



Optimization of Movement Development for Cerebral Palsy (CP) Students During the Covid-19 Pandemic

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Abstract

These children with special needs generally have differences both physically, mentally and socially, emotionally. They require adjustments in the learning process. The adjustment is made in order to optimize their development like other children. various types of children with special needs, one of which is children who do not have physical abilities (disabled). Disability can be classified into two types, namely disorders of the function of the orthopedic limb (orthopedic disability) and disorders of the function of the limb of the nerve (neurological disability). Cerebral Palsy (CP) is a part of neurological disabilities (physical disabilities), they also do not escape the attention and reach of educational services. The purpose of this study was to optimize the fine motor skills of Cerebral Palsy (CP) students at TKLB SLB D YPAC, South Jakarta. The development of the learning model used in this study is the ADDIE Approach (Analysis-Design-Develop-Implement-Evaluate) Learning Design Model which is strengthened by the results of the instrument validity and reliability test data. The results of presenting data are in the form of analysis results and facts that the researchers found in the field, and adjusted to the theory used in this study. The discussion on the presentation of the data is the result of analysis and facts that the researchers found in the field, and has been adjusted to the theory used in this study so that it can optimize the fine motor skills of Cerebral Palsy (CP) students at TKLB SLB D YPAC, South Jakarta through sewing board media. . After doing research and development on the sewing board media, the sewing board media that has been developed has proven to be effective and can be used in optimizing the fine motor skills of Cerebral Palsy (CP) students.

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INTRODUCTION

The differences in each child's development will vary, knowing and understanding the developmental phases of a child can certainly help an educator optimize the learning that will be given, especially if this learning is aimed at children with special needs. These children with special needs generally have differences both physically, mentally and socially, emotionally. They have special characteristics that result in adjustments in various fields so that they continue to have the same rights as other children. The adjustment is made in order to optimize their development like other children. These adjustments can be in the form of: a learning environment that can accommodate the needs of all children, adjustment of children's academic abilities, skills and knowledge of educators in order to understand the child's condition, adjustment of learning activities, adjustment of learning facilities and infrastructure, adjustment with peers and adjustment to the community environment.

Various types of children with special needs, one of which is children who do not have physical abilities (handicapped). Physically disabled can be classified into two types, namely disorders of orthopedic limb function (orthopedic quadriplegic) and disorders of nervous limb function (neurologically disabled). Orthopedic disabled children are children who experience certain impairments, disabilities, and motor imperfections in their body, especially in the bones, muscles and joints, for example: Poliomyelitis, Bone Tuberculosis, Osteomyelitis and Arthritis. While the neurological disability is an abnormality in the function of the limbs (motor abnormalities of the hands or feet) caused by disturbances in the nervous system. One of these neurological disabilities can be seen in children with Cerebral Palsy (CP). (Efendi, 2009, pp. 7–8).

Intellectual disabilities, seizure disorders, communication and behavioral difficulties. This is in line with the opinion of Huser & Mo that Cerebral Palsy in children is often accompanied by other comorbidities such as intellectual disorders, seizure disorders, communication and behavioral difficulties so that in addition to stunted motor movements accompanied by other disorders that require special treatment in order to more optimal. (Huser & Mo, 2017, p. 2).

Movement disorders in children with Cerebral Palsy (CP) will mostly affect activities of daily living (ADL) because children with Cerebral Palsy (CP) will generally experience obstacles to movement like other people do. The difficulty is due to the lack of coordination of movements. Coordination of movement is the process of the occurrence of a movement that involves the limbs (hands and feet), eyes and brain. Due to the lack of coordination of movements, to be able to carry out various activities, there will be obstacles and in some severe conditions of course require the help of others. (Bulgarelli, Bianquin, Besio, & Molina, 2018, p. 5).

Salim, 2000) argues that Cerebral Palsy (CP) is a part of neurological disabilities (physical disabilities), they also do not escape the attention and reach of educational services. This is fully realized by educators who are experts in the field of Special Education because when viewed from their existence, this child with Cerebral Palsy (CP) will remain throughout human life, and the general public has not seen that children with special needs, including children with Cerebral Palsy (CP) still has the potential that can be developed optimally so that they can live independently and do not have to burden others.

The disruption of motor function experienced by children with Cerebral Palsy (CP) will result in impaired movement and posture, mobility and motor limitations so that various difficulties will arise that affect their learning outcomes, such as: intellectual disorders, seizure disorders, communication difficulties, behavior and independence in activities. daily. The emergence of this difficulty requires efforts to improve, shape and strengthen their fine motor skills so that Cerebral Palsy (CP) students can carry out a motion correctly with guidance in the form of stimulation towards the development of motion so that it can produce meaningful movements for Cerebral Palsy (CP) students.).

