

The Effect of Adding a Permanent Base and Removing an Oval Hole on a Therapy Table for Autistic Children

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Abstract The aim of this research is to investigate the effect of adding a permanent base and removing an oval hole on the ABA (Applied Behavior Analyze) table in order to evaluate and improve the effectiveness of therapy of autistic. 12 autistic children (9 boys, 3 girls) participated in this research. The experiment used Table A, B and C. Table A was the usual ABA therapeutic table with an oval hole in the corner and without a permanent base, while Table B had no an oval hole in the corner with a permanent base. Table C was Table A data with 6 months-long term of using. A video camera was used to record of the experiment. The oval hole didn't affect significantly the success of therapy, while adding the permanent base had the significant result to the successful therapy.

Keywords: *Keywords: Autism, ABA Table, Alternative Autism Therapeutic Table*

INTRODUCTION

Recently, it is known that the number of children with autism continues to increase. For example, in Indonesia, before 1990 autistic children in a year were only 5 people. However, this number increased in 2012, reaching 5 children a day (Yuwono, 2012). One of the effective ways to overcome the increasing number of children with autism is by using the Lovaas / Applied Behavior Analyze (ABA) therapy method. It has been known that early therapy using Lovaas / ABA method at the age of 2 years, intensively 40 hours per week, shows progress of up to 89%. The detailed progress is that 47% of them are completely healed. Meanwhile, 42% people achieve various levels of adjustment to the environment (Mulyadi&Sutadi, 2014).

In practice, the ABA table has been widely used in places of therapy for autistic children. (Figure 1) Table A shows the ABA table used in the Autistic Service Center of Surakarta, SLB Agca Center and Mutiara Center of Surakarta.

The ABA table has differences with general study tables. One side of the table facing an autistic child is deliberately made an oval hole. This is intended to make better eye contact between autistic children and therapists (Sari, 2011). To autistic children who often get tantrums, it is advisable to use a table with an oval hole so that if the table is pressed against the wall the child cannot get out of his chair (Handojo, 2009). However, from the results of interviews conducted with therapists at autistic service center in Surakarta, it is found that autistic children often push the table, and hence the 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.

The initial alternative design is made to overcome the obstacles of autistic children who often push the therapy table. It can be done by adding a pedestal or a base and removing the curve on the therapy table. With the addition

of the pedestal, the therapy table cannot be pushed because it is restrained by the body weight of the child. Eliminating the oval hole is intended to prove the effect of curvature on the table so that it can streamline the design. 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.

This study aims to investigate the effect of adding a permanent pedestal and removing oval curvature on the ABA table so that it can be evaluated and improve its effectiveness as the proof of therapeutic success. In our knowledge, there is not an alternative design and similar research yet. Therefore, this study is expected to provide benefits for the process of autism therapy.

RESEARCH METHOD

A. Participant

The participants are 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 are included in this study. The condition that have 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.

B. Research Instrument

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 2 tables, Table A and Table B. Tables A and B (Figure 1) are made entirely of wood. Table A (p: 66, l: 60, t: 55 r: 24.5) has an oval hole on one edge. Table B is a table that has a different design as an alternative test (p: 104, l: 49, t: 59). The table has an additional pedestal and has no curvature on the table. Table C is table A that uses secondary data, namely data on autistic children using Table A for 6 months.

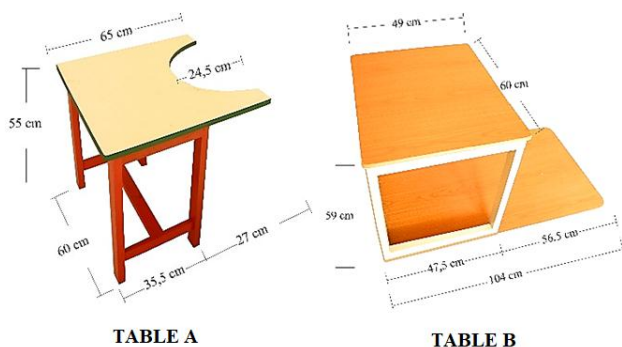


Figure1. (a) Table A is the real ABA table. (b) Table B is a modified ABA table

C. Research Tools

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

D. Experiment Task, Condition, Procedures

Observations are made in individual classrooms which are commonly used in PLA therapy, by using comfortable artificial ventilation settings. The participants sit, and then they are observed via video. Video observation is done by installing a device in the form of an indoor video camera. Installation of a recording device is placed in a fixed place as high as 180 cm from the floor in a therapy room so that the video can reach the entire room. It is hoped that the child will not turn around the focus because of the placement of a video camera.

