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Development of Teacher Guidelines on Non-Locomotor Movement Learning for Student with Autism

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Abstrak: Penelitian ini bertujuan untuk mengembangkan pedoman mengajar pembelajaran materi gerak non lokomotor untuk guru kelas III SDLB autis. Pedoman mengajar dibuat dilengkapi dengan panduan gerakan, gambar dan video terintegrasi melalui *link* dan *QR Code* dapat diakses melalui internet. Model penelitian dan pengembangan mengadaptasi model ADDIE *(analysis, design, develop, implement, and evaluate)*. Metode penelitian pengembangan menggunakan pendekatan deskriptif kuantitatif, dengan teknik pengumpulan data melalui angket analisis kebutuhan dan instrumen penilaian validasi. Subjek penelitian yaitu 3 peserta didik dan 6 guru Autis Laboratorium Universitas Negeri Malang dan 9 peserta didik serta 12 guru SLB C Autis Negeri Tuban. Hasil ujicoba kelompok memperlihatkan presentase 78% pada kelompok kecil dan sebesar 95% pada kelompok besar. Berdasarkan data tersebut, disimpulkan bahwa pedoman mengajar guru materi gerak non lokomotor untuk siswa kelas III SDLB Autis sangat valid untuk digunakan dalam pembelajaran.
Kata Kunci: Pedoman mengajar; Gerak non lokomotor; Autis

Abstract: *This study aimed to develop non-locomotor movement learning teaching guidelines for teachers of 3rd-grade students of SDLB with autism. The teaching guidelines were completed with instructions, pictures, and movement videos that can be accessed from the link and Qr Code via the internet. This research and development used ADDIE as the model. The method used in this research was a mixed method that combined qualitative and quantitative approachs. Data were collected through needs analysis questionnaires and judgement experts. This study involved 6 teachers and 3 students from SLB Autism Universitas Negeri Malang and 12 teachers and 9 students from SLB C Autism Tuban as the research subjects. The result of the study from small group and large group revealed the validation of teaching guidelines feasibility increased from 78% to 96% with very valid information. In conclusion, the non-locomotor movement learning teacher's handbook for teachers of 3rd-grade students of SDLB with autism could be used in the learning and teaching process.*
Keywords: *Teacher's guidelines; Non-locomotor movement; Autism*

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INTRODUCTION

Autistic children are characterized by problems with the growth and development of communication, attitudes, and skills of sensor socialization and learning that result in brain damage (Nuha et al., 2020). Autism symptoms also interfere with nerve and motor fluency in young children (National Research Council, 2001) as well as social and behavioral interactions (Cantarero et al., 2021). Motor development aspects are also another obstacle for autistic children (Ali, 2018). They have motor disorders that cause their development to be different from children without disabilities (Lord et al., 2018). Autistic children have complex cognitive problems that hinder some aspects of their growth and development. Autistic children are looked down upon with this condition, autism requires more attention and attention from parents or those closest to them (Sudarmintawan & Suarya, 2018). Children with autistic disorders have normal limb structures like other normal children, but the difference is regarding the development of autistic children who experience inhibition of the nerves and motor of the body (Sukriadi, 2021). Therefore, it is very important to provide the same movement services as other students to improve

cognitive function and physical fitness through education. Teachers must have special strategies that do not only provide learning activities using centralized learning from the teacher but students are required to be active in the learning process (Mustafa & Winarno, 2020). The strategy must appear in adaptive learning that leads to students with certain disabilities.

In the context of adaptive physical education learning, interactions between students and teachers is important, because with this approach it is easier to carry out the learning and teaching process in the real of learning (Mustafa & Dwiyogo, 2020). Through adaptive physical education, it can develop students' abilities by carrying out physical activities to achieve health and education goals. Physical education is a learning process that is systematically designed so that students include elements of knowledge, emotion, and movement through motor activities (Arief et al., 2020). Adaptive physical education can help autistic students in developing and improve the quality of motor skills (Sukriadi, 2021). Various studies have shown that 30 minutes of physical activity every day can improve the physical fitness of autistic students (Rostami Haji Abadi et al., 2021). Learning Adaptive physical education needs to be encouraged so that their interest arises in carrying out the needs of these movement activities (Kurniawan et al., 2021). These movement needs can be supported by well-planned adaptive physical education. Movement activities in physical education learning are aimed at training children's gross motor growth and readiness (Prasetyo, 2021).

