

# IMPLEMENTATION OF NURTURING MOTION TRAINING PROGRAM TO IMPROVE FINE MOTOR SKILLS IN A CHILD WITH DOWN SYNDROME

<sup>1</sup>Putri Nindya Agustin  
Department of Special Education  
Sultan Ageng Tirtayasa University, UNTIRTA  
Banten, Indonesia  
putrinindyaagustin3.pna@gmail.com

<sup>2</sup> Marshal Muhamad Farhan  
Department of Special Education  
Sultan Ageng Tirtayasa University, UNTIRTA  
Banten, Indonesia  
marshelf27@gmail.com

<sup>3</sup>Yuli Insyirah  
Department of Special Education  
Sultan Ageng Tirtayasa University, UNTIRTA  
Banten, Indonesia  
yuliinsyirah14@gmail.com

<sup>4</sup>Dea Marlis Apriliani  
Department of Special Education  
Sultan Ageng Tirtayasa University, UNTIRTA  
Banten, Indonesia  
Deamarlisapriliani05@gmail.com

<sup>5</sup>Sisriadini Alamsyah Sidiq  
Departemen of Special Education  
Sultan Ageng Tirtayasa University, UNTIRTA  
Banten, Indonesia  
sistriandinalamsyah@untirta.ac.id

*Abstract — Cases in the field, that involves a 5-year-old children with Down syndrome who are not able to optimize some aspects of their motor skills. The research aims to improve children's fine motor skills in daily activities. To achieve that goal the researcher implemented a motion development training program. This study is a Single Subject Research (SSR) with A-B-A design. Data collection uses tests and observations. The data obtained was analyzed using simple descriptive statistics displayed in tables and graphs. The results showed that there was an increase in fine motor abilities of the subjects after being given a bringing up training intervention. The subject's ability increased from 45.8% at baseline 1 (A) to 70.8% at baseline 2 (A'). The results indicated that, motor development interventions are effective in improving motor skills.*

*Keywords - Fine motor; nurturing motion; motion development interventions; Down Syndrome Children.*

## 1. Introduction

Activities in daily life cannot be separated from motor skills. Walking, running, jumping, writing, drawing, cutting are activities closely related to motor skills. Motor skills consist of two types, namely gross motor skills and fine motor skills. Both are interrelated and very important for each individual, including individuals who have special needs to be able to carry out activities in daily life.

Gross motor is the ability to use large muscles, covering the activities of crawling, walking, running, jumping, jumping, kicking, throwing, hitting, catching, pushing, slowing, lifting, pulling. On the other hand, fine motor capability is the ability to move or enable the small muscles that require coordination between the eye and the hand. The statement is in accordance with the opinion of Sumantri (2005: 143) which states that "fine motor skills are organizing the use of a group of small muscles such as fingers which often require precision and hand coordination, skills that include the use of using tools to work on an object."

Ariyanti, et al. (2006: 25), states that "fine motor skills are needed as a basis for writing ability and self-help activities". Fine motor skills are a very important ability for every individual, including autistic children. This ability is needed to support the subject's prowess in both academic and non-academic fields, when fine motor skills do not develop, subject activities will also be disturbed. Researchers identified a 5 year old male subject whose fine motor skills were not optimal.

## 2. Research Methods

Experimental research design with single subjects or Single Subject Research (SSR). This experimental approach aims to obtain the data needed by looking at the results or consequences of a treatment or intervention in the application of gesture to the subtle motor skills of subjects in 5-year-olds. Tawney and Gast, cited in Sunanto (2006: 1) explain that research with a single subject is an experimental research carried out to determine how much influence the treatment or intervention is given to the subject repeatedly in a given time. Research with a single subject or SSR refers to a research

strategy developed to document changes in individual subjects' behavior.

In this case the researcher will observe whether the application of gesture to the subject's motor abilities can develop. This study will observe conditions before being treated (baseline-1 condition), then with treatment (intervention conditions), and due to treatment (baseline-2 conditions).

#### A. Research design

The design used in this study is the A-B-A' design which means that the A-B-A' design provides a more causal relationship that is stronger between the dependent variable and the independent variable. Sunanto (2006: 62), in applying the A-B-A design pattern, there are several steps that must be considered. The steps taken are:

- Define the target behavior as behavior that can be accurately measured.
- Measure and collect data at baseline (A) conditions continuously until the trend and data level become stable.
- Provide intervention after the trend of baseline data is stable.
- Measure and collect data in the intervention phase (B) with a certain period of time until the data becomes stable.
- After the trend and data level in the intervention (B) are stable, repeat in the baseline phase (A').

