EFFECTIVENESS OF USE ANIMATION OF DAILY LIVING MEASURES TO DEVELOP ABILITY AND BEHAVIOR IN SELF CARE CHILDREN DOWN SYNDROME
(Case Study in Down Syndrome Children in SLB ABC Swadaya Kendal)

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Abstract: Education about self-care is very important to children with Down syndrome because they will grow and develop into adulthood and may not always depend on parents or other adults around them. This is in line with what was written by Selikowitz (2001), which states that children with Down syndrome and normal children basically have the same goal in the task of development, namely achieving independence. However, child development of Down syndrome is slower than normal children. So a therapy is needed to increase the independence of children with Down syndrome. Based on research conducted by Wiranto (2011), the use of animation media is considered suitable for developing daily living skills. For this reason, researchers want to try to apply daily living animated media to examine their effectiveness in developing abilities and behaviors in self-care for Down syndrome children in SLB ABC Self-help Kendal. The purpose of this study was to determine the ability and behavior in self-care of children with Down syndrome before intervention, during the intervention, and after intervention using daily living themed animation. The research method used in this study is an experimental research method with a single subject (Single Subject Research) with the aim to find out whether there is a result of a given treatment (treatment) and is an integral part of behavioral analysis (analytic behavior). Empirical data shows an increase in the ability of the subject before, during, and after getting intervention using animation has increased. The level of self-care ability of the subject prior to intervention or baseline 1, which is carried out for 5 sessions / day, obtains an average score of 47.2 or if presented at 47%. During the intervention period, or the period in which the treatment was given in the form of animation about bathing, wearing clothes and eating, children's self-care ability increased by an average score of 50.9, and if it was proportional it was 51%

Keywords: "Daily Living" theme animation, Self-care Behavioral Ability, Down syndrome Children.

Introduction

Animation is taken from Latin, "anima" which means soul, life, life and spirit. Animation is a two-dimensional image that seems to move, because of the ability of the brain to always store / remember the previous image (The Making of animation, 2004).

Animation is a series of continuous or continuous fast movements that have relationships with one another. Animation that was originally only in the form of a series of moving images so that it looks alive (Adinda, 2011)

From the various opinions above it can be concluded that animation is a technique in making audio-visual works based on the time settings in the image. The picture is strung from several moving pieces of the picture so that it looks real.

Daily living themed animations are animations that contain films / videos about daily self-care activities. Activity daily living or activities of daily life in the world of education of children with special needs refers to personal activities because it implies that skills with human relationships. Daily living themed animations are animations that contain films / videos about daily self-care activities. Activity daily living or activities of daily life in the world of education of children with special needs refers to personal activities because it implies that skills with human relationships. Daily living themed animations are animations that contain films / videos about daily self-care activities. Activity daily living or activities of daily life in the world of education of children with special needs refers to personal activities because it implies that skills with human relationships. Daily living themed animations are animations that contain films / videos about daily self-care activities. Activity daily living or activities of daily life in the world of education of children with special needs refers to personal activities because it implies that skills with human relationships.

Take care of yourself: avoid and control yourself from danger
Communicate: verbal, non verbal, or written communication
Socializing: self-statement, association with family members, friends, and community members
Mastery of work: maintenance of tools, mastery of skills, finding job information, communicating work results with others
Sex education: distinguishes sex, takes care of yourself and reproduction, keeps yourself from touching the opposite sex.

Daily living themed animations contain movies / cartoon tales about self-care activities. Videos are accompanied by sound and are equipped with moving images full of color, so the children are interested in watching them.

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Down syndrome is a part of mentally retarded children. Down syndrome is a condition of children's physical and mental development due to abnormalities in chromosomal development. These chromosomes are formed due to the failure of a pair of chromosomes to separate themselves from one another during division. Down syndrome is a chromosomal disorder that can be recognized by seeing quite typical clinical manifestations. In general, the development and physical growth of Down syndrome children are relatively slower, namely growth in height and weight.

Mental retardation experienced by Down syndrome children results in delays in the development of cognitive, motoric, and psychomotor aspects. According to Bandi (1992: 24) mentally disabled children generally have more abnormalities compared to other defects, especially intelligence.

