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Designing Teaching Models for Inclusion Education at Primary School Level

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The aim of this research is to develop an inclusive learning model that is integrated with a differentiation learning model. The research method uses the ADDIE development model, with product testing in two ways, namely expert testing (learning model experts and special education experts) with assessment aspects, namely the learning model framework, learning model structure and learning guidebook and extensive testing using the experimental method (control class and experimental class) at an inclusive public elementary school in Tangerang Regency, Banten, Indonesia. The model feasibility assessment technique uses the Linkert scale for expert validation and experiments for extensive testing using N-gain calculation analysis. The results of this study show that expert validation assessments; the learning model framework gets a total score of 32 with a percentage of 100%, the learning model structure gets a score of 83 with a percentage of 94% and the learning manual gets a score of 24 with a percentage of 100%, the conclusion from the expert assessment is that the learning product is declared suitable for use. The results of extensive analysis tests based on the N-gain score at Elementary School 3 Balaraja were 82% and SDN 1 Telaga Sari were 71%. The conclusion from this extensive test is that the learning model product is effectively used in inclusive classes. The conclusion of this research is that the learning product developed is considered feasible and effective for use in large classes at the inclusive elementary school level.

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1. Introduction

Inclusive education is an education policy formulated to meet the educational needs of all children without discrimination between children with special needs and children with non-special needs (Wahyuni et al., 2020). This policy principle was formulated at the Salamanca conference on special education which was later repeated at the World Education forum in Dakar (Lindner et al., 2023). The unification of students with special and regular needs in one learning class is typical of inclusive education, with the principle of human rights that all humans have equal rights in education so that there is no separation in the right to get the same knowledge in education.

Mix students' which is typical of inclusion education, in its implementation finds problems in learning (Trihastuti, 2022). First, there are two characteristics of students (regular and special needs in the classroom) who certainly have different academic abilities (Paulsrud &; Nilholm, 2023) (Al-Shammari et al., 2019) and must be accommodated in learning and provided learning facilities by schools (Paulsrud &; Nilholm, 2023) (Okyere et al., 2019). Second, many teaching staff in inclusion schools do not have the academic ability to conceptualize inclusion education (Fernandes et al., 2021) (Wulandari &; Hendriani, 2021), while teachers are the key to the success of inclusion education (Li &; Ruppar, 2021) (Van Mieghem et al., 2020). Third, learning models that can accommodate both types of student characteristics (regular and special needs) are still being sought for formats that are in accordance with inclusive education (Gierczyk &; Hornby, 2021). Based on these three problems, the third problem is the main problem that until now inclusive researchers and educators have been looking for learning models that are in accordance with the characteristics of inclusive classrooms (Hernández-Torrano et al., 2022), because inclusive learning models must be in accordance with the needs of regular students and accommodate students with special needs (McKenna et al., 2019) with a literature review found that 62% of researchers only test the effectiveness and relevance of learning models that have been made by experts into inclusive learning, 15% investigate by comparing between learning models that have been made by experts for use in inclusive learning and 13% test learning models for inclusive classes (Iryani et al., 2023b). Based on this literature review, the author has not found experts or researchers who design learning models for inclusive classes, so the author is interested in designing inclusive learning models by developing learning models.

The development of this learning model is certainly based on learning models that have been tested and formulated by previous experts in accordance with the characteristics of a good learning model (Rusman, 2018). The differentiation learning model is a learning model

chosen by the author to be developed into an inclusive learning model because it has a learning orientation that leads to inclusive education (Lindner &; Schwab, 2020). This learning model is oriented to mix students (Tomlinson, 2008), teachers and students become designers in designing learning in the classroom using three basic elements of the differentiation learning model, namely student learning readiness, learning interests and learning styles that suit students (Hipsky, 2008). The correlation between differentiation learning models to inclusive classroom characteristics (mixed students) (Iryani et al., 2023) (Lavania, Marsha, 2020), encourages the author to design an inclusive learning model that is integrated with a differentiation learning model, so the purpose of this study is to design an inclusive learning model by developing a differentiation learning model that is integrated with inclusive learning.