The details of the implementation of the study using a single subject research approach with A-B-A' research design, namely:

##### a) Phase A (Baseline 1)

Baseline-1 in this study carried out observations before administering the treatment using a motion training approach carried out 4 times. The duration of time during the learning session is 30 minutes. The test used is a test of the subject's motor ability which aims to measure the initial ability of the subject before being subjected to exercise development. The researcher observes the subject learning process in order to conduct an assessment by looking at the assessment sheet, this is also done in the intervention phase.

##### b) Phase B (Intervention)

The implementation of this intervention was carried out for 8 meetings namely to provide ways to optimize fine motoric subjects using the media or by using songs or gymnastics. This teaching is carried out with a hands-on approach to motion, with each meeting 30 minutes.

##### c) Phase A' (Baseline 2)

Baseline-2 activity is a baseline-1 repetition activity which is intended as an evaluation to see the application of motion development to the subtle motor skills of the subjects. In the implementation of the baseline-2 researchers observed the fine motor skills of the subjects after being given intervention or treatment. Baseline-2 was given a final test four times to see the extent of the influence of giving intervention in fine motor skills.

#### B. Place and time of research

This research took place at the child's home which is located at Taman Krakatau Housing Jl. Bukit Gorda Blok. H 14 No. 21, Cilegon City. The researchers considerations in determining the location of this study are :

- Because the subject has not reached school age.
- The subject has not received treatment by means of motion training in optimizing the child's fine motor skills.
- So that parents can participate and apply back to the subject.

This research was conducted for approximately one month, with details as follows:

- In the first week, researchers compiled the instrument for the initial test (baseline-1), created teaching material (intervention), and designed the final test (baseline-2).
- At the end of the second month, researchers held a series of Baseline-1 activities, in order to obtain an overview or initial condition of understanding articulation while conducting an intervention using the drill method.

### 3. Result and Discussion

#### A. Baseline 1 (A)

Baseline-1 in this study carried out observations before administering the treatment using a motion training approach carried out in 4 sessions. The duration of time during the learning session is 30 minutes. The test used is a test of the subject's motor skills which aims to measure the child's initial ability before being subjected to motion training. The researcher observes the child's learning process to make an assessment by looking at the assessment sheet.

Table 1: Main Level Phase A – B – A

Phase Baseline 1 (A)		Phase Intervensi (B)		Phase baseline 2 (A')	
Session	Value	Session	Nilai	Session	Value
1	45,8%	1	75,0%	1	66,6%
2	41,6%	2	79,1%	2	75,0%
3	45,8%	3	75,0%	3	70,8%
4	50,0%	4	83,3%	4	70,8%
		5	83,3%		

6	91,6%
7	87,5%
8	87,5%

**B. Intervention (B)**

The intervention was implemented eight times, and each meeting was 30 minutes long. Interventions are given to the child related to the use of bodybuilding exercises to test the fine motor skills.

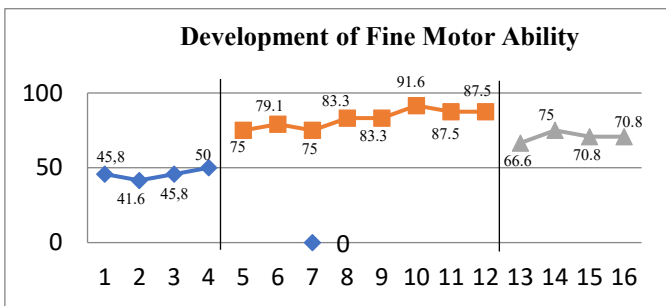
Intervention using the method of bodybuilding exercise begins with giving an exception to increase attention and concentration. The next step is to invite the child to sing together while doing small movements for the whole body.

**C. Baseline 2 (A ')**

Baseline-2 The subject's motor ability was observed after treatment. Observations on Baseline-2 were carried out over 4 sessions, each 30 minutes long. After observing the child's ability to move fine motor skills, the researcher noted the changes in the subtle motor of the subjects in the observation table.

The results show increased fine motor ability of Down syndrome child through a bodybuilding exercise, collected over 16 sessions consisting of 4 baseline-1 sessions (A1), 8 session intervention (B) and 4 baseline-2 sessions (A2) Shown in the table below

The data above can be described in the form of graphs as below:



Graphic 1: Data for Results of Improved Fine Motor Capability

Graphic 1 describes the acquisition of data from the baseline-1 (A1) phase, the intervention phase (B), and the baseline phase-2 (A2). The blue line in the graph explains the acquisition of baseline-1 phase data, the red line in the graph describes the acquisition of the intervention phase data, the green line in the graph describes the acquisition of the baseline-2 phase data.