One of the subjects in adaptive physical education is non-locomotor motion. non-locomotor motion. Non-locomotor movements are movements that are carried out without moving places (Hidayat, 2017). In the learning process, non-locomotor movement exercises for class III SDLB Autistic students refer to the curriculum and guidelines listed in Core Competencies and Basic Competencies (Permendikbud, 2014). In the learning process, physical education for autistic students is still constrained by learning resources that are used as a reference for its application in the field. The quality of teaching materials needs to be considered in their manufacture to create convenience in supporting learning because teaching materials are integrated with the learning process (Cahyadi, 2019). As support for learning, teaching guidelines are part of a teaching material that is structured in a structured and easy-to-understand language for students with the help of educators (Puspitasari, 2019). One of the problems in the implementation of physical education in general elementary schools is the lack of understanding of teachers regarding the concept of physical education learning and the incompatibility of the concept with the practice of learning physical education (Irmansyah et al., 2020). While the basic problem in teaching student with autism is the lack of teacher books/modules and student books (Ardianingsih et al., 2017). Even though the module facilitates the learning process activities (Ataji & Sutanto, 2020).

The problem of the lack of teaching materials that have not been able to support the learning process of autistic students related to non-locomotor movements, supported by the results of an initial needs analysis questionnaire for 40 SDLB teachers in East Java on September 11, 2021, obtained data from 40 respondents. The facts in the field show that 72.5% of teachers teach non-locomotor motion materials, 90% of teachers experience difficulties in learning non-locomotor motion materials related to the lack of teaching materials to support learning, the reality on the ground shows that only 35.5% of teachers use teaching and learning guidelines, 95% of teachers revealed that it is necessary to develop teaching guidelines for non-locomotor motion learning to facilitate the teacher's task in implementing learning. This means that products need to be developed concerning facilitating teacher performance in learning because they see the urgency and usefulness for improving the physical fitness of third-grade students in SDLB Autism.

The teacher module for teaching motor movements to special school students is still limited to the senior high school level (Kurniawan, Aji Pradana, et al., 2022; Kurniawan, Paulina Heynoek, et al., 2022). o help improve students' motoric movement at the elementary school level, it is still limited to dynamic balance movement teaching material (Kurniawan, Mu'arifin, et al., 2022). In fact, with this module, it is easier for teachers to provide various learning materials to meet the needs of autistic students (Sari et al., 2016).

Based on the background of the problem and the data from the initial needs analysis that has been described, the researcher took the initiative to develop teaching guidelines as a solution to unravel these problems by conducting research and development. Therefore, it is similar to the problems above. The researcher carried out research and development with the title "Development of Teacher Teaching Guidelines in Class III Non-Locomotor Movement Learning in SDLB Autism". This research and

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development aim to produce teaching guide products for non-locomotor movement learning materials that are relevant, effective, and interesting.

METHODS

Research and Development (R&D) is conducted to develop an output in the form of a teacher teaching guide for non-locomotor motion material for third-grade students of SDLB Autism. While the research model uses R&D with the stages of the ADDIE development model consisting of 5 stages, among others. Analyze is to analyze initial needs related to research subjects and teaching materials used in making teaching guidelines. The purpose of the design is to design and initiate the initial production of a non-locomotor movement teaching guide product following the KI and KD of the SLB curriculum. In this stage, product development is carried out in the form of teaching and learning guidelines, and validation is carried out by material experts, experts on characteristics of autistic children, and media experts to test the feasibility of the product. Implement is the stage of applying the product trial for teaching and learning guidelines for small group trials carried out at the UM Autism Special School with 6 teachers, then the large group trial was carried out in Tuban State Autism Special School C involving 12 teachers. Evaluation is an evaluation stage to fix the teaching guide products that have been assessed by the teacher in the small and large product trial stage (Branch, 2009). This stage is considered suitable because the stages of developing teaching guidelines because they are systematic, as well as validation and testing, become a strong basis for making teaching guidelines following real conditions in the field.