Researchers want to help optimize the fine motor skills of Cerebral Palsy (CP) students by using learning media which includes elements of accuracy, eye-hand coordination, speed and flexibility of hand movements. The four elements are integrated in a media development in the form of a sewing board. The reason why the researcher chose the sewing board media was to be able to provide activities for fine motor movements that would be assembled according to the learning

theme so that students became more interested so that they could optimize the ability of movement functions for Cerebral Palsy (CP) students by involving hand, eye coordination. and brain.

Research on children with Cerebral Palsy (CP) to optimize fine motor skills using non-electronic media is still rarely done or still difficult to find, especially in Indonesia, so that it inspires the author to design and develop a teaching aid product in the form of a sewing board.

DISCUSSION

This fact makes researchers assume that the existing and used sewing board media is not a product of the result of Research because if it is assessed in terms of suitability, the sewing board media cannot be said to be in accordance with the conditions and needs of children with special needs, especially for Cerebral Palsy (CP) students.). This is because reviewing the sewing board media used in the classroom has the following criteria: a). Has a distance between holes that are close to each other, which is about 2 cm, b). There is a small hole size of about 4 mm, c). The number of holes varies between 10 holes to 30 holes making it difficult for Cerebral Palsy (CP) students, especially for Cerebral Palsy (CP) students of the Spastic Quadriplegia type (paralysis of the limbs in the form of two paralyzed hands and two legs) and Cerebral Palsy students (CP) with Low Vision resistance to insert the rope into the hole and pull the rope back out of the hole on the sewing board. In general, Cerebral Palsy (CP) students when playing the sewing board did not finish it because it was not interesting, bored and considered difficult.

The reason the researchers chose the sewing board media with the aim of being able to provide activities for fine motoric movements that would be assembled according to the learning theme so that students became more interested so that they could optimize the ability of movement for Cerebral Palsy (CP) students by involving the coordination of the hands and eyes. and brains. The research objectives are: 1). Knowing the sewing board media model that will be used in order to optimize the fine motor skills of Cerebral Palsy (CP) students so far, 2). Knowing the development of the sewing board media in order to optimize the fine motor skills of Cerebral Palsy (CP) students, 3). Knowing the steps for using sewing board media to optimize the fine motor skills of Cerebral Palsy (CP) students, 4). Knowing the effectiveness of the sewing board media to optimize the fine motor skills of Cerebral

Palsy (CP) students, 5). Knowing the purpose of providing sewing board media for students with special needs, especially for Cerebral Palsy (CP) students at TKLB SLB D YPAC, South Jakarta.

The development of the learning model used in this study is the ADDIE Approach (Analysis-Design-Develop-Implement-Evaluate) Learning Design Model. The ADDIE Approach can be developed systematically and is based on the theoretical foundation of learning design. This model is arranged programmatically with a systematic sequence of activities in an effort to solve learning problems related to learning resources that are in accordance with the needs and characteristics of students. Through the ADDIE model, there is an opportunity to evaluate the development activities of each stage.

The evaluation technique used is a non-test evaluation technique. In this research and development, researchers used questionnaire and observation techniques. The evaluation technique by distributing closed and open questionnaires was carried out through expert reviews and evaluation techniques in the form of observations carried out during field trials to Cerebral Palsy (CP) students using a sewing board media. Expert reviews and field trials were conducted by means of one to one evaluation.

A. Instrument Validity Test Results

The validity test is carried out to measure the high level of accuracy and consistency of the research instruments that have been used in data collection. To find the validity value of an item, the correlation between the item score and the item's total score is used.

The validity test was carried out to test each item of the question in the questionnaire instrument used. The validity test was conducted to test the validity of each question item in the questionnaire instrument used. The test is said to be valid if the Corrected Item Total Correlation value which is the count of each question item must be greater than the r_{table} value.

B. Instrument Reliability Test Results

The reliability test is carried out to determine whether the measurements that have been carried out produce consistent or stable answers over time. That is, the consistency of measuring instruments in producing data is called constant if the data measured by the same tool and repeatedly produce relatively the same data. The decision is made by looking at the value of Cronbach's Alpha.

Table and Figure

Before distributing research instruments or questionnaires, the data validity and reliability were tested.

Instrument Validity Test Results

The validity test is carried out to measure the high level of accuracy and consistency of the research instruments that have been used in data collection. To find the validity value of an item, a correlation between the item score and the item's total score is used. The validity test was carried out to test each item of the question in the questionnaire instrument used. The validity test is conducted to test the validity of each question item in the instrument the questionnaire used. The test is said to be valid if the Corrected Item Total Correlation value which is the count of each question item must be greater than the rtabel value.