The recording process is carried out in the Individual Room of Surakarta Autistic Service Center with a video camera. The camera starts up before the children enter the room. Recording time is taken from the beginning of therapy until the end of therapy. The duration of recording time is more than 30 minutes of each child for 2 therapies in an individual room. To record therapy in detail a video camera is installed with a mini tripod that can monitor every movement of autistic participants. First therapy Video taking when a child uses Loovas / ABA table (table A), a table with curves that is commonly used during therapy at the Surakarta Autism Service Center (PLA). Second video capture is with table B, a new table with a modified pedestal without arches.

When observing, the therapist provides material as usual without changing it. The therapist is also told that there is a camera installed in the room. If the child turns to focus on the camera, the therapist can ask the child not to see the camera.

Video observation can be successful if the child can follow the therapist from beginning to end. If there is a technical error or a delay in placing the camera, the video must be re-recorded at the next therapy meeting.

Apart from primary data, the use of secondary data. Secondary data obtained from the most recent 6 months behavioral therapy records of each child in the form of eye contact data and motion data in ABA therapy. This data is

used because the development of children with autism will be seen more accurately in a relatively long time.

E. Measurement

There is movement when they take therapy well and push the table. Observation criteria are based on two things, eye contact observation and motion observation. Observation of eye contact happens when a child can pay attention to the therapist and carry out the task that the therapist gives. Observation of motion can be done when an autistic child pushes the table and slides the table out of the table without the therapist's direction, hits the table, picks up tools without the therapist's direction and stops body position.

Video observation data are calculated using an 8/10 assessment used as an ABA assessment (Handojo, 2009). The 8/10 calculation method is assessed by observing eye contact and motion in the video that has been recorded with the following calculation:

$$\text{Score} = \text{Rp/Op}$$

Explanation:

Rp= the number of positive response

Op =All progra negative and positive response

The final value can be obtained from calculating the positive and negative responses shown by autistic children when therapy. The number of positive responses (+) divided by the sum of all responses (+) and responses (-) without calculating the prompts given by the therapist results in a final assessment of therapy. Eye contact and movement of an autistic child is said to be good at taking therapy if you get 80% or more. It is gotten from the data observation of the video.

F. Statistical Analysis

Observation data and secondary data will be combined and analyzed statistically using the Chi-square Test in the Statistical Package for the Social Sciences SPSS version of IBM SPSS version 20.0 for Windows, Chicago, USA.

RESULTS

The success rate of eye contact using secondary A tables taken from therapeutic results that had been done for 6 months shows a low success rate of 16.7%. Observations of motion when a child uses table A from secondary data obtain a low percentage of success 25% (Figure 2). (Figure 4.a) shows participants can sit well using Table A, the oval hole on one edge of the table that is pressed together on the wall can hold the child so it is not easy to get out of the table.

Nevertheless, with the condition of an autistic child who is still unable to sit quietly, the child can push the table (Figure 4.b) and move the table (Figure 4.c) easily. It is difficult to focus on paying attention to the therapist's direction.

