears).

Keywords : behaviour, autism, interior design, therapy, room

1. Introduction

The interior design is a profession that provides creative and technical solutions are applied to the structure to achieve the environment (interior) a building, in order to make functional, enhance the quality of life, enhance occupant space and contains cultural aesthetic values (NCIDQ, 2004). The interior design is used to streamline the interior space to support all human activities are carried out in the area (Pile, 2000). Autism is a disorder of neural development identified by behavior problems include deficiencies in communication and social interaction, restricted to the pattern of repetitive behavior, interests and activities (APA, 2000). Interior designers play an important role in creating spaces that can help individuals with autism to better understand where they are in an environment with a spatial design that is sensitive to their needs (Hosny, 2015).

Concentration often becomes one of the autism difficulties in the therapeutic process, affected by two factors : internal and external. Internal factors are factors that appear in the child, while the external factor is the influence that comes from outside the individual, for example the state of the room when the therapy progresses. The study explains that the environment plays an important role in the lives of children with autism (Paron - Wildes, 2005). Utilizing the physical environment to accommodate the needs of children with autism can improve their social interaction (Ghaziani, 2008). If there is a problem in the design of architectural rehabilitation of autism, it can be detrimental and reduce the ability of autistic children to learn (Jenkins, 2009).

The therapeutic process will occur smoothly when the concentration of children with autism can be controlled by means of one of them reduces the distraction of external factors, namely from the aspect of interior design. Therefore, this study wanted to know the behavior of children with autism in the room, so it can finding the external factors (aspects of the interior design), which resulted in the concentration levels of children with autism

impaired / distracted, which is expected to be a reference for future research to create a space that can make a child's concentration autism increased by knowing beforehand external factors / aspects of the interior.

2. Literature Study

Autism According to DSM IV

DSM IV is the standard criteria for the classification of mental disorders. It is used by doctors, researchers, psychiatric institutions and other institutions that are produced by the World Health Organization (WHO). Autism is a disorder of neural development identified by behavior problems include deficiencies in social interaction and communication, restricted to the pattern of repetitive behavior, activities and interests (APA, 2000). Autism according to DSM IV is a term given to a state which is a collection of symptoms of developmental disorders of children. In 1974, known as the term Pervasive Developmental Disorder (PDD), which are also often confused as PDD-NOS (Not Otherwise Specified).

Interior Design and Autism Behaviour

The interior design is a profession that provides creative and technical solutions are applied to the structure to achieve the environment (interior) a building, in order to make functional, enhance the quality of life, enhance occupant space and contains cultural aesthetic values (NCIDQ, 2004). The interior design is used to streamline the interior space to support all human activities are carried out in the area (Pile, 1979). In addition, according to the Art and Design Studies Journal, the vital elements of interior design that influence the room is the shape, form, line, texture, shape and colour (Andrew, 2015). There is some research that explains that the environment plays an important role in the lives of autistic children (Paron - Wildes, 2005). Utilizing the physical environment to accommodate the needs of children with autism can improve their social interaction (Ghaziani, 2008). If there is a problem in the design of architectural rehabilitation of autism, it can be detrimental and reduce the ability of autistic children to learn (Jenkins, 2009). Autism behavior can be influenced for the better by changing the physical environment of the building (color, texture, orientation, acoustics, etc.) (Hosny, 2015).

Autism Sensitivity of the Interior Design Elements

Research has shown that children with autism have problems understanding the environment around them (Swanson, 2005). Including interference when he saw what was happening both indoors and outdoors. To avoid visual distractions, it is recommended to put the cover on the window (Vogel, 2008). Color selection is very necessary and noted that there were impressive colors neutral, calming, disturbing and stimulating for children with autism (Beaver, 2006). Autism is difficult to deal with noise in the classroom / space, especially if there are other noise caused by another student talks (Ashburner, 2008). Autism is very sensitive to noise (Grandin, 2000).