The sampling technique of this study was from each school, namely SLB Autism UM Laboratory and SLB C Autism Tuban State using the purposive sampling technique. The data is taken based on certain criteria and considerations to facilitate researchers in processing objects and environmental situations carefully (Sugiyono, 2011). Data collection techniques through teacher response questionnaires and validator questionnaires have been standardized (BSNP, 2016) and judgement experts. The rating scale using the Likert scale consists of (5) very good, (4) good, (3) sufficient, (2) not good, (1) very not good (Sugiyono, 2016) While the data analysis technique uses a formula for classification criteria products using references from (Akbar & Sriwiyana, 2011).

Table 1. Product Quality Criteria

Criteria	Desciption	Meaning
75% - 100%	Very valid	Used without revision
50% - 75%	Quite valid	Used with minor revision
25% - 50%	Not valid	not usable
0% - 25%	Very invalid	forbidden to use

RESULTS AND DISCUSSION

Based on the results of the analysis on the initial needs, the needs related to teaching and learning guidelines relevant to the KI and KD curriculum for autistic students are very necessary. Therefore, the development of guidelines for teaching non-locomotor movements is arranged systematically and practically with simple movements and through a validation process. Expert validation is divided into media expert validation, material expert validation, and an expert validation of the characteristics of autistic children. Based on the results of the validation, the product is then repaired according to the input from each validator. Furthermore, after repairs are carried out, product trials are carried out.

Analyze Stage

The analysis at this stage aims to identify product development. The curriculum component is based on the application of learning at the Autistic Special School level. Based on the analysis results obtained KI and KD 4.1 and 4.3 regarding non-locomotor motion. This method is used to find references in the form of journals and books related to the concept of non-locomotor motion. Some of the learning resources analyzed are as follows:

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Table 2. Curriculum Analysis

School Level	Class level	Basic Competency
Elementary School For Students with Autism	III	4.1 Practicing variations of basic locomotor movements and non-locomotor in the form of games simple or traditional games modified
		4.3 Practicing the use of variations in movement patterns basic locomotor and non-locomotor appropriate with rhythm (beat) without/with rhythm in simple rhythmic motion activities

Analysis of learning resources

After compiling an analysis of the curriculum and the concept of motion, then looking for learning resources and analyzing the purpose of which is as a reference source for teaching guidelines, this method is used to find references related to the concept of non-locomotor motion. Some of the learning resources analyzed are as follows.

Table 3. Analysis of learning resources

Learning Resources	Description
Curriculum Guidelines	• Curriculum Guidelines • 2013 Curriculum on Core Competencies and Basic Competencies
Autism	• teacher Module Competencies A to F
Fundamental Movement Skill	• Book: Understanding Physical Education (Green & Hardman, 2005)

Design

This stage consists of several activities. The design of the teaching guideline contains several main things, including:

Table 4. Components of Teaching Guidelines Design

No.	Teaching Guideline Components		
1.	Cover	:	The cover contains the title of the teaching guide, grade level, and the identity of the author
2.	Preface	:	Contains a brief description of the teaching guidelines and the contents of the learning materials in the teaching guide
3.	Compiling Sheet	:	Contains the identity of the compiler and the title of the teaching guide
4.	Table of Contents:	:	Contains chapters and pages of teaching guide materials
5.	Glossary	:	Contains explanations or definitions of important terms contained in the teaching guide
6.	Concept Map	:	The concept map contains an overview of the overall teaching guidelines
7.	Introduction	:	Contains the identity of the teaching guide, KI and KD, a brief description of the material, as well as for instructions for using the teaching guide
8.	Exercise title	:	Non-locomotor movement
9.	Exercise Duration	:	15-30 minutes
10.	Companion	:	Teacher
11.	Target Ability	:	Able to practice variations of non-locomotor movements, turning the body, swinging the legs, bending, and straightening the arms.
13.	Age Group	:	8-10 years old
14.	Equipment	:	Marker Mats
15.	Preparation Stage	:	warming-up is equipped with supporting pictures
16.	Main Stage	:	Core activities (variation of locomotor movement exercises) are equipped with pictures and Youtube video Qr Code
17.	Cooling Down - Stage	:	Cooling down movement is equipped with supporting video
18.	Practice Question	:	Contains questions in the form of questions related to non-locomotor motion material
19.	Evaluation	:	Includes practice questions and answer keys
	Self-Assessment	:	Contains student learning assessments according to non-locomotor motion material
20.	Bibliography	:	Contains references that are used as references in the preparation of teaching guidelines

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Designing Learning Media

The teaching guidelines developed in this study are audio-visual based which are packaged in the form of a QR Code that is integrated with the internet and there are instructions for teaching guidelines.

Development

At this stage, several teaching guide development activities were carried out including:

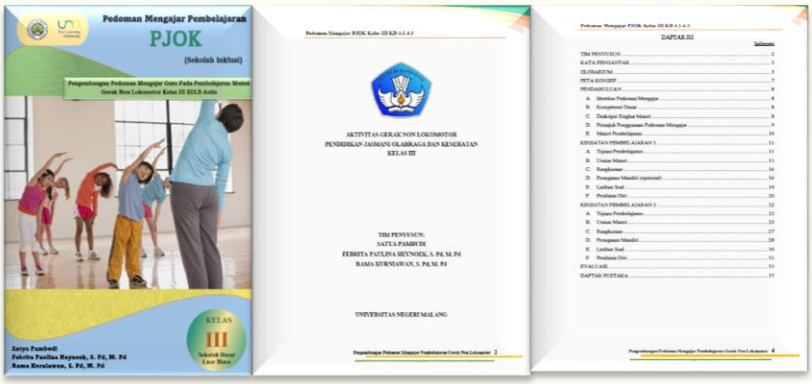

Figure 1. Developed Teaching Guidelines

Perform Validation Test

A validation test is carried out by giving a questionnaire to the validator to assess the feasibility of the device. Validation was carried out by 1 material expert to assess the feasibility of the material, 1 expert on the characteristics of autistic children, and 1 media expert to assess the media.

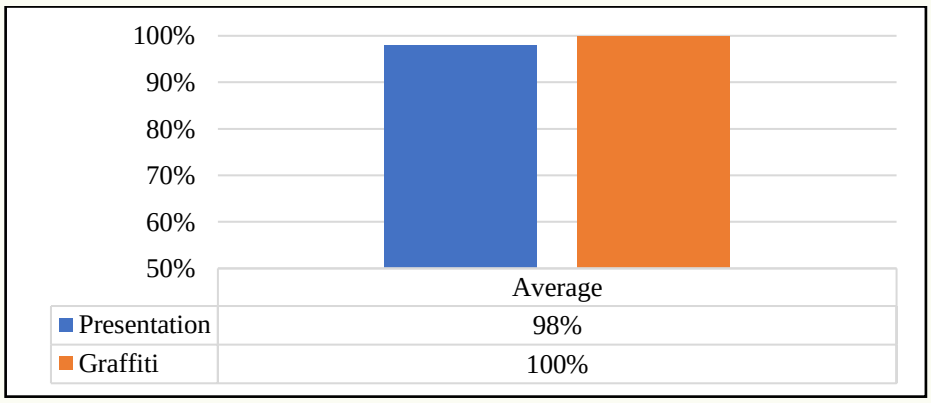

Figure 2. Percentage of Validation Results of Learning Media Experts

Based on the results of the validator's assessment in the field of media experts, the assessment is carried out based on the feasibility of presentation and the feasibility of the graphic, for the feasibility of the presentation with a value of 100% it is in the "very valid" category, then the graphic feasibility assessment gets a score of 98% in the "very valid" category. There is input given by the cover validator, replaced by a more harmonious color, corrected font fonts for writing errors, on the cover page the grade level and education level are listed and the introduction is included.