**Analysis in Conditions**

The results are summarized in the table below:

Table 2: Visual Data Analysis in Conditions

No	Condition	Base-line-1 (A1)	Inter-vention (B)	Base-line-1 (A2)
a.	Length of condition	4	8	4
b.	Estimation of direction trends	(+)	(+)	(+)
c.	Estimated trace data	Stable (100%)	Stable (100%)	Stable (100%)
d.	Estimated trace data	(+)	(+)	(+)
e.	stability level and range	(41,6 – 50,0)	(75,0 – 91,6)	(66,6 – 75,0)
f.	Level of change	50 _ 45,8 (4,2)	87,5 – 75,0 (7,5)	70,8 – 66,6 (4,2)

As shown in table 2 above, the results of data analysis are presented in the conditions of baseline-1 (A1) phase, intervention phase (B), and baseline phase-2 (A2). The length of the condition or the number of all sessions conducted in the baseline-1 (A1) phase is 4 sessions, the intervention phase (B) is 6 sessions, and the baseline-2 phase (A2) is 4 sessions. Estimates of direction trends explain changes in each data from session to session. The baseline-1 (A1) phase of the trend line decreases because the scores obtained decrease from the last first-session session. Intervention phase (B) trend line direction increases because the score obtained increases from the last first-session session. The baseline-2 phase (A2) trend line direction increases because the score obtained increases from the first session to the last session. The calculation of the stability tendency in the baseline-1 (A1) phase is 100%, the intervention phase (B) is 100%, and the baseline-2 (A2) phase is 100%. So that in the three phases the tendency of data stability is stable.

**Inter Condition Analysis**

Inter condition analysis is an analyzing activity carried out between two conditions such as baseline conditions and intervention conditions. Analysis between conditions is carried out after the data obtained shows stability. The following data analysis between conditions can be presented in a summary table below:

Table 3: Data Analysis Inter Conditions

No	Comparison of conditions	A1	A2
a	Amended number of variables	1	1
b	Trends in direction and effect	/	/
c	Changes in stability trends	Stable	Stable
d	Level change	75 – 50 (+25)	66,6 – 87,5 (-20,9)
e	Percentage of overlap	0%	25 %

Table 3 is the result of the analysis between conditions, from the table it can be seen that in this study the variable that wanted to be changed was one, namely fine motor skills. Changes in the trend of the direction between the baseline-1 (A1) phase to the intervention (B) are increasing which means that the condition has increased after the intervention. Whereas in the baseline-2 phase (A2) to the intervention (B) is increased which means that the intervention can significantly improve the ability of the subject.

Changes in the tendency for stability between baseline-1 (A1) to intervention (B) is stable to stable?, and between baseline-2 (A2) to intervention (B) is stable to stable.? Changes in level from baseline-1 (A1) to intervention (B) of +25, which means fine motor abilities have increased by +25. Whereas from baseline-2 (A2) to intervention is 0 which means that fine motor skills remain the same even though the intervention has not been given. Overlapping data in the baseline-1 (A1) phase into the intervention (B) is 0%, which means that the administration of the intervention has a significant influence on the subject. In other words, there was an increase in in subtle motoric abilities of the subjects through the effort to develop motion indicating that the training used could improve the subtle motor skills of the subjects.

#### 4. Discussion

##### Ability of Down Syndrome Children Before being given Intervention

The baseline condition is the initial condition to determine the subject's ability before intervention. The condition before being given an intervention showed fine motor skills in the study subjects having a sufficient score. This can be seen from the calculation of data analysis in conditions in the baseline-1 (A1) phase with a mean level of 45.8%.

##### Ability of Down Syndrome Children after being given Intervention

Experimental research approach with single subjects or Single Subject Research (SSR). This experimental approach aims to obtain the data needed by looking at the results or consequences of a treatment or intervention in the application of gesture to the fine motor abilities of the subject child in 5-year-old children. The intervention provided was in the form

of motion training. In this case the researcher will observe whether the application of gesture to the subject's motor abilities can develop. This study will observe conditions before being treated (baseline-1 condition), then with treatment (intervention conditions), and due to treatment (baseline-2 conditions).

Subjects have intellectual functions that are significantly below the normal average and have very limited learning characteristics, moreover understanding abstract subject matter. They learn more by imitating or parroting rather than understanding. In this study, observations were made on the motor abilities of subjects after administration of the treatment using the motion development approach.. The test used is a test of children's motor skills which aims to measure the ability of a child after being subjected to motion training, without any intervention treatment.

After observing the ability of children to move fine motor skills, the researchers noted an increase in fine motor skills after being given an intervention, this was seen from the results obtained were 66.6%, 75%, 70.8%, and 70.8%.