2. Research Method

Development of inclusive learning models using the ADDIE model (Analyse, Design, Development, Implementation and Evaluation), with research steps; first, observing learning at inclusive public elementary schools in Tangerang Regency, Banten Province, Indonesia. This observation includes analysis of the learning model used by the teacher, the learning media used by the teacher, obstacles in learning and the academic linearity of the teacher. Second, conduct a theoretical study of the differentiation learning model and make an integration mapping between differentiation theory and the results of observational data. Third, compile a learning model design based on the results of differentiation theory analysis with observations. Fourth, conduct validity tests by learning model experts and special education experts on learning model products. The fifth conducted a trial of the product in an inclusive elementary school in Tangerang Regency and the fifth evaluated the results of the implementation of the learning model product.

3. Result and Discussion

The results of the analysis data through observations of the implementation of inclusion education in Tangerang Regency that there are 14 public elementary schools that provide inclusion education based on the decree of the Head of the Tangerang Regency Education and Culture Office by referring to the regional regulation Regional Regulation (PERDA) Number 11 of 2018 concerning the Protection and Fulfillment of the Rights of Persons with Disabilities. Of the nine schools, all teachers do not have a linear academic background in inclusion education, to meet the needs of inclusion education, the local government of Tangerang district conducts training to build teacher competence Of the 14 inclusive public elementary schools, there are

only 9 teachers who have teaching training certificates for children with special needs. Based on data from the Education and Culture Office of Tangerang Regency that there are 1400 children with special needs (2021 data) who are carrying out learning from kindergarten to junior high school (SMP)

The types of inclusive classes in Tangerang Regency inclusive public elementary schools are regular inclusive classes; Regular and special needs students become one with the same curriculum. The teaching model that teachers use in inclusive classroom learning uses lecture methods, and group discussions, so there is no special treatment for students with special needs. The types of students with special needs in Tangerang Regency Inclusion State Elementary Schools are dominated by 70% of the mentally impaired, while 30% are autistic and learning delays. In the learning process teachers do not provide academic achievement targets to students with special needs in accordance with curriculum provisions, the concept implemented by teachers in educating students with special needs is to teach independence and socialization carried out from grade one to grade four, after grade four students with special needs are seen cognitive development, if possible then given material assignments but different from students regular in the achievement and level of difficulty of the material. In conclusion, the learning carried out by teachers towards inclusive classes is that regular students are given material in accordance with the syllabus and curriculum (grades 1 to 3 use the 2013 curriculum and grades 4 to 6 use the independent curriculum) and students with special needs are taught independence and socialization skills from grades 1 to 3 and grades 4 to grade 6 are given material according to curriculum provisions but after seeing the curriculum provisions the development of these learners.

Based on the results of these observational data, it is illustrated that the inclusive classroom learning model is built with the priority of looking at the psychological factors of students with special needs, while regular students are based on learning outcomes in accordance with the curriculum used. This imbalance certainly makes students with special needs will be slow in academic development (cognitive and affective) compared to regular students, of course, this does not describe the basic concept of inclusion education, which is to provide equal and equal knowledge between regular students and students with special needs.

Researchers use the results of this observational analysis integrated with the concept and theory of responsive or differentiated teaching, namely teachers develop in building effective relationships between students and teachers, students and students in building effective learning and in accordance with the characteristics and desires of students. The results of this

development created a learning model product resulting from the integration of the differentiation learning model with the results of observations of inclusive learning. The following are the product specifications of the learning model created:

Table 1 Learning Model Product Specification

Development items	Description	Development oreintation
Learning steps (Syntax)	Develop learning steps developed from differentiated learning models and then adapted to inclusive classes	Availability of a learning model that will be used by teachers to teach inclusive classes
Learning Implementation Plan (RPP)	Develop lesson plans based on differentiation theory tailored to inclusive classes	Availability of lesson planning or lesson plans that describe inclusive classes
Evaluation	Develop learning evaluation models from differentiation theory tailored to inclusive classrooms	Availability of learning evaluations that are in accordance with the characteristics of inclusive classes