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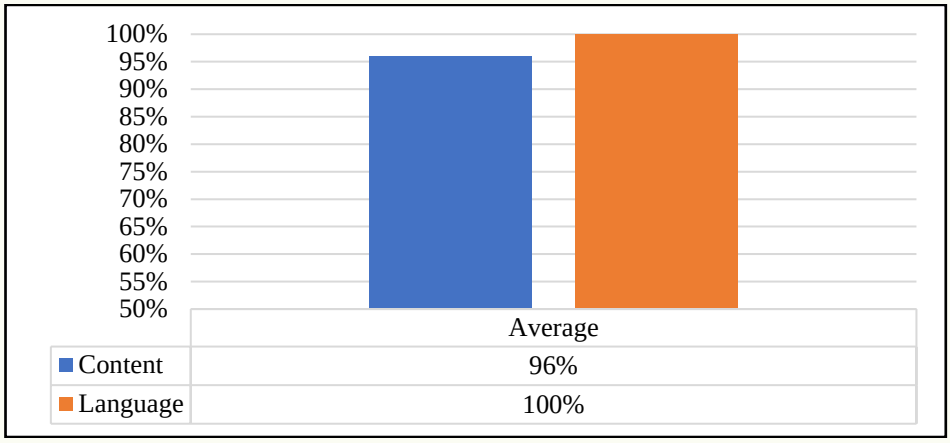

Figure 3. Percentage of Validation Results of Physical Education Learning Expert

Based on the results of the validator's assessment in the field of Physical Education Learning Expert, the assessment is carried out based on the feasibility of content and language feasibility, for content eligibility with a value of 96% is in the "very valid" category. There is input given by the validator is that the level of movement difficulty must be adjusted to the level of the autistic child.

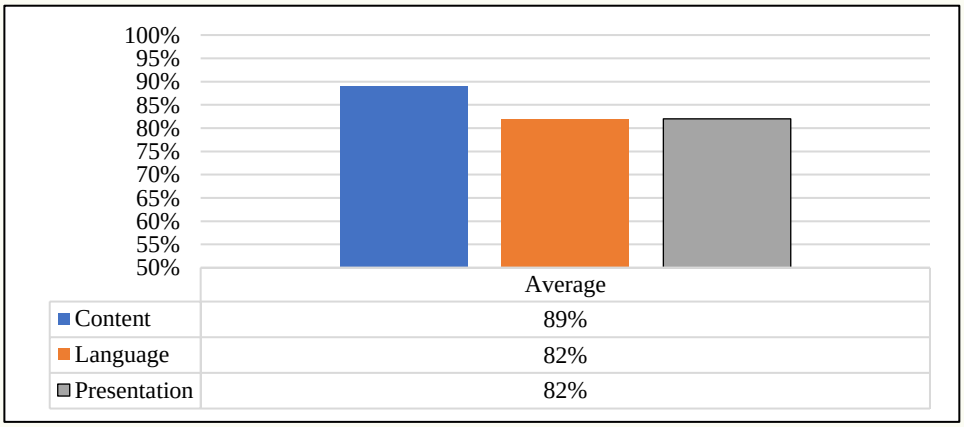

Figure 4. Percentage of Validation Results of Characteristics of Autistic Children Expert

Based on the results of the validator's assessment from characteristics of Autistic Children Expert, the assessment is carried out based on the feasibility of content, presentation feasibility, and language feasibility, for content eligibility with a value of 89% is in the "very valid" category. There is input given by the validator, namely the specifications for autistic children need to be clarified and the QR Code video needs to be given a table to make it easier for teachers.