3. Methodology

The method used is qualitative, study case at one of the Hospital in Bandung City by observation of behavior pattern for 1 hour per child for one month that associated with the state of the physical environment around it. Each individual is chosen *randomly*, a number of nine children with autism who have a category of low, middle and high function of age 3-12 years. The observation was find out what is being done behaviors of autism children when doing the therapy process, is there any distraction of external factors (in this case the interior design elements) that trigger the child becomes distracted when doing behavioral therapy in the treatment room that has a window of the wall, containing a table, chairs, storage cabinets and boxes of toys, with the walls and floor with foam mat material. Data were collected by recording the movement of an autism child's behavior and then counted the number of times that happens.

4. Data Analysis

Behavioral observations conducted on nine children with autism in therapy room and then calculated the frequency of behaviors that occur and examines the cause of external factors. The study states that the behavior identified a total of 106 kinds of behavior that occurs when an autism children do behavioral therapy process for 1 hour in the room. Here are the types of behavior identified by the total number of frequencies (in the form of a table) of the sample:

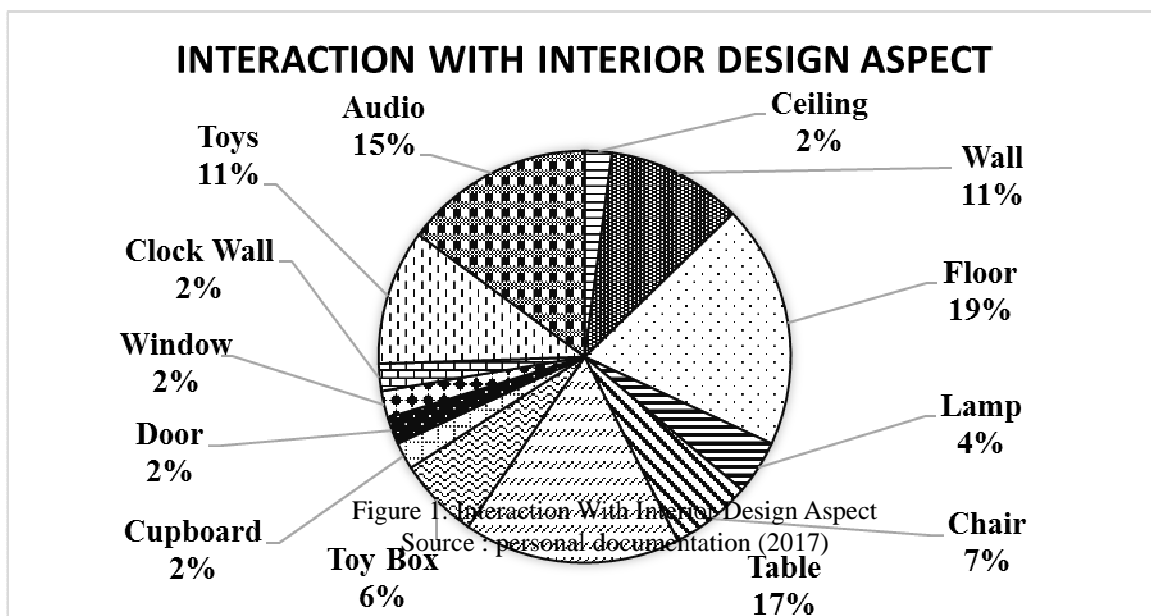
Table 1. Autism Behaviour Type and Frequency

