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*(Research/Review) Article*

# Development Device Learning Differentiated with Use PJBL Method on Material Get up Flat

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**Abstract:** This research aims to develop a mathematics teaching module based on differentiated learning integrated with the Project-Based Learning (PjBL) method, specifically for the topic of spatial structures ("get up room") for students at Nanasi 1 Elementary School. The development process follows the 4D model, which includes the stages of Define, Design, Develop, and Disseminate. In the Define stage, analysis revealed the absence of instructional modules that align with students' learning styles and needs. Consequently, learning objectives were formulated based on geometric elements and problem-solving criteria. During the Design stage, a prototype module and validation instruments were produced. Validation was conducted by two experts, yielding high scores for both content and visual presentation—each achieving 