Implement

At this stage, the results of the revision that have been validated are then tested on the product to students to obtain data regarding the feasibility of teaching guidelines for non-locomotor movement exercises that have been developed. Small group trials and large group trials, from the two trials the teacher gave assessments and suggestions through a questionnaire instrument that had been given by the researcher. The assessment questionnaire instrument in the form of a statement can then be assessed with a score using a Likert scale with the determination that the score is, one to five.

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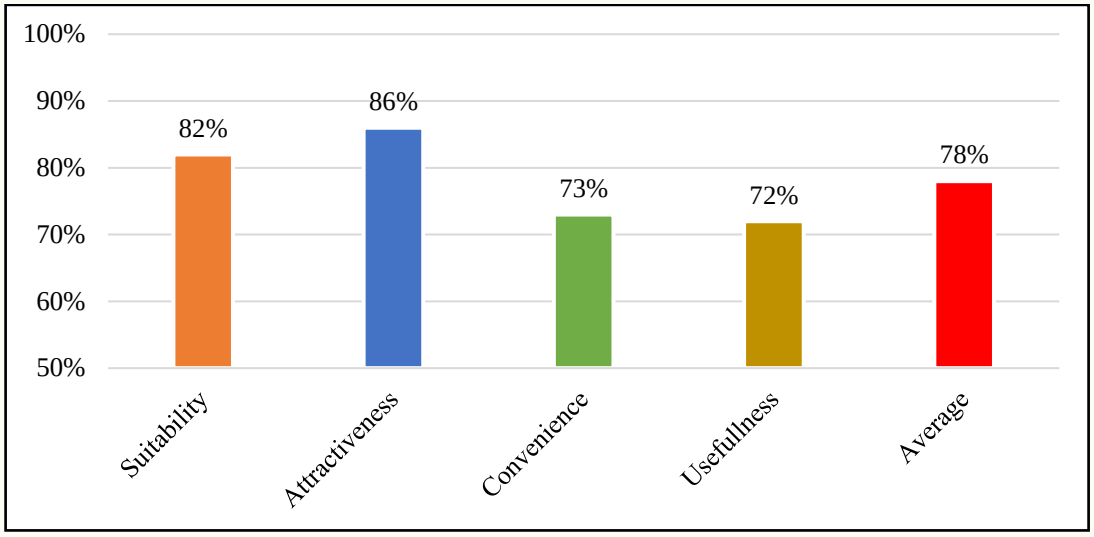

Figure 5. Percentage of Small Group Trial

A small group trial was conducted at SLB Autism Laboratory State University of Malang on October 29, 2021, with a total of 3 students and 6 teachers in class III SDLB. After completing the trial, the teacher filled out a questionnaire that had been distributed by the researcher. Based on the data analysis table above with the percentage level of eligibility, an overall average score of 78% is obtained and then converted to a feasibility qualification table, the product of developing teaching guidelines can be used with a very valid predicate