##### The Influence of the Fine Motor Ability of Down Syndrome Children Through Motion Training Exercises

Research on the improvement of subtle motor abilities of subjects by means of motion training shows that training can improve subjects' fine motor skills. This situation is shown in the assessment of fine motor skills at baseline-1 (A1) for 4 sessions. The value obtained is a score of 45.8%, 41.6%, 45.6%, and 50%. The increase in intervention phase (B) is a score of 75%, 79.1%, 75%, 83.3%, 91.6%, 87.5% and 87.5% for 8 sessions. Baseline-2 phase (A2) is a score of 66.6%, 75%, 70.8%, and 70.8%. The percentage of stability of baseline-1 (A1) is 100%, intervention (B) is 100% and baseline-2 (A2) is 100%, which means the three phases have a stable percentage of stability. In accordance with the guidelines for the percentage of stability in general 80% -90% of the data still at 15% above and below the mean level, it is said to be stable (Sunanto et al. 2005: 94). In addition, the percentage of overlap showed a 0% result, which means that the intervention that is motion development has a significant influence on the subjects' fine motor skills. As explained by Efendi (2008: 23) that the basis of the development of learning for children with special needs is, love, individual service, readiness, preparedness, motivation, learning and working groups, skills, and planting and improving attitudes. Therefore, increasing the subtle motor abilities of subjects through the effort to practice motion must pay attention to the basics of developing learning. After making observations on the subject's ability to move fine motor skills, the researchers noted an increase in fine motor skills, this was seen from the results obtained.

#### 4. Conclusion

Based on the results of the research and data analysis, it can be concluded as follows: (1) The conditions before being given the intervention showed fine motor skills in the study subjects having a sufficient score. This can be seen from the calculation of data analysis in conditions in the baseline-1 phase (A1) with a mean level of 45.8%; (2) After observing the ability of children to move fine motor skills, the researchers noted an increase in fine motor skills after being given an intervention, this was seen from the results obtained were 66.6%, 75%, 70.8%, and 70, 8% .; (3) Research on the improvement of subtle motor abilities of subjects through efforts to develop motion shows that the training used can improve the fine motor skills of the subjects. This situation is shown in the assessment of fine motor skills at baseline-1 (A1) for 4 sessions. The value obtained is a score of 45.8%, 41.6%, 45.6%, and 50%. The increase in intervention phase (B) is a score of 75%, 79.1%, 75%, 83.3%, 91.6%, 87.5% and 87.5% for 8 sessions. Baseline-2 phase (A2) is a score of 66.6%, 75%, 70.8%, and 70.8%. The percentage of stability of baseline-1 (A1) is 100%, intervention (B) is 100% and baseline-2 (A2) is 100%, which means the three phases have a stable percentage of stability. In accordance with the guidelines for the percentage of stability in general 80% -90% of the data still at 15% above and below the mean level, it is said to be stable (Sunanto et al. 2005: 94). In addition, the

percentage of overlap showed a 0% result, which means that the intervention that is motion development has a significant influence on the subjects' fine motor skills.

#### References

- Aksara Efendi, & Mohammad. (2009). *Pengantar Psiopedagogik Anak Berkelainan*. Jakarta: Bumi.
- Aksara Mangunsong, & Frieda. (1998). *Psikologi Pendidikan Anak Luar Biasa*. Jakarta: Lembaga Pengembangan Sarana Pengukuran Dan Pendidikan Psikologi (LPSP3) UI.
- Arikunto, & Suharsimi. (2010). *Prosedur Penelitian*. Jakarta: Rineka Cipta.
- Arikunto, & Suharsimi. (2013). *Dasar-Dasar Evaluasi Pendidikan*. Jakarta: Bumi.
- Juang Sunanto, & Dkk. (2005). *Pengantar Penelitian dengan Subyek Tunggal*. Crieded University of Tsukuba.
- Mangunsong, & Frieda. (2009). *Psikologi Pendidikan Anak Berkebutuhan Khusus*. Jakarta: Lembaga Pengembangan Sarana Pengukuran Dan Pendidikan Psikologi (LPSP3) UI.
- Pedoman Penulisan Karya Ilmiah. (2010). Malang: Universitas Negeri Malang.
- Sanjaya, & Wina. (2008). *Kurikulum Pembelajaran Teori dan Praktik Pengembangan*. Jakarta: Kencana.
- Sanjaya, & Wina. (2008). *Strategi Pembelajaran Berorientasi Standar Proses Pendidikan*. Jakarta: Kencana.
- Sudijono, & Anas. (2006). *Pengantar Evaluasi Pendidikan*. Jakarta: PT. Raja Grafindo Persada.
- Wardani dkk,. (2007). *Pengantar Pendidikan Luar Biasa*. Jakarta: Universitas Terbuka.