

Task Analysis to Improve Eating Ability for Down Syndrome Children

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ABSTRACT

Research early from problems which is the ability to eat find at class of 1 CI SLB Fan Redha Padang, in subject specifically the ability to eat. On building self-esteem, especially aspects of eating. When children eat lunch at school, children are often fed by parents, teachers and friends of children, so that children always rely on those who are nearby in the activities of the child's independence. So we need a method to solve this problems, one of them is of Task Analysis. This research use experiment type with single subject and AB design. Subject of this Research is a student at class of 1 CI SLB Fan Redha Padang. Data's collect in the form of deed test through perception/observation, and data collecting appliance in the form of instrument The test counted 15 items . Acquisition of data analyzed to use analysis visual data techniques.

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1. INTRODUCTION

Education for children with special needs has developed into one of the main areas of education in the discipline of education as a whole (L. A. Daunhauer et al., 2014; May & Catrone, 2021; Neil & Jones, 2016; Ross et al., 2022). Special needs education is an integral part of the national education system, furthermore, education for people with various types of disabilities generally shows development. In an effort to develop children's abilities, education adheres to the principle of balance and harmony, namely the balance between creativity and discipline (Costa et al., 2015; da Cruz Netto et al., 2020; Deckers et al., 2016; Pinnington & Hegarty, 2000; Tiasari et al., 2020). One of the educations that needs to be provided is a special self-development program that is very much needed by children, especially children with special needs so that they can take care of themselves without relying on others. The ability to take care of yourself or self- help is not an ability inherited from parents, but must be learned first (Desai et al., 2015; Dolva et al., 2004; Nasermoaddeli, 2003; Raybourn, 2007; sunanto, 2005). For children who are classified as normal, this learning can be said to be relatively easy, but this is not the case for children who are classified as special needs.

The self-development program in the curriculum in SLB is called a special program, because this program is intended for children with special needs (Dolva et al., 2004; May & Catrone, 2021; Neil & Jones, 2016; Ross et al., 2022). This special program includes several things related to the child's daily interests such as: self-care needs, communication needs, socialization needs, life skills needs, and free time needs. The self-development abilities of each child with special needs differ from one another depending on the disorders of each child. The implementation of this self-development program still does not involve parents. In fact, it is very necessary so that children can live independently both at school and at home, (L. Daunhauer, 2011; Gisel & Pollock, 1988; Muldoon & Cosbey, 2018).

The self-development program is a SLB curriculum which is also called a special program. This special program includes several things related to the child's daily interests such as: self-care needs, communication needs, socialization needs, life skills needs, and free time needs. The self-development abilities of each child with special needs differ from one another depending on the disorders of each child. Unfortunately, the implementation of this self-development program still does not involve parents. In fact, it is very necessary so that children can live independently both at school and at home.

Based on the preliminary study conducted by the researcher in class I C1 SLB Fan Redha Padang, the researcher observed three students in the class about their self-management skills, namely eating without help from others. The first student, the researcher observed the child's physical appearance, there were no abnormalities or disabilities, the child also had no problems with vision, hearing, and the child's speech was also fluent. However, the problem with this student will be seen during the learning process, he often makes mistakes in reading and writing words or letters that are written are often reversed so that from several of these characteristics the researcher can be sure that this student has difficulty reading or dyslexia. This is in accordance with the teacher's answer which confirms the researcher's suspicion so that it can be ascertained that this student's ability to take care of himself is very good because there is nothing that makes this student have difficulty taking care of himself (Jordan et al., 2011; Wintergerst & López-Morales, 2021). The researcher also observed the second student, seen from the appearance of this student there are differences in physical characteristics, namely narrow eyes, messy teeth, shorter fingers, short body posture and unclear communication skills.