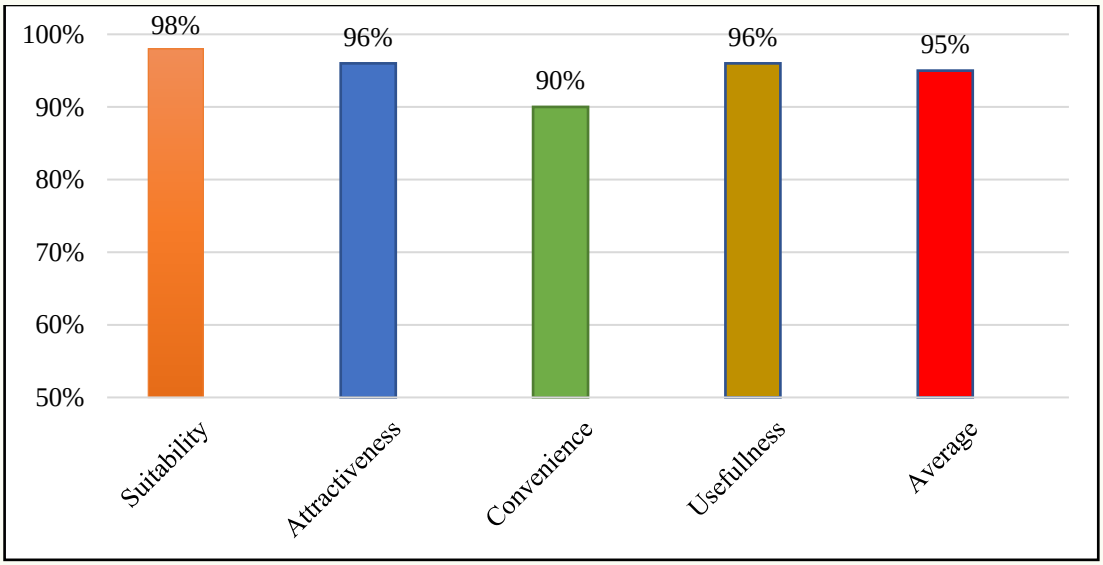

Figure 6. Percentage of Large Group Trial

In a large group trial on November 5, 2021, at SLB C Autism Negeri Tuban with a total of 9 student subjects and 12 teachers in class III SDLB, after completing the product trial, the teacher filled out a questionnaire that had been distributed by the researcher. Based on the data analysis table above with the percentage level of eligibility, an overall average score of 95% is obtained, then converted to a product feasibility qualification table showing that the teaching guide product is very valid to be used without revision.

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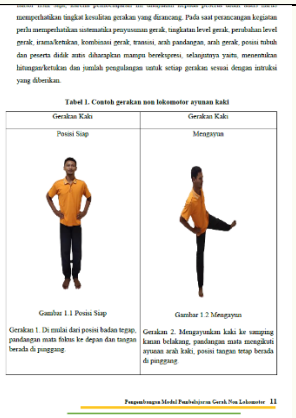
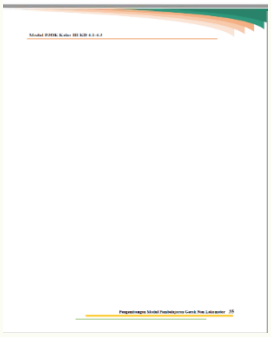
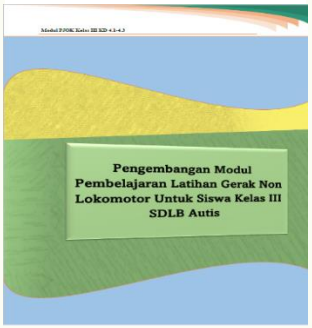
Evaluate

The results of the implementation stages of the teaching guidelines are then reviewed so that revisions can be made to the product. In the small group trial phase, there were several inputs and suggestions regarding the development of teaching guidelines by teachers, including:

Table 5. Product Evaluation

Evaluation		Before	After
Small group trial	a. The consistency of the form of the illustration from activities to practice questions must be the same Backsound video is too loud b. In the video added instructions, interactions, and calculations		
Large group trial	c. Covers and colors in the teaching guidelines are made attractive so that students are more interested		

Based on the results of the evaluation of the product table above, at the small group trial stage, there were several inputs from the teacher regarding the product of the teaching guidelines which were developed inputs and suggestions related to pictures, illustrations, and motion videos. In the large group trial stage, the product evaluation results decreased because there were only inputs related to cover and color in the teaching guide so teachers were interested in reading the teacher's teaching guide for non-locomotor movement material.