This learning model product was developed with learning principles that are oriented to the characteristics of students and the interests of student learning styles. Teachers get specific information about student data including the types of inclusion students in their classes. The following RPP model products are made:

1. The addition of information about students in the RPP by displaying the information column, is a modification of the RPP that has been made by the teacher:
   a. Student characteristic information

No	Student Name	Learning Preferences		
		Learning Style	Multiple Intelligences	Learning Environment
1	.....			
2	.....			
3	.....			

   b. Inclusion type information

No	Student name	Inclusive type
1	.....	.....
2	.....	.....
3	.....	.....

2. Learning steps (introduction, core, closing activities) This activity uses color symbols to distinguish the activities of regular, special needs and regular students with special needs (green: learning activities for students with special needs, black: learning activities for regular students and purple: learning activities for regular students and special needs). The use of color symbols to make it easier for teachers to carry out learning activities.

Learning model products that have been made by researchers are validated by experts (special education experts and learning model experts), validation using Linkert scale instruments with the highest number is 4 (very appropriate). The results of this validation are as follows:

No	Validation Aspect	Family Validation				Total	
		Learning Model Expert		Special Education Members			
		Score	Percentage	Score	Percentage	Score	Percentage
1	Learning Model Framework	16	100 %	16	100 %	32	100 %
2	Learning Model Structure	41	93 %	42	95 %	83	94 %
3	Learning Model Manual	12	100 %	12	100 %	24	100 %
	Total	69	97,6 %	70	98 %	139	98 %

Based on the results of expert vallidation (validators, learning model experts, special education experts) it can be seen that the learning model products developed produce feasible learning model products as skore from learning model experts 69 with a percentage of 97.6%, special education experts 70 with a percentage of 98%.

Extensive testing was conducted by researchers to assess learning model products through the implementation of model products in two inclusive public elementary schools, namely SDN 3 Balaraja and SDN 1 Telaga Sari, Tangerang Regency. This broad test uses experimental methods (control class and experimental class) with the application of the N-Gain model with calculations using the SPSS application, the results of this broad test are as follows:

Table 2 Descriptive Results of SDN 1 Telaga Sari

Descriptive

Class		Statistic	Std. Error

Ngain_Persen	Experimental Class	Mean		71.0853	3.27725
		95% Confidence Interval for Mean	Lower Bound	64.2699	
			Upper Bound	77.9007	
		5% Trimmed Mean		71.7426	
		Median		73.2500	
		Variance		236.288	
		Std. Deviation		15.37165	
		Minimum		35.48	
		Maximum		93.33	
		Range		57.85	
		Interquartile Range		24.87	
		Skewness		-.354	.491
		Kurtosis		-.364	.953
	Control Class	Mean		10.1297	3.49376
		95% Confidence Interval for Mean	Lower Bound	2.8640	
			Upper Bound	17.3953	
		5% Trimmed Mean		9.7422	
		Median		8.4101	
		Variance		268.540	
		Std. Deviation		16.38718	

		Minimum	-22.73	
		Maximum	50.00	
		Range	72.73	
		Interquartile Range	22.66	
		Skewness	.523	.491
		Kurtosis	.661	.953

Table 3 Descriptive Results of Statistics SDN 3 Balaraja

Descriptive

	Class			Statistic	Std. Error
Ngain_Persen	Experiment	Mean		82.4397	2.60231
		95% Confidence Interval for Mean	Lower Bound	76.9930	
			Upper Bound	87.8864	
		5% Trimmed Mean		83.0736	
		Median		85.9211	
		Variance		135.440	
		Std. Deviation		11.63786	
		Minimum		56.41	
		Maximum		97.06	
		Range		40.65	

