

Initial Invention of Therapy Table for Autism to Avoid the Table Being Pushed or Flipped by Autistic Children

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Abstract

In individual therapy for autism, a problem occurs in which autistic children often push the therapy table. Further, in children with large posture, they can even flip the table upside down during tantrums because their energy can no longer be held by the therapists. This behavior disrupts the course of the therapy. This research was conducted through observations on 12 autistic children (9 boys, 3 girls) using video recordings, each in one duration of individual therapy session. Interviews were carried out with 20 therapists and parents of children with autism to determine the sitting habits of the autistic children, and find out how the children push the table. The results showed that 25% of children with autism pushed the therapy table, causing the table to flip upside down, while the rest of the children only displaced the table. The study identified the sitting habits of autistic children so that alternative table design recommendation using addition of bottom mat was formulated. The mat addition attached at the bottom of the table can be used more effectively during therapy. The results of this study can be taken into consideration when designing therapy tables for autistic children.

Keywords: Autism, ABA Table, Alternative Autism Therapeutic Table

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Introduction

Autism was discovered by a Swiss psychiatrist, Eugen Bleuler in 1911, Bleuler conducted a study on adolescent suffering from schizophrenia (Yuwono, 2012). Over time, autism disorder increases in number. Census in the US reports that in 2014, there were 475,000 children with the indication of ASD (Dewi, 2018). The increase does not only occur in Indonesia but also around the globe. WHO reports that one of 160 children have ASD, and about one of 68 children in the US has ASD. Following data from UNESCO in 2011, there were approximately 35 million peoples with autism, meaning that 6 of 1000 people had autism (Santoso, 2019). Autism is a developmental disorder, not a disease. Children with autism are categorized into three, based on their social interaction: 1) Secluded autistic children, 2) Passive Autistic Children, and 3) Active autistic children. Self-secluded autistic children tend to like doing anything on their own, spending their time alone. A child with this type of autism likes to do an activity repeatedly. They could get angry easily. They break their own toys often, they assault their friends and highly avoid physical contact with their environment. A child with this type of autism lacks the ability to use words; they have limited vocabulary (Handojo, 2009). An autistic child has 'particular amusement' in themselves (Tilton, 2004). Autism is indicated by primary characteristics as follow: 1) Ignorance toward the surrounding. 2) Inability to make good social interaction. 3) Abnormal development, usually indicated by speech difficulty and abnormal language. 4) Limited, repeated reaction/ observation of the surroundings (Faisal Yatim, 2003).

There are various types of therapy that can be conducted for children with autism. One of the therapies with high rate of success is Applied Behavioral Analysis (ABA). It was reported that applying ABA to two-years-old children intensively for forty hours per week exhibits 89% of improvement. 47% of them exhibit total recovery, while 42% obtain a various level of environmental adjustment (Mulyadi & Sutadi, 2014). ABA is a well-organized method with the easy-to-assess outcome. Accordingly, the ABA method can be applied easily applied to children with autism. It is a clear, stress-free method. In addition for autism, this method can be used for children with other behavioral disorders. The principle of this method is warmth, clarity, stress-free, anger-free, clear, gentle prompt, and appreciation toward the child (Yuwono, 2012). The principle of ABA method is freedom, emphasizing each child's need. ABA method in One on One therapy, between therapist and autistic child. The principle which emphasizes freedom in learning or accommodating child behavior.

ABA uses special table, in Indonesia, it is called meja ABA (ABA table). It has one incurved side. ABA table has been used in some schools and therapy centers in Indonesia, the incurved side aims to improve eye contact between the autistic child and the therapist (Sari, 2010). For autistic children who often get tantrums, it is suggested to use this table to prevent them from escaping (Handojo, 2009). However, the result of the study conducted with Autism Services Center Surakarta revealed a problem, that the autistic children often pushed the table during the therapy, making the therapist hold the table using their feet. Children with big posture even can flip the table, where the therapist does not seem able to hold it.

The present study was aimed at investigating the hindrances when using the ABA table in order to make an alternative table to solve the problem. It is expected that this study can improve the effectiveness of autism therapy using alternative ABA table design.

Research Method

Participant

The participants were 12 children with autism aged 6-12 years (3 girls and 9 boys). Mean \pm SD anthropometric data of all participants includes as follows: age: 7.8 ± 2.4 years; height: 129.9 ± 5.7 cm; weight: 29 ± 5.6 kg which was included in this study. The condition that has been examined are whenever they can be calm and whenever they have not been able to sit quietly while paying attention to the therapist's direction.

Research Instruments

In this study, the table was only used to compare the effect of the curvature of the table and the conditions at which child therapy pushed the table. This experiment uses ABA table, ABA table (p: 66, l: 60, t: 55 r: 24.5) with an oval hole on one side (Figure 1).

Research Tools

Sony Handycam HDR-CX220E, mini Yuntfng XH-228 tripod, Sony EOS M3 Camera

Experimental Tasks, Conditions, Procedures

The observation was conducted in Pusat Layanan Autis (Autism Services Center) Surakarta, Indonesia. The discussion was also conducted with the therapists. In addition to observing autism room, this study observes the individual classroom usually used for therapy, with comfortable artificial airing. The participants sat down and were observed using video. It was done by installing cameras in the room. The recorder was placed within the room, 180 cm above the floor, allowing for capturing the entire room. With this placement, it was expected that the students did not lose their focus. The recording was done in Ruang Individu (Individual Room) using a video camera. The camera was turned on before the child entered the room. The recording was started when the therapy began. The duration of the recording was approximately 30 minutes for each children in individual room. To record the therapy in detail, the video camera was mounted on mini tripod that can monitor every single motion of the autistic children. The video was taken when they use ABA table. During the observation, the therapist give the material as usual, without any change. The therapist was also informed about the camera installed in the room. If the child's focus was distracted toward camera during the therapy, the therapist was asked to direct the children not to watch the camera. The video observation considered success if the children managed to follow the whole therapy session. When a technical error occurs, or late in installing the camera, the video should be recored in the next meeting.