Almost all cognitive abilities of mentally handicapped children experience abnormalities such as slow learning, ability to overcome problems, less able to cause causal relationships, so that appearance is very different from other children. Mentally disabled children are characterized by weak motor control, lack of ability to coordinate, but on the other hand they can still be trained to achieve abilities to normal. Other signs such as reading a book near the eyes, the mouth is always open to understanding an understanding takes a long time, has sensory difficulties, experiences speech barriers and verbal development.

Down syndrome is a condition in which additional genetic material causes delays in child development, sometimes referring to mental retardation. People with Down syndrome have abnormalities on chromosome number 21 that do not consist of 2 chromosomes as they should, but three chromosomes (trisomy 21) so that genetic information is disrupted and children also experience physical deviations. The incidence of Down Syndrome increases with the increase in maternal age during pregnancy, starting at age 35 (Smart, 2010: 127)

From the description above, it can be concluded that Down syndrome is a disorder of the chromosome structure, namely the existence of an extra 21 chromosome that causes disturbances in physical and brain development that can cause physical and mental retardation with characteristics that are unique to their physical state.

There are several things that cause disruption. Causes of Down Syndrome Children, namely, cell division include hormonal abnormalities, X-rays, infections caused by viruses, one of which is toxoplasma virus, immune problems or predisposition to genetic pososo.

The possibility of developing Down syndrome is the age of a mother who is more than 35 years old when she is pregnant. This is because the egg cells in women continue to be in a state of division, starting from the formation of these cells when women are still part of the fetus, to adulthood.

There are 3 types of chromosomes that are known to cause Down syndrome:

- Trisomy 21
- Translocation
- Mosaicism

The characteristics that appear in Down syndrome children can vary, including the following:

Patients with a distinctive sign are very easily recognized by the presence of a prominent physical appearance in the form of a relatively small head shape from normal (microcephaly) with an anteroposterior (flat) head. The properties of the head, face and neck: Down syndrome sufferers have almost the same face as a mongolian's face. On the part of the face usually appear between flat nose. The nose is short. The distance between the two eyes is far away and excessive skin in the inner corner. The size of the mouth is small and the size of the tongue is large causing the tongue to always extend. A narrowed mouth and protruding tongue (macroglossia). Slow and irregular tooth growth. Lower ear paras. The head is usually smaller and slightly wider than the front to the back. The neck is rather short. Often the eyes become narrow with the central corner forming epicanthal folds (80%), white brushfield spots around the circumference around the iris (60%), medial epicanthal folds, keratoconus, strabismus, cataracts (2%), and retinal detachment. Visual impairment due to changes in the lens and cornea.

Mouth manifestations: interference with chewing and talking. Scrotal tongue, small maxilla (hypoplasia maxilla), delay in tooth growth, hypodontia, juvenile periodontitis, and sometimes cleft lip. Hypospadias, cryptorchism, and delays in puberty development.

Skin manifestations: soft, dry and thin skin, xerosis (70%), atopic dermatitis (50%), palmoplantar hyperkeratosis (40-75%), and seborrheic dermatitis (31%), premature wrinkling of the skin, cutis marmorata, and acrocyanosis, bacterial infections, fungal infections (tinea), and ectoparasitism (scabies), perforating serpiginosa elastosis, syringomas, alopecia areata (6-8.9%), vitiligo, angular cheilitis.

Clinical signs in other body parts in the form of short hands including the fingers and the distance between the first and second fingers both in the hands and feet widen. Meanwhile the skin layer usually looks wrinkled (dermatoglyphics). In the digestive system can be found abnormalities in the form of esophageal obstruction (esophageal atresia) or duodenum (duodenal atresia). An unopened esophageal canal (atresia) or no channel at all in certain parts of the esophagus. Usually he gets dekeden during 1-2 days when the baby has problems swallowing his saliva. The unopened duodenal small intestinal tract or narrowing is called “hirshprung disease”. This situation is caused by an abnormal nervous system in the rectum. Usually the baby will experience problems on the second and so on after birth where the stomach bulges and is difficult to defecate. Rectum intestinal tract or the most recent part of the intestine (rectum) that is not open directly. For pregnant women who have especially had children with Down syndrome or those who are pregnant over the age of 40 years must be careful by monitoring the development of the fetus because they have a risk of giving birth with a higher down syndrome.