The criteria for making the validity test decision are summarized as follows:

The questionnaire used. The test is said to be valid if the Corrected Item Total Correlation value which is the count of each question item must be greater than the rtabel value. The criteria for making the validity test decision are summarized as follows:

$$r_{hitung} > r_{tabel}$$

The validity test in this study was analyzed using the Degree of Freedom (df) with the formula $df = n - 2$, with a confidence pressure of 95%. The value of n shows the number of respondents examined in this study as many as 4 respondents. So that the df value is $4 - 2 = 2$. Confidence pressure is 95% and $df = 2$ then input by using the formula on the variable computer in the IBM SPSS 25 software to find the table:

$$t_{tabel} = \text{Inv}(\text{prob}, df)$$

= $\text{Inv}(0.05; 2)$, then it is obtained $t_{tabel} = 4.30$

Next, look for the r table value by entering the df value and the t table value that have been obtained into the following formula:

$$r_{tabel} = \frac{t}{\sqrt{df + t^2}}$$

$$r_{tabel} = \frac{4.30}{\sqrt{2 + 4.30^2}} = 0.95$$

then the rtabel value is obtained = 0.95

The basis for decision making (DPK) for the validity test in this study is as follows:

- a. If $r_{count} \geq 0.95$, then the question item is valid.
- b. If $r_{count} < 0.95$, then the question item is invalid.

Table 1. Results of the Validity Test of Hand Flexibility Indicators

Item	r correlation	r table	conclusion
1	0.99	0.95	Valid
2	0.96	0.95	Valid

Based on Table 1, the validity test of the flexibility of hand movements can be said to be valid because the total score is positive and the amount is 0.95 and above and is positive, meaning that the statement to be used to measure the variable is correct. (Sugiyono, 2017, p. 125).

Table 2. Results of the Validity Test of the Hand Eye Coordinator Indicator

Item	r correlation	r table	conclusion
1	0.95	0.95	Valid
2	0.98	0.95	Valid
3	0.96	0.95	Valid

Based on Table 2, the validity test of the hand eye coordinator indicator can be said to be valid because the total score is positive and the amount is 0.95 and above and is positive, meaning that the statement to be used to measure the variable is correct. (Sugiyono, 2017, p. 125).

Table 3. Test Results of the Validity Indicator of Accuracy

Item	r correlation	r table	conclusion
1	0.99	0.95	Valid
2	0.99	0.95	Valid
3	0.99	0.95	Valid
4	0.95	0.95	Valid

Based on Table 3, the validity test of the accuracy indicator can be said to be valid because the total score is positive and the amount is 0.95 and above and is positive, meaning that the statement to be used to measure the variable is correct. (Sugiyono, 2017, p. 125).

Tabel 4. Speed Indicator Validity Test Results

Item	r correlation	r table	conclusion
1	0.99	0.95	Valid
2	0.96	0.95	Valid
3	0.96	0.95	Valid
4	0.99	0.95	Valid
5	0.99	0.95	Valid

Based on Table 4, the validity test of the speed indicator can be said to be valid because the total score is positive and the amount is 0.95 and above and is positive, meaning that the statement to be used to measure the variable is correct. (Sugiyono, 2017, p. 125).

Instrument Reliability Test Results

The reliability test is carried out to determine whether the measurements that have been made produce consistent or stable answers over time. That is, the consistency of measuring instruments in producing data is called constant if the data measured by the same tool and repeatedly produce relatively the same data. The decision is made by looking at the value of Cronbach's

Alpha. According to (Sugiyono, 2017: 130), if the Cronbach's Alpha value > from the r table value is 0.7, then the variable test can be said to be reliable.

Tabel 5. Reliability Test Results

Variable	r _{count}	r _{table}	Description
Flexibility of hand movements	0.889	0.7	Reliable
Hand eye coordination	0.957	0.7	Reliable
Accuracy	0.980	0.7	Reliable
Speed	0.974	0.7	Reliable

Based on table 5, the test results show that all variables are said to be reliable because they are greater than 0.7. (Sugiyono, 2017, p. 130).

RESULT

Recapitulation of comparison of pre test, post test and effectiveness of motion building skills of Cerebral Palsy (CP) students. To determine the comparison of the pre test, post test and the effectiveness of the sewing board media to optimize the motion building skills of Cerebral Palsy (CP) students, the authors used 4 (four) dimensions, namely the dimensions of hand motion flexibility, hand eye coordination, accuracy and speed.