	Behaviour Type	Freq.		Behaviour Type	Freq.
1	Rubbing elbows on the table	4	54	Holding toy	26
2	Rub palms	29	55	Holding / play cellphone	16
3	Seeing the cards in hand therapist	25	56	Scratching body	7
4	Viewing window	21	57	Holding the upper arm	5
5	Seeing the cards in hand	26	58	Changing the position of the body	14
6	Seeing the mat on the left wall	19	59	Raise the foot to cushion chair	6
7	Saw a mattress in the front wall	14	60	Shake the body / turn to the right / left	3
8	Viewing angle wall mats	17	61	Recumbent position	7
9	Seeing cupboard	25	62	Standing looked forward / held therapist	27
10	Seeing the door	7	63	Jump	3
11	Looking at the ceiling	6	64	Prone	6
12	See cellphone held therapist	10	65	Crawl	4
13	Viewed under the mat / floor	8	66	Rolling	4
14	Seeing the toy box	34	67	Knocking finger to the table	9
15	See the third person	38	68	Knocking finger to the puzzle	11
16	Sees himself in the mirror	9	69	Pat hand	10
17	Climb the table	17	70	Patting objects and listen to the sound	24
18	Snoring (voice)	25	71	Lifting puzzle	15
19	Shout	26	72	Pushing the table	11
20	Mumble	45	73	Hitting the puzzle pieces to the table	18
21	Babble	29	74	Hit the elbow to the table	12
22	Sing	9	75	Beating fist on the table	14
23	Laugh	64	76	Beating fist to the thigh	6
24	Chattering teeth	4	77	Hit therapist	15
25	Spit	17	78	Conk	5
26	Sit with legs open	25	79	Lined toys	15
27	Raise the legs to support the table	12	80	Dropping toys	9
28	Raise the foot to cushion chair	6	81	Play with sleeping position on the seat	14
29	Move the legs open / close	13	82	Plays / Holding wooden puzzle	20
30	Sitting cross-legged	11	83	Playing a light switch	3
31	Squatting	3	84	Holding / play Handphone	16
32	Crossed fingers	23	85	Biting finger / licked finger	5
33	Hands folded behind his head	3	86	Yawn	9
34	Closing the ears	7	87	Gape	10
35	Wipe eyes	6	88	Dumbly	15
36	Open hand on the table	6	89	Smile	45
37	Clenched hand	3	90	Plays lips	2
38	Hand flapping	5	91	Stomping onto the mat	4
39	Hand counting money	2	92	Run	6

40	Snapping fingers	2	93	Tiptoe	14
41	Wave hands	3	94	Kick	3
42	Closes one eye with hand	4	95	Glancing to the right and left	23
43	Shocked	6	96	Glancing at the clock	23
44	Cry	16	97	Closing the eyes repeatedly	11
45	Seize cards in the therapist	4	98	Closes one eye with hand	4
46	Holding a toy box	23	99	Patting objects and listen to the sound	34
47	Holding a card in hand	6	100	Listening to songs on cellphone, danced	10
48	Holding forehead / scratching	2	101	Banging head against the wall	4
49	Holding the head / scratching	6	102	Sees himself in the mirror	9
50	Plays / Holding wooden puzzle	20	103	Seeing eye therapists	205
51	Open / close the toy box	9	104	Imitating the sound of a therapist	48
52	Holding the mat on the left wall	11	105	Touching the appropriate command	33
53	Scratching hand	2	106	Replying speech therapist	45

Source : personal documentation (2017)

Behavior can associated with the interaction of the external factors that aspect of interior / spatial element can be categorized into 13 aspects including walls, floors, ceilings, windows, tables, chairs, sound, lights, doors, toys, toy boxes, cabinets and wall clocks. An example is the behavior of banging on the table (the external factor is the interaction with the table), see the cabinets (external factor is the interaction with cabinets), holding the walls (external factor is the interaction with the wall), etc. Therefore, it should be noted about how to reduce the distractions in terms of interior design.



Can be seen from the chart that the autism child interacts with most external factors (interior aspect) is the floor as much as 19%, the table as much as 17%, audial as much as 15%, walls and toys as much as 11%, the seats as much as 7%, the light as much as 4%, followed by the toy box, window, door, wall clocks, cupboards and ceiling. Researchers estimate consistent with the observation, that autism children most often interact with the floor caused by flooring material made of finely textured mat that senses sensory autism children often hold / rubbing himself to the floor. Similarly, the table, the material used is finely textured timber so that children like rubbing his hands on the table.