This student has a mongoloid build, it can be guessed that this student has Down syndrome. The researcher also observed this student in carrying out self-care activities, from these observations it can be seen that this student is able to take care of himself without help from others, even this student is able to help his other friends, (Duncan et al., 2021; Lersilp et al., 2016; Neil et al., 2021). Observation then moved to the third student, this student has characteristics that are not much different from the second student and in this student the researcher found problems with the child's ability to take care of themselves. The researcher observed the child's ability to take care of themselves, this student is very dependent on the presence of others in other words this student needs help in taking care of themselves. From the results of the interview with the homeroom teacher in the class. The teacher also confirmed that this student has problems in self-development and this student has only been in school at the age of 12, so the school has not provided self-development teaching to students.

The researcher also conducted an interview with the parents of this student. The parents of the student confirmed that the parents never tried to tell their children to take care of themselves. The parents of this student were too sorry for the very slow development of their children. In carrying out eating activities, this student was always fed by his parents because according to the parents if the child ate alone it would take a long time and be scattered so that in carrying out daily activities this student was always assisted by his parents. However,

from the researcher's observations, this student experienced complete independence problems due to the lack of efforts from parents so that their children could be independent.

The problems that researchers have raised above require professional efforts to guide children to be able to eat without the help of others and do it correctly. Therefore, it is necessary to provide special training to these students on how to eat properly and correctly. Teaching this to children is certainly not easy, so it needs to be taught step by step and accompanied by exercises on how to eat properly (Leonard et al., 2002; Parker & Kamps, 2011; Ross et al., 2024; Shahid et al., 2022).

So the researcher chose the task analysis approach to improve the ability to eat. Task analysis is a technique for breaking down a task or activity into small sequential steps and teaching each step to students until they can do the whole task. The advantage of this task analysis approach is that children with mental disorders who are able to be trained can succeed in doing tasks and activities, usually they often need clear planning and delivery so that they work without having to make decisions about what to do next, or choices that should be considered.

In an effort to improve the above conditions, the researcher wishes to conduct research to improve children's eating ability, which will be titled as follows *The Effectiveness of Task Analysis In Improving Eating Ability for Children with Down Syndrom.*

2. RESEARCH METHODS

This research is a type of experimental research in the form of Single Subject Research (SSR). Experimental research is an experimental activity carried out to see whether or not there is an effect of intervention/treatment on changes in target behavior. The subject of research is something that is used as material or target in a study. (Sunanto, 2005) stated that single subject research (SSR) is used for a single subject, in its implementation it can be done on a subject or a group of subjects. In this study, the subject was a Down Syndrome X child in class 1 C1, totaling one person, in Fan Redha Padang, a 12-year-old male.

Data recording was carried out by researchers using test instruments and direct observation, the recording chosen was the recording of events in the form of percentages. Recording was carried out on the ability to eat without help from others. Every correct movement made by the child was immediately checked by researchers in the data collection format. The data collection tool in this study was to use the data collection format, namely the data collection format in Baseline and Intervention conditions.

a. Data analysis in conditions

Analysis in conditions is analyzing data changes in a condition such as: baseline or intervention conditions, while the components to be analyzed include the level of stability of the direction of the trend at the level of change. The analysis referred to in this study is the graphic data of each condition with the following steps:

1. Determine the length of the condition
2. Determine the estimated trend direction
3. Level of stability
4. Determine the data distance trend
5. Range
6. Determine the level of change

b. Analysis between conditions

(Desai et al., 2015) said that to start analyzing data changes between conditions, stable data must precede the conditions to be analyzed. Because if the data varies (unstable) then it will be difficult to interpret the effect of the intervention on the dependent variable.

The components in the analysis between conditions are:

1. Determine the number of variables that change

2. Determine changes in direction of trend
3. Determine changes in stability tendencies
4. Determine the level of change
5. Determine the percentage of overlap of data in conditions A and B.

3. FINDINGS AND DISCUSSION

This study aims to improve eating ability through folding. *Task Analysis* for child *down syndrome* Which implemented with use method SSR. As for data Which obtained from results observation on condition baselin

(A) And Intervention (B) can seen as following:

Condition baseline

Observation on condition baseline that is do activity Eat Alone without help from person other Which done as much as 6 meeting times, started from date 6 December 2013 to on December 16th 2013. For more detailed data on eating ability in baseline conditions can seen in Chart 1.