	Interquartile Range		14.82	
	Skewness		-.968	.512
	Kurtosis		.196	.992
Control	Mean		14.0980	4.58059
	95% Confidence Interval for Mean	Lower Bound	4.5107	
		Upper Bound	23.6852	
	5% Trimmed Mean		14.4298	
	Median		10.1412	
	Variance		419.635	
	Std. Deviation		20.48500	
	Minimum		-27.78	
	Maximum		50.00	
	Range		77.78	
	Interquartile Range		30.00	
	Skewness		.035	.512
	Kurtosis		-.493	.992

The results of the statistical descriptive calculations of the two schools can be summed up as follows:

Table 4 Learning Model Product Extensive Test Results

School Name			N-gain Percentage	N-Gain Judgement
SDN 3 Balaraja	Nilai Mean	82.4397	82%	Effective

	Minimum Value	56.41		
	Maximum value	97.06		
SDN 1 Telaga Sari	Nilai Mean	71.0853	71%	Quite effective
	Minimum Value	35.48		
	Maximum value	93.33		

Based on the table above, the calculation results of N-gain can be concluded that the learning model product developed is effective for use in inclusive classrooms at the elementary school level. In other words, this learning model product can be a learning model that can be used by teachers to teach inclusive classes at the elementary school level which so far teachers have been confused in finding the right learning model in inclusive classroom learning.

Discussion

Inclusive education is not a new policy in the world of education, in the history of inclusive education pioneered by the Salamanca meeting on education for disability(Stadler-Heer, 2019). Based on time calculations, it has been more than 30 years since inclusion education has been organized by various countries including Indonesia, but until now problems in inclusion education are still found, one of which is teacher confusion in choosing learning models for inclusive classes(Massouti, 2019). The learning model product developed by the author is one solution in answering teacher problems in dealing with classes with mixed student characteristics(Leijen et al., 2021), also a solution for inclusive schools that do not have teachers with special education academic backgrounds.

Learning model products developed from differentiation learning models contain learning steps or syntax, Learning Implementation Plans (RPP), and learning evaluations and other learning elements that support the process of knowledge transformation in learning between teachers and students (Munna & Kalam, 2021). The development of this product is carried out by integrating the theory and concept of the differentiation learning model with the results of observational analysis data of inclusive schools at the elementary school level. The orientation of this learning model product is to be a learning model that can handle the variety of students in inclusive classes, because the characteristics of this inclusive class are different from regular

classes where in one class consists of regular students and variants of students with special needs. These classroom characteristics are the foundation of the problem of developing inclusive learning model products with two factors considered, first the learning object factor (students); How diverse learners can achieve learning goals and outcomes for each subject, both factors teachers as learning subjects must be able to understand the circumstances of students and develop each student's potential(Nwabuwe & Osagiede, 2023) that exists in each of them, because each child has potential that can be developed according to the characteristics of his talent.

The concept of the learning model product in its activities is to observe students (types of special needs, academic abilities and learning interests) before learning begins, the results of these observations are used as a foundation in preparing learning concepts and media. After learning, an evaluation is carried out by looking at the achievements of each student in understanding the material delivered and the delivery of ideas for the next learning activity. This learning product places teachers and students as a work team that works together in making effective activities in the classroom, so that everyone in an inclusive classroom is interconnected and has each other.

4. Conclusion

Inclusive learning model is a learning model with steps or syntax that accommodates the learning needs of two types of students who are mixed (Mix Students) in one class, namely regular students and students with special needs, so as to provide learning outcomes from students by eliminating physical and mental limitations. In addition, the inclusive learning model must also have a clear framework as a guiding teacher in providing inclusive classroom learning. Both of these concepts can be built in learning model products made by researchers, these learning model products are designed for large classes of inclusive public elementary school levels. The types of inclusion recommended in the application of this model are Tunagrahita, learning delay, and autism with the type of inclusive class is a regular class.

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