Children with autism experience neurological and sensory development disorders that affect communication and social interaction (Bhatt et al., 2017). Children with autism need more motor movements to improve their condition (Chetcuti et al., 2019). Autistic children have little movement ability but can make movements that are directed to adjust the IQ level in children (Whyatt & Craig, 2012). This research and development aim to produce teaching and learning guidelines in the form of non-locomotor movement teaching guidelines for autistic children. The non-locomotor activity means movement without leaving the axis (Handayani & Sudarsini, 2014). Movements that can be done such as bending, pulling, and bending (Handayani et al., 2018). Easy access to movement in learning can be supported by the existence of teaching and learning guidelines. The guidelines developed must be under the type of autism level so that students can carry out these movements well.

Learning media is often used to overcome learning difficulties, namely teaching guidelines (Riana et al., 2012). Teaching guidelines are independent learning tools that can help students master learning objectives that are systematically arranged to achieve educational goals (Hananingsih & Imran, 2020). The use of teaching guidelines allows students to interact with learning content (Logan et al., 2021).

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There is an increase in understanding in learning that uses teaching guidelines r (Dewi & Primayana, 2019). In addition to teaching materials in the form of teaching guidelines, the development of teaching materials in the form of autoplay applications can be used in the development of teaching materials (Rahman et al., 2020). The making of teaching guidelines for non-locomotor movement learning aimed at third-grade SDLB teachers contains Core Competencies and Elementary Competencies for class III SDLB, namely non-locomotor basic movements which are used to improve the physical fitness of autistic students. Based on the results of the classification variations and the characteristics of autistic children, in learning autistic physical education, teaching materials are needed in the form of teaching guidelines. The form of game activities packaged in teaching materials can improve the basic movement abilities of students at school (Andriadi & Saputra, 2021).

Previous research conducted by (Handayani & Sudarsini, 2014) related to gross motor skills related to non-locomotor motion of children with autism showed that it can improve balance, body and shoulder control, body control is intended to support the student's body so that it is always stable and regulates strength and power. determination of the direction of movement. Meanwhile, another study conducted by (Hastuti & Andajani, 2020) showed that the application of Explicit Instruction related to gross motor skills of autistic students can grow their imaginative attitude and be implemented in movement, children will be interested in learning activities because the media is visual-based. The benefits of using well-structured teacher teaching guidelines can be useful in understanding the learning context (Mirkouei et al., 2016).

The results of the research on developing teaching guidelines with non-locomotor materials for autistic students of class III SDLB have been compiled with very valid category results. Furthermore, the developed teaching guidelines have also been equipped with video tutorials to make it easier for teachers to practice them. Therefore, the results of this research product can be used and applied in the learning process in special schools. Validation of the feasibility of teaching guidelines from small group trials to large group trials also showed an increase at each stage of the trial with a very valid predicate so that teachers do not need to hesitate in using these guidelines in schools.

In addition to the existence of good teaching guidelines, the supporting factors for learning movement in children with autism also need to be considered. Teachers as the main subject in teaching must continue to develop their pedagogical competencies so that learning objectives can be maximally achieved by students (Sujarwo & Rachman, 2020). Support, empathy and interaction from people around can increase trust in autistic children (Fong et al., 2021). Emphasis on aspects of social competence for children with autism is very much needed in social life (Ke et al., 2018). Directing motor skills can provide opportunities and build autistic children according to their level (Colombo-Dougovito & Block, 2019).

CONCLUSION

Based on the final development stage, it can be concluded that teaching materials in the form of teaching guidelines can solve problems caused by the lack of teaching materials that are used as references in physical education learning. The results group trials are very valid and feasible to use. Based on these data, the conclusion is that the teacher's guide to teaching non-locomotor motion materials for third graders of SDLB with autism is appropriate for use in learning.

Although this teaching guide can be used directly by teachers, this study has limitations, namely only the material for non-locomotor motion learning activities. This teaching guide also only provides non-locomotor movement activities for the Extraordinary Elementary School (SDLB) level which contains Core Competencies (KI) and Basic Competencies (KD) regarding non-locomotor movements. Therefore, in further research, it is necessary to develop other motor activities such as manipulative and locomotor activities in autistic students at the SDLB level.

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