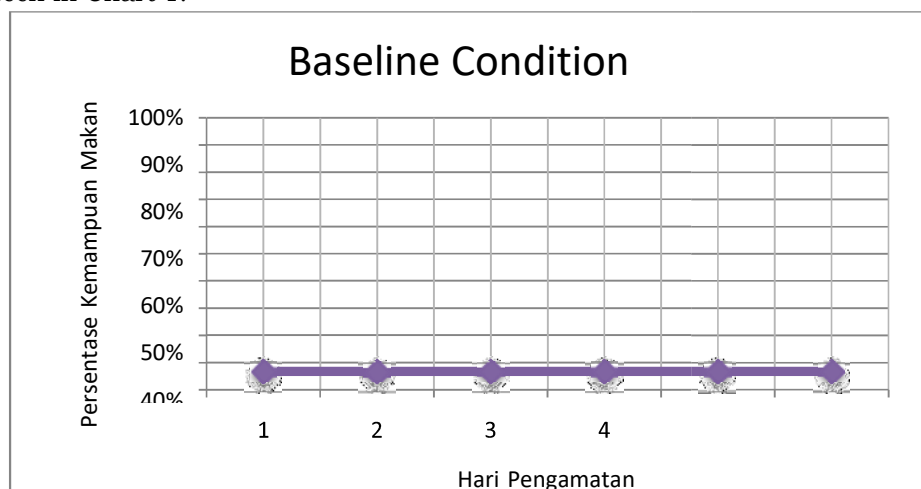


Chart 1. Baseline Ability Eat Through Task Analysis On Condition

From graph 1 above, this was obtained from the performance test with the same value. during six days of observation which took place from December 6, 2013 to on 16th December 2013, that is children can swallow Eat Which fed into the mouth child without choked. By Because That during baseline percentage as big as 46.6%.

Condition intervention child to obtain

On condition intervention method gather the data almost The same with steps taken at baseline conditions (A). The researcher has carried out intervention For teach independence child in Eat And do as much as ten observations started on December 18, 2013 – January 5, 2014. For more to explain data ability child Eat in condition intervention can seen on graph 2 below.

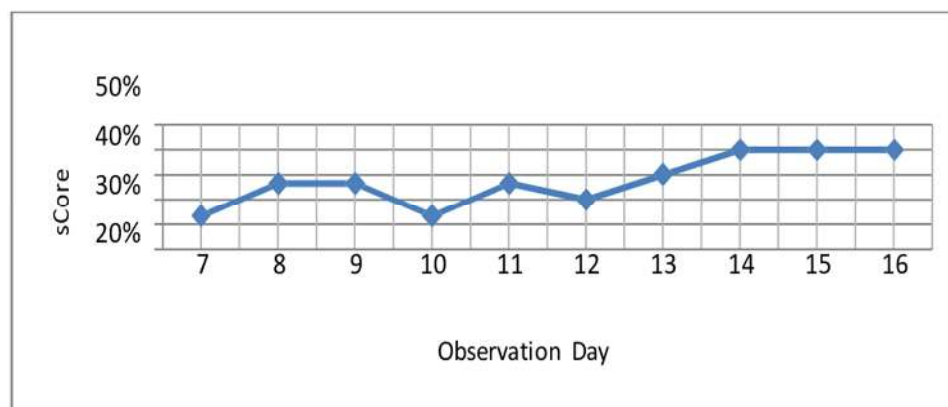


Chart 2. Ability Eat In Condition Intervention

Based on chart 2 on can explained, intervention on day seventh observation (18 December 2013) scores obtained by children still low, namely children to obtain mark 13.3%. Ability the is chew with mouth closed and swallowing food, but has shown that there has been an increase in condition previously (baseline), day observation eighth (20 December 2013) The child's abilities increase, namely the child can clean the mouth area with a cloth. has researcher provide so that acquisition score mark child on day That that is 26.6%, mark the including on ability child Which previously. Likewise on ninth day observation (December 22, 2013) the child obtained the same score with the previous day however, on the tenth observation day (December 24, 2013) ability child decrease on like on day seventh intervention that is 13.3%.