The properties of the hands and arms: the obvious properties of the hand are that they have short fingers and the little finger curves inward. Their palms are usually only one vein line called "simian crease". Foot appearance: the legs are rather short and the distance between the big toe and toes is a little apart by the soles of the feet. Clinical
appearance of muscles: having weak muscles causes them to become soft in the face of rough moorik problems. Problems related to Down syndrome's childhood may experience abnormalities in internal organs, especially the heart and intestines. Mouth manifestations: interference with chewing and talking. Scrotal tongue, small maxilla (hypoplasia maxilla), delay in tooth growth, hypodontia, juvenile periodontitis, and sometimes cleft lip. Hypospudia, cryptorchism, and delays in puberty development. Down syndrome may experience hypothyroidism, which is lack of thyroid hormone. This problem applies to 10% of Down syndrome children. Down syndrome has instability in the small bones in the neck which causes atlantoaxial instability where this applies to 10% of Down syndrome children. A small percentage of them have a risk of developing white cell cancer or leukemia. In the brain of Down syndrome sufferers found an increase in the ratio of APP (amyloid precursor protein) as in Alzheimer's patients. Learning development problems Down syndrome as a whole experiences developmental retardation and cognitive weakness. On growth experience slow problems in all aspects of development that is slow to walk, fine motor development and speech. Their social development is good, so they are loved by family members. They also have a cheerful nature. Their gross motor development was slow due to soft muscles but they finally managed to hamipir all rough movements. Hearing loss due to recurrent ear infections and 30-year-old serous otitis suffer from dementia (loss of memory, decreased intelligence and personality changes). Down syndrome sufferers often experience disorders in some of their organs such as the nose, skin and gastrointestinal tract associated with allergies. The purpose of self-care for children with mild mental retardation (Ministry of Education and Culture, 1997: 1) is: developing attitudes and habits in everyday life to be able to take care of themselves so that they can adapt to social life. In accordance with the condition of mild mentally retarded children, the goal of self-care can be summarized as follows:

So that children can have skills in taking care of themselves.
So that children can maintain body hygiene and their health with self-care abilities.
So that children can grow confident because they have been able to take care of themselves without the help of others.
So that children are not awkward in adapting to their environment because they have the ability to be equipped with the ability to take care of their own interests.

**Research methods**

The research method used in this study is an experimental research method with a single subject (Single Subject Research) with the aim to find out whether there is a result of a given treatment (treatment) and is an integral part of behavioral analysis (analytic behavior). Experimental research carried out on an object has the purpose of knowing the magnitude of the influence of the treatment given repeatedly in a certain time so that it can measure the child's ability well. Single case research design is a design that uses only one subject or one group of individuals, to determine the effect of a treatment. When planning an experimental study that uses a single subject, repeated treatment is necessary. And the repeated treatment must be measured both before and after given certain treatment or treatment. (Christensen, 2001: 279).

Children with special needs have different levels of each child. For that reason, the treatment given was also different between one child and another, so a single subject was chosen in this study. The design used is A-B-A, where (A-1) is the baseline condition, (B) is the intervention and (A-2) is the repetition of baseline conditions. The A-B-A design is a development of the basic A-B design with repeated baseline condition measurements (Sunanto, 2006: 49).

A-1 = An initial condition of children who have not been able to self-care, and show negative behaviors during self-care activities. At baseline 1 subject was not given intervention at all. At this stage there were five sessions. B = Conditions in which the subject is given treatment or intervention in the form of giving daily living themed animations namely bathing, wearing clothes, and eating. This animation was given eight times until there was a change in self-care abilities.

A-2 = Represents the initial condition or self-care ability of the research subject. At this stage an evaluation is also given to find out how far the intervention can affect the improvement of self-care abilities. The measurement of this period is five times / session.

Step 1, is to fill the first row in the analysis table with capital letters according to the conditions, for example (A) for the baseline period and (B) for the intervention period.

Step 2, determines the length of the interval, the length of the interval shows how many sessions are at the baseline (A1), the intervention period (B) and the baseline period (A2).

Step 3, estimates the direction trend with the split-two method (split-middle).

Step 4, determine the tendency of stability, in this case using the 15% stability criteria, then the calculation is like this. First look for the stability range by means of the highest score. Then look for the upper limit with the mean level the stability range and look for the lower limit by means of the mean level the stability range.

After that, look for the percentage of stability with

If the percentage of stability is 85% - 100% it is said to be stable. If the percentage results below that, it is said to be unstable or called a variable.