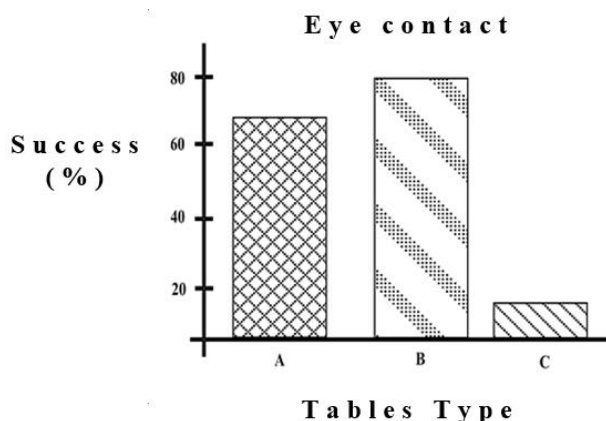


Figure 2. Success Rate Eye Contact Table A (Secondary), Table A, dan Table B

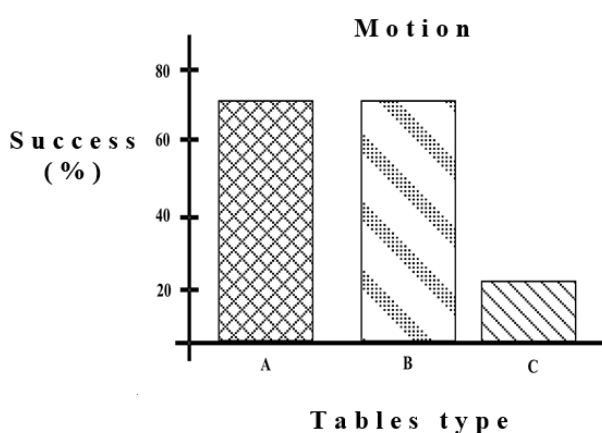


Figure 3. Success Rate Motion Table A (Secondary), Table A, dan Table B

On the other side, the results of observations of motion from the use of Table B and the additions of the pedestal get better result as much as 75% (Figure 2). Figure 5.a shows the participants' actions when using Table B. When using table B (figure 5.a and 5.b) children with autism cannot push again. The percentage of table B eye contact obtained a result of 83.3% (Figure 3) due to the absence of half-oval pieces on the side of the table.

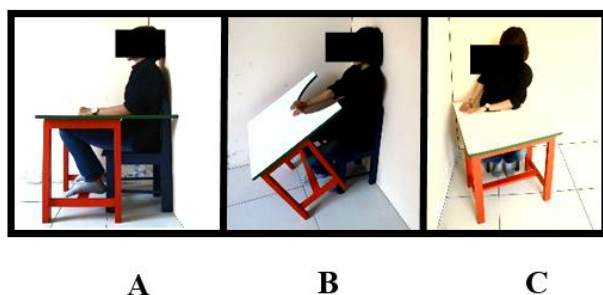


Figure 4. Motion observations autistic child of Table A. (a) Autistic child sit quietly (b) Autistic child pushing table A (c) Autistic child tries to get out of the table A



Figure 5. Motion observations autistic child of Table B. (a) Autistic child sit quietly (b) Autistic child pushing table B (c) Autistic child tries to get out of the table B

G. Discussion

The results show a significant difference in success shown by eye contact and motion on the table used. The success rate of eye contact when using Table A is 16.7%. It affects the observations of Table A movement which results low percentage of 25%. Low results are 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. Thus, eye contact cannot be awakened properly.

When using Table B, the success is higher since it reach 83.3% for eye contact. Table eye contact has high results because autistic children can focus more. Autistic children have poor motoric development, and their movements are rough and less flexible when compared to children of their age (Oxida, 2009). Table B base additions get better result of 75% (Figure 2). Children who have the habit of pushing and sliding the table can no longer do it because of a permanent base. The table oval hole that is originally used on the ABA therapy table is removed and is replaced with a shorter table size. This change proves that the oval hole does not affect the eye contact between the therapist and autistic child. The results of the success of the motion using Table B is 75%. Table mat can withstand the weight of an autistic child. Thus, it cannot be pushed and shifted. The therapist no longer has to hold the table. However, because there is no oval hole on table B, autistic children can take things that fall more easily. Table B deficiency is for autistic children who still have tantrums, autistic children can leave the table easily because there is no oval hole on one edge of the table that holds the child's body (autistic picture 5.c). Table B deficiency is that it has no arches. Although the arch does not affect eye contact, curvature is very influential on motion. Due to the absence of arches on Table B, children are easily out of the table.

H. Limitations 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. Therefore, for future research it is expected that the research will be carried out with a longer time and more number of participants to provide a more accurate calculation.

I. Conclusion and Recommendation

Addition of the base or pedestal is significant to therapeutic success, and oval hole removal is not significant in therapeutic success. Therefore, a table design which is recommended is the one combining the two types of A and B tables. It means that the pedestal is added to

table A that has arches. Hence, it obtains a more suitable table design.

ACKNOWLEDGMENT

The authors are grateful to who gave their attention and helped in this study. All staff and lecturers program study Interior design UNS, especially to head of Autism Service Center Surakarta Hasto Daryanto and Widyaningsih psychologist Autism Service Center Surakarta.

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