On the eleventh day of observation (December 26, 2013) it increased again so that the child obtained a score of 26.6%, but on the twelfth day of observation the child's ability again decreased, the child was only able to do task analysis, namely chewing, swallowing and cleaning the mouth after eating. After that, the child's ability has increased, namely 30% on the observation of the thirteenth day, then the value obtained by the child and the data is flat because the observation of the fourteenth day to the sixteenth observation day (January 1, 2014 – January 5, 2014) the child's ability to eat is 40%, that is, the child can hold the spoon correctly, Children can spoon rice and side dishes, feed the rice into their mouths, chew by cleaning their mouths after finishing eating. The results of this study showed a gradual development in the ability to eat independently in children with Down Syndrome during the intervention period. On the seventh day of observation, the child obtained a score of 13.3%, which indicates that the child begins to be able to chew with his mouth closed and swallow food without assistance. Although the initial score was low, it showed an improvement from baseline conditions.

On the eighth day, the child's score increased to 26.6% with the addition of the skill of cleaning the mouth area using a cloth, which was provided by the researcher. This increase shows the child's ability to develop in integrating more independent eating habits. However, on the tenth day, the child's ability decreased slightly with the score returning to 13.3%, similar to the observation results on the seventh day. This fluctuation can be caused by inconsistency in children's ability to apply new eating skills. After that, the child's ability continues to improve gradually, where on the thirteenth day, the child gets a score of 30%. A more stable increase was seen from the fourteenth day to the sixteenth day, with a score of 40%. At this stage, the child can not only chew and swallow food but can also hold the spoon properly, scoop rice and side dishes, put food in the mouth, and clean the mouth after finishing eating.

This development indicates that children begin to show better independence in

eating activities, and eating skills become more integrated. In conclusion, the interventions carried out succeeded in gradually improving children's ability to eat independently, although there were still fluctuations in the process. Determining the approximate direction trend. The steps in using the split middle method are:

1. Divide the number of points in the Baseline phase and the Intervention phase into two parts
2. The two parts of the right and left are also divided into two parts (2a)
3. Determine the median of each hemisphere (2b)
4. Draw a line parallel to the abscissa that connects the meeting points between the lines 2b and 2a. For more details, see graph 3 of the trend estimates below

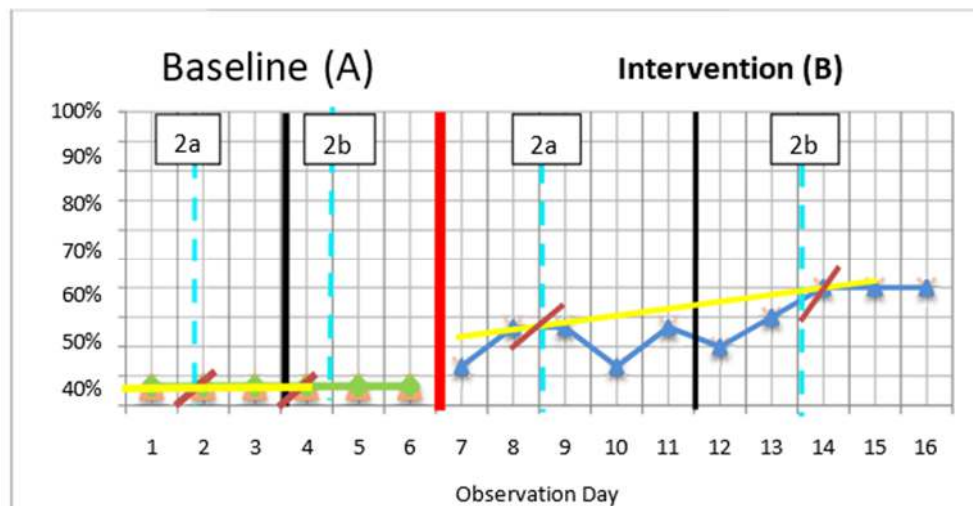


Chart 3. Recapitulation of Trend Direction

Estimates Eating Ability From chart 3 seen estimate tendency towards eating ability condition A horizontal (=) seen from chart that ability child Still low And on condition B estimate tendency the direction increase (+) ability Eat child in a way independent Keep going on And increase.