Step 5, determine the tendency of the data trace to be the same as determining the direction trend. That is, the results of this component are the same as the results of components in step 3.

Step 6, determine the level of stability and range. The level of stability is obtained from the stability tendency, while the stability range is the score from the lowest to the highest. Step 7, is the change in the level obtained from the last day's data and the first day's data in each phase by

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finding the difference with the last day's data—the first day of data. If it is increased it is given a sign (+) and if it is decreased it is marked (-).

Results

Identification of Down syndrome children who are the subject of the study are as follows: Name of child: Taufiq Maulidida, Gender: Male Place / date of birth: Semarang, April 6, 2007 IQ score: 40-49 Wechsler Scale Level of Intelligence: Able to train Verbal communication: Less Emotion: Less stable Independence: Less (still needs help) School name: SLB ABC Swadaya Kendal School address: Jl. Mosque No. 30 Karangtengah Village Kaliwungu District Kendal District Class: Class C1 / D1.
The pre-test was conducted 5 times / session, on 27, 28, 29, 30 May and 2 June 2015. The pre-test was conducted to measure the ability of self-care in children with Down syndrome, which includes the ability to take a bath, wear clothes and eat, before given intervention. Research data in pre test / baseline-1 (A-1) are as follows:

Table 1. Pre Test / Baseline-1 (A-1) Observation Data

<table>
<thead>
<tr>
<th>Session</th>
<th>Scores</th>
<th>Percentage Acquisition Ability Children</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>45</td>
<td>45 %</td>
</tr>
<tr>
<td>2</td>
<td>50</td>
<td>50 %</td>
</tr>
<tr>
<td>3</td>
<td>45</td>
<td>45 %</td>
</tr>
<tr>
<td>4</td>
<td>48</td>
<td>48 %</td>
</tr>
<tr>
<td>5</td>
<td>48</td>
<td>48 %</td>
</tr>
</tbody>
</table>

The table above shows that the child's self-care ability before the intervention is as follows: in the first session, the score obtained is 45, so the percentage is 45%. In the second session, the scores obtained were 50, and the percentage was 50%. At the third session, the scores obtained were 45, resulting in a percentage of 45%. In the fourth session, the child gets a score of 48, and if the percentage is 48%. And at the fifth session, the child gets a score of 48 and if percentage is 48%.
The data above, can be stated in the following graph:

Figure 1.1 Graph of Baseline Self-Care Capability 1

These results can be obtained from the average baseline 1 results of 2.62 and rounded up to 3. Means that children can do bathing activities with help and be orderly during activities. If the figures are poured into a graph, the results are as follows:

Table 2. Data of Baseline 2 Observation Results (A2)
The table shows that after doing the intervention by giving animated daily living themes, on observing the first day the subject gets a score of 50, or 50%. On the second day the score was 55, and if percentage was 55%. On the third day it decreased to 53, or by 53%. Then it increased on the fourth day with a score of 55, or 55%, and increased again on the last day / fifth day which was scored as much as 57 so that if percentage was 57%.

The data above if distributed in the form of line graphs, the results are as follows:

**Figure 2.1** Baseline 2 (A-2) Self-Care Capability Graph

For the ability to bathe during the baseline 2, during the 5 sessions the subjects scored respectively: 16, 18, 17, 18, and 19. From these scores the following meanings were taken: 2.7, 3.0, 2.8, 3.0, and 3.2. These results can be stated in the graph below:

**Figure 2.2** Average Graph of Bathing Ability Results Baseline 2

For the ability to wear clothes, at the baseline 2 or post test conducted during these 5 meetings, the following scores were obtained: 12, 14, 13, 13, and 14 with average scores: 2.4, 2.8, 2.6, 2.6, and 2.8. These numbers can be stated in the graph below:

**Figure 2.3** Average Graph of Ability to Wear Clothes Baseline 2.

As for the ability to eat subjects at baseline 2, for 5 consecutive meetings are as follows: 22, 23, 23, 24, and 24. These scores can be averaged: 2.4, 2.5, 2.5, 2.7, and 2.7. From these results, it can be visualized in the form of graphs below:

**Figure 2.4** Average Graph of Baseline Feeding Ability Results 2

The subject's self-care ability during the study was divided into 3 parts, namely baseline 1 or before being given treatment, intervention or the period in which the child was given treatment, and baseline 2 was the period after being given treatment. Subject ability data before, during and after being given treatment can be seen in the graph below:

**Figure 2.5** Baseline 1 Self-Care Ability, Intervention and Baseline 2
Table 3. Summary of Results of Visual Analysis in Conditions

<table>
<thead>
<tr>
<th>Condition</th>
<th>A</th>
<th>B</th>
<th>A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Long conditions</td>
<td>5</td>
<td>8</td>
<td>5</td>
</tr>
</tbody>
</table>

Estimation of direction

(+) (+) (+)

Stability tendency

Trends in data traces

(+) (+) (+)

Stability and range levels

Level changes

Information:

Long conditions
In this study, the length of the interval / condition is 5 sessions at baseline 1 (A1), 8 sessions in intervention (B), and 5 sessions at baseline 2 (A2).

Estimation of direction
Estimation of the direction trend in this study with split-middle method. The methods are: a) dividing the data in each phase into two parts, b) dividing the right and left into two then the third step specifies the median of each hemisphere and the last draws parallel lines with absisses that connect the intersection between rare two and three. the estimation of the direction trend is ascending at baseline 1, rising during the intervention period and ascending during the baseline period 2. More clearly, the estimation of the trend toward self-care ability in baseline 1, intervention, and baseline 2 are as follows:

First, look for the stability range by:

Then calculate the mean level of the total score per phase:

Determine the upper limit

Determine the lower limit

Calculating the percentage of data points in conditions A1 - B - A2 that are in the stability range is by:

If the percentage of stability is 85% - 90% is said to be stable, while below it is said to be unstable (variable). (Sunanto, 2005).

On the results of the calculation of the percentage of stability A1 - B - A2 in the ability of self-care gets 60%, 50%, 80%, which means the tendency of stability is variable or unstable.

Trends in data traces
Determining the trend of data traces, this is the same as the tendency of the direction above. Therefore enter the same results as the direction tendency.

Stability and range levels
As calculated above, that A1 - B - A2 is variable or unstable. As for the range: A1 = 45 - 50, B = 48 - 55, A2 = 50 - 57.

Determine the level of change by calculating the data difference on the last day of each phase with the first day's data. If the result increases it means that it is improved and given a sign (+), if the result decreases it means that it is deteriorating and given a sign (-), and if the result is no change is marked (=).

Figure 3. Estimation of the Trend of Direction of Baseline 1
Self-Care Capability, Interference and Baseline 2

Stability tendency
The tendency of stability is the tendency of data stability and is determined using 15% stability criteria (Sunanto, 2005). The calculations are as follows:

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That is, the results of the data on the instrument of self-care ability show that at baseline 1 (A1), intervention period, and baseline period 2 (A2), the child experiences improvement towards (+).

The results showed that the use of daily living themed animations entitled "I can bathe myself", "I can wear my own clothes", and "I can eat alone" can significantly improve children's self-care ability down syndrome, and can reduce negative behaviors as long as the child carries out self-care activities. Empirical data shows an increase in the ability of the subject before, during, and after getting intervention using animation has increased.

More clearly, the improvement of the subject's self-care ability, before, during, and after the intervention can be seen in the following graph:

![Graph of Improvement of Self-Care Ability](image)

**Figure 3.2** Graph of Improvement of Self-Care Ability before, during, and after the intervention

**Conclusion**

Based on the results of the research and discussion described, the following conclusions can be drawn:

The use of daily living animations "I can bathe myself", "I can wear my own clothes", and "I can eat alone" has been shown to improve self-care ability in children with Down syndrome. This can be seen from the average percentage of the subject's self-care ability at baseline 1 which was 5 sessions, which is 47%. Then it increased during the intervention period which was carried out during 8 sessions, which gained an average percentage of children's ability, namely 51%. And it increased again the average percentage of self-care ability at baseline 2, which was 5 sessions, namely 54%.

The use of animations with daily living themes "I can bathe myself", "I can wear my own clothes", and "I can eat myself" proved to reduce and change negative behaviors that arise when children do self-care activities, including bathing, wearing clothes, and eating. If before giving intervention using daily living themed animations, the subject often shows negative behaviors such as throwing, running, etc., after giving intervention these behaviors can be reduced.

Reference


Christensen, Larry B. 2001. Experimental Methodology. USA: Allyn and Bacon