No	Indicator	Pre Test		Post test		Efektivitas	
		Mean	%	Mean	%	Mean	%
A Flexibility of Hand Movements							
1	The child is able to reach the sewing board using five fingers	2.25	56.25	3.58	89.58	3.83	95.75
2	The child is able to hold the sewing board using five fingers	2.25	56.25	3.25	81.25	3.50	87.50
Average		2.25	56.25	3.42	85.42	3.67	91.63

B		Hand Eye Coordination					
3	Able to carry out sewing tasks in accordance with directions	2.50	62.50	3.50	87.50	3.88	96.88
4	Able to control hand movements while working on sewing tasks,	2.50	62.50	3.55	88.75	3.78	94.50
5	Able to concentrate while working on sewing tasks	2.75	68.75	3.63	90.75	3.50	87.50
	Average	2.58	64.58	3.56	89.00	3.72	92.96
C		Accuracy					
6	Able to insert the rope into the sewing board holes according to the directions	2.50	62.50	3.48	87.00	4.00	100.00
7	Be able to use thumb and index finger to pull the string out of the sewing board hole	2.75	68.75	3.55	88.75	4.00	100.00
8	Able to exert fingers to do sewing tasks until all holes on the sewing board are covered with string	3.00	75.00	3.50	87.50	3.80	95.00
9	Able to sew following the holes on the sewing board	2.00	50.00	3.40	85.00	3.25	81.25
	Average	2.56	64.06	3.48	87.06	3.76	94.06
D		Speed					
10	Be able to use hands to properly thread the string into the sewing board hole	2.50	62.50	3.48	87.00	3.83	95.75
11	Be able to use your hands to quickly pull out the string from the sewing board hole	2.25	56.25	3.55	88.75	4.00	100.00
12	Able to use hands to complete sewing tasks as directed	3.00	75.00	3.55	88.75	4.00	100.00
13	Able to show enthusiasm so that sewing tasks can be completed completely	3.00	75.00	3.63	90.75	4.00	100.00
14	Able to show the desire to change to a different picture pattern when it's finished	3.00	75.00	3.83	95.75	4.00	100.00
	Average	2.75	68.75	3.61	90.20	3.97	99.15
	Mean All	2.54		3.52		3.78	
	Score Percentage	63.41		87.92		94.45	

Statement of results

The recapitulation results of the effectiveness of the pre test, post test and the effectiveness of the sewing board media to optimize the fine motor skills of Cerebral Palsy (CP) students are described as follows: In the dimensions of flexibility in hand movements, the fine motor skills of each child with Cerebral Palsy (CP) have increased after using a sewing board design. This means that when using the sewing board media, each student's flexibility in hand movements does not experience progress, but after using the sewing board design each student has developed. This the sewing machine board design is very effective in the flexibility dimensions of hand motion.

Explanatory text

The discussion on the presentation of data is the result of analysis and facts that the researchers found in the field, has been adjusted to the theory used in this study and it can be concluded that the use of sewing board media to optimize the movement of students with special needs, especially for Cerebral Palsy (CP) students in SLB D YPAC, South Jakarta took place with very effective results.

Discussion

Related to the findings of previous research results, research on children with Cerebral Palsy (CP) to optimize movement using non-electronic media is still rarely done or is still difficult to find, especially in Indonesia, so the research that has been carried out includes using non-electronic media, namely in the form of sewing board media. . In its application in the field, the author has been based on the theory of child development so that adjustments have been made in the shape and size of the sewing board media used so that it is in accordance with the motor conditions of Cerebral Palsy (CP) students with various classifications of ability levels and those accompanied by other accompanying obstacles so that they can provide access. It is easy for Cerebral Palsy (CP) students to use the product so that the sewing board media that has been designed can be used to optimize the movement of Cerebral Palsy students.

CONCLUSION

After doing research and development on sewing board media, the following conclusions can be given,

1. All subjects used were Cerebral Palsy (CP) SLB D YPAC students, South Jakarta. Due to the Covid 19 pandemic, which required no face-to-face activities in schools, thus limiting the sample to be targeted.

2. The advantages of this research are the sewing board media model used for Cerebral Palsy (CP) students at SLB D YPAC South Jakarta including the shape and size of the sewing board and the drawing model has been adjusted to the learning theme and changes according to the theme accompanied by a background with a choice of colors.

3. Sewing boards have provided benefits in training eye-hand coordination so that it is expected to optimize the fine motor skills of Cerebral Palsy (CP) students at SLB D YPAC, South Jakarta.

4. This research can still be developed again by using various innovations that can help Cerebral Palsy (CP) students, especially Cerebral Palsy (CP) students at SLB D YPAC, South Jakarta to optimize all their sensory abilities, especially fine motor skills.

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