Determine tendency stability

To determine the stability tendency in conditions A and B, a stability criteria that have been established. To determine the stability tendency used criteria stable 15%. Then to be continued with count mean level, limit on, limit lower, And percentage stability. If percentage stability located between 85%-95% then the tendency is said to be stable, whereas if it is below 85%- 95% in the notes No stable. As for the calculation done with how to lower.

Condition baseline (A)

1. Determining the Stability Range (Trend Stability) Stability Range = stability criteria x highest score So Range Stability = $0.15 \times 6.6 = 0.99$
2. Count mean level with method add up all score And shared with lots of data points on condition A Mean level = Total score : number of points Amount Score = $6.6+6.6+6.6+6.6+6.6+6.6= 40$ So Mean level = $40: 6 = 6.7$
3. Determine upper limit with method add up mean level with half stability of tendency.

Limit On = mean level + $\frac{1}{2}$ range stability $\frac{1}{2}$ stability range = $\frac{1}{2} \times 0.99 = 0.5$ So Upper limit = $6.7 + 0.5 = 7.2$

4. Determine limit down with method reduce mean level with half stability of tendency
Lower Limit = mean level – ($\frac{1}{2}$ range stability) Limit lower = $6.7 - 0.5 = 6.2$
5. Determine the percentage of stability by determining the number of data points. in the range between the upper limit (7.2) and the lower limit (6.2), then divided with lots of data points. Data points in range = 6 Lots data points = 6 Percentage stability = ?
Percentage stability = $6:6 = 1 \times 100\% = 100\%$ (stable)

Condition Intervention (B)

1. Determining the Stability Range (Trend Stability) Range Stability = criteria stability x score highest Range Stability = $0.15 \times 40 = 6$
2. Calculating the mean level with method add up all score And shared with lots of data points on condition A

Mean level = Amount score : many points

Total Score = $13.3 + 26.6 + 26.6 + 13.3 + 26.6 + 20 + 30 + 40 + 40 + 40 = 784.8$

So Mean level = $784.8:10 = 78.48$

3. Determine limit on with method add up mean level with half stability tendency Limit On = mean level + $\frac{1}{2}$ range stability stability range = $\frac{1}{2} \times 6 = 3$ So Limit above = $78.48 + 3 = 81.48$
4. Determine limit lower with method reduce mean level with half stability of tendency
Lower Limit = mean level – ($\frac{1}{2}$ range stability) So Limit lower condition intervention = $78.48 - 3 = 75.48$
5. Determine the percentage of stability by determining the number of data points. in the range between the upper limit (81.48) and the lower limit (75.48), then divided with lots of data points.

Data points in range = 3

Lots data points = 10

Percentage stability = ? Percentage stability = $3:10 = 0.3 = 0.3 \times 100\%$

So percentage stability condition intervention = 30% (No stable) Can explained that percentage stability on condition baseline (A) And intervention (B) No stable, Because percentage stability condition baseline (A) before given treatment is 6.66% and the condition when given treatment/ intervention (B) is 30 %. Data it is said stable if obtained percentage stable 85%- 95%.

6. Determine Tendency Footsteps Data

In the eating ability graph data, in condition A the eating ability is... child is flat (=) in this initial observation the child is not yet able to eat in the right and directed way so that a percentage of 100% is obtained. Meanwhile in condition B, in the seventh observation, the score obtained by the child was still low and In the second observation, the child's score increased (+). After the fourth and sixth days score child experience decline. However on day furthermore score child return increased. In the eighth, ninth and tenth observations the child obtained score The same which is 40%.

7. Determine Level Stability And Range

Based on data ability child in ability Eat in a way independent can seen in condition baseline (A) the data No varies (stable) with a range of 100%. In the intervention conditions the data varies (is not stable) between 13.3% - 40%, 13.3% is data lowest and 40% is data highest.