5. Discussion

The study of individual behavior to be observed by observation for behavioral pattern is associated with the state of the physical environment around it. Search human behavioral patterns associated with the order of their physical environment and then produce the concept of setting behavior or referred to the activity room (Barker, 1968). Both are equally describes a unit of the relationship between behavior and the environment in the context of the built spaces. Autism behavior can be interpreted as an error / sensory impairment when performing information processing of stimuli surrounding physical environment (Anderson, 1998). Autism easily distracted by stimuli that exist in the surrounding environment (Foundation for Development of Disabled Children). In this case, the stimuli that arise resulting from the design of space influenced by the space-forming elements and supporting elements.

Most people with autism have problems with sensory destruction that could affect the development and skills. Autism behavior can be positive by altering the architectural environment such as color, texture, ventilation, security, orientation, acoustics, etc. before the damage occurred sensory (Mostafa 2008). If there is a problem in the design of architectural rehabilitation of autism, it can be harm and reduce the ability of autistic children to learn (Jenkins, 2009). Therefore you should design the interior space of autism therapy is also be considered. Beginning with the early stages of identifying the behavior of the user (in this case children with autism) that occur in space and analyze the interior aspects associated with such behavior.

This study shows that the behavior of autism inside the room can be observed and the interaction of the most widely among children with autism with interior aspect is the floor, table, audial, walls, toys, chairs, lamps, toy boxes, windows, doors, wall clocks, cupboards and ceiling. Researchers estimate in accordance with the observations, that autism children most often interact with the floor caused by flooring material made of finely textured mat that senses sensory autistic children often hold / rubbing himself to the floor. Similarly, the table, the material used is finely textured timber so that children like rubbing his hands on the table. For this audial, researchers estimate that the rooms were used using an open window and not use soundproof so that children with autism feel disturbed, apart from the child's internal factors like talking to himself or suddenly muttered. Wall of therapy room is made of the same material as the floor mat foam with soft green color leather, thus making the child feel comfortable when holding the material.

Children with autism in the room was also familiar with the giving of time to play with the toys he liked so easily distracted look of the toy when the therapy process. Seats for direct contact with an autistic child so that the child can feel comfortable or does not sit in the seat so that there was an example of behavior climbed onto a chair. The lights were used in the room is a downlight coolwhite, the child may feel less comfortable with the lighting system. Toy box can lead to distraction because autistic children are accustomed to seeing her toys were in the toy box. The windows were open and without a curtain closing resulting in visual disturbances and audial making those often look into the existing landscape in the window. Doors can made of distraction for many therapists out when the therapy progresses. Children with autism often see at the clock because they are mostly like something spun (clockwise). The cupboard was a storage area and puzzle books used for the therapy process so that children often look toward the cupboard. The ceiling is the smallest distraction because they are rarely in direct contact and look upward. Future studies are expected to conduct in-depth interviews on what factors cause such a distraction so we get a conclusion that is mature and maximum.

6. Conclusion

At one hour behavioral therapy sessions, identified a total of 106 children with autism behavior. Distraction can be caused by various factors including the external factors, that is in terms of interior aspect. Having studied more in depth, most autism children interact with the floor and table. Came an idea whether these distractions should be reduced so that an autism child can concentrate so the therapy phase can be held maximum. For example, by rethinking what materials are used on the floor and a table, use a specific color, may affect the results of the data obtained.

Researchers have not made further observations again let alone do an interview with an expert on the causes of autism children often interact and be distracted by some aspects of the interior. So the future research be expected to find the cause. Limitation of this study is just used a few of sampling data. We recommend further research using a sample that is more focused and observation techniques through video recording for more leverage.

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