Measurement

The motion when they participated in the therapy, and movements of pushing the table. The motion was observed based on some criteria, namely, the autistic child pushing the table, moving the table without instructed, slamming the table, taking tools without therapist's instruction, and tilted body position. The data of video observation was calculated using 8/10.(Handojo, 2009). It was calculated by observing the eye contact and motion they made as follow:

Value = Rp/Op

Description:

Rp= total of positive response

Op = total of negative and positive responses.

The final score was obtained by calculating the positive and negative responses shown by the children with autism during therapy The total of positive responses (+) is divided by all (+) and (-) responses without calculating therapist's prompt result in the final sore of the therapy. The autistic children's eye contact and motion were considered good when they follows the therapy and gained a score of 80% or more. Based on the result of the evaluation of video observation.

Results

Based on the result of interview, the individual therapy room utilize both artificial and natural lightings. The former was obtained from downlight. Each individual room only used one downlight. Natural lighting was used more often because the therapy started in the morning at 8 AM until 3 PM. Natural lighting came from the permanent window, providing adequate light. The room utilized airing from the air conditioner. This artificial airing was used considering that children with autism tended to be more sensitive toward excessive dirt exposure. White paint was applied to the room ceiling.



Figure 1. Individual therapy room for Autism in PLA Surakarta Indonesia

The therapy was done using ABA method. This therapy utilize two chairs and one ABA table. When being used, the incurved side of the table faces the wall. The individual room was about 2x3 meter square. There were two chairs. One chair for child with autism and another chair is for the therapist. There was 1 ABA table, 1 cupboard, and 1 storage. The cupboard and the storage were used to store therapeutic tools for children with autism.



Figure 2. Autistic children's sitting position using ABA table in Individual Room

Autistic children's sitting position using ABA table, resting on the wall before the therapist. When being used, the table's incurved side is moved up to the wall. The therapist sits before the autistic child while giving instruction. The therapist's feet are in the table's leg to hold the table.

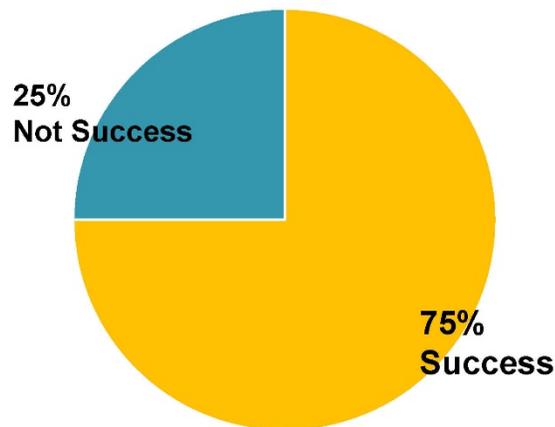


Figure 3. Success Therapy motion observation 8/10

The result of video observation on eleven autistic children who used ABA table with motion observation based on the criteria of autistic children pushing the table, moving the table without therapist's instruction, slamming the table, taking tools without therapist's

instruction, and tilt body was considered failed. The motion observation was considered success when the autistic child follow the therapist's instruction. The observation found that 25% of the autistic children cannot follow the therapy well. They pushed the table and attempted to get out of the table, refusing to follow the therapist's instruction. The therapist should hold the table when the child attempt to escape the therapy room. Whereas 75% of the autistic children managed to follow the therapy well. They were able to sit calmly. The therapist also did not need to hold the table because they did not attempt to get out of the table.

Discussion

Based on the result of the observation, it was found that the problems that often occurred during the therapy process is that the child with autism pushed and moved the table. The therapist goes to pick up a toy and autistic child pushing to the table. When child with autism push, and therapist sit, table needs to be held by the therapist by putting pressure on the therapist's feet. In children who have a large body posture and still have tantrum, the urge on the table makes the table upside down because of the amount of child power that the therapist cannot hold. Low results table ABA is influenced by the length of time an autistic child gets therapy and the table that is easily pushed causing the child who has tantrum can easily get out of the table. When a child starts to get bored, he or she tries to get out of the table and no longer pays attention to the therapist. From the interview and observation made design table for autism children, remove oval hole and adding a pedestal or a base table and removing the curve on the therapy table because the oval hole on one side of the ABA table feels like confine a child to move away. With the addition of the pedestal, the therapy table cannot be pushed because it is restrained by the bodyweight of the child. The removal of the oval hole on the edge of the table is replaced with a pedestal. However, it still refers to the principle that the construction will be easier. When use a pedestal table cannot be held therapist and child not push again, the therapist's feet can not pressure. Because base it is restrained by the bodyweight of the child.

Limitation of the study

This study is done with limited time and number of participants. According to the results of interviews with Surakarta Autism Service Center therapists, autism therapy has a long-time principle and evaluating recommended the previous design.

Conclusion

Based on the observation of twelve children with autism who used ABA table in individual room in Autism Services Center, it was found that 75% of them followed the therapy well, while 25% of them did not. In therapy especially in Indonesia autistic children push the table, and escape from table during therapy. So that discourage to the therapy process. redesign for autistic child with addition of permanent base on the ABA table is recommended.

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