8. Determine Level Change (Level Change)

Determine the level of change (Level of change) which shows how much the occurrence of data changes in a condition. The way to calculate it is what is the first score or data on the first day and the last day's data in condition A and B. Then the large score is subtracted from the small score. Level of change the child's ability to eat in baseline conditions (A) is 0. And in conditions intervention (B) is $40 - 13.3 = 26.7$.

After knowing each of the components above, to clarify them then entered in one analysis table format in conditions related to effectiveness Task Analysis in increase ability Eat on child down syndrome. For more details can be seen on table 1

Tabel 1. Summary of Analysis under Baseline Conditions (A) Feeding Ability

Condition	A	B
1. Long Condition	6	10
2. Estimation Directional Tendency	_____ (=)	_____ (+)
3. Stability Trends	100% (stable)	30% (unstable)
4. Data Trail	_____ (=)	_____ (+)
5. Stability level and Range	100% (stable)	30% (unstable)
6. Level of Change	0%	$40\% - 13,3\% = 26,7\%$

From graph 3, it can be seen that the estimated tendency of the direction of eating ability in condition A is horizontal (=) it can be seen from the graph that the child's ability is still low and in condition B the estimated tendency of the direction is increasing (+) the child's ability to eat independently continues to increase and increase.

The hypothesis that the author proposes in this study is "The effectiveness of Task Analysis can improve the ability to eat independently for Down Syndrome children in class I C1 SLB Fan Redha Padang". The answer to this research hypothesis is the hypothesis is accepted. The results of this study have proven that the ability to eat in Down Syndrome children can be improved through Task Analysis. The discussion of the results of this study shows that interventions using the Task Analysis method are effective in improving the ability to eat independently in children with Down Syndrome. At baseline condition (A), observations for six days show that the child can swallow food put in his mouth without choking. However, the success rate only reaches 6.6%, indicating limitations in independent eating skills. This data reflects that at baseline conditions, children are not able to eat independently without assistance.

After being given an intervention (condition B) with the Task Analysis method, there was a gradual improvement in eating ability. Observations during the intervention period (10 days) showed that children experienced an increase from 13.3% to 40%. In this process, the child is not only able to swallow food but also begins to develop additional skills, such as

chewing with his mouth closed, cleaning his mouth with a cloth, and holding a spoon properly. This gradual increase indicates that the intervention significantly affects the increase in children's independence in eating (Kilany et al., 2024; Kumin & Bahr, n.d.; Lazar et al., 2018). At the stability data analysis stage, the baseline condition has a stable tendency of 100%, indicating the invariability of the results due to the low feeding ability of children. On the other hand, in the intervention condition, the stability decreased to 30%, which indicates that there is a variation in children's skills during the process of learning to eat independently (Kristiana, n.d.; Pramesty, 2017). This indicates that during the intervention phase, the child faces challenges but also experiences a significant improvement in self-eating skills. This study also showed that the direction of tendency in baseline conditions was flat (=), while in the intervention condition it showed an increasing tendency direction (+), indicating a positive development in children's eating ability. This was supported by a change in the level from baseline to intervention, where there was a 26.7% increase in capacity. Based on these results, the research hypothesis is accepted. Task Analysis has proven to be effective in helping children with Down Syndrome develop the ability to eat independently.

4. CONCLUSION

Based on the results of the research and discussion, which was carried out at SLB Fan Redha Padang aims to improve eating skills through Task Analysis in Down Syndrome children. In baseline activities (A) children are asked to do eating activities without any help from others. This baseline activity was carried out for six meetings, from December 6-16, 2013. In the intervention condition, it was carried out for ten meetings, from December 18, 2013 - January 5, 2014. Observations and recordings carried out in this study used percentage measurements, how many children can do the instrument items when recognizing vowels then divided by the total of all instrument items and multiplied by 100%. Based on the description of the observation results, it can be concluded that the eating ability of Down Syndrome children in class I C1 SLB Fan Redha Padang can be improved through Task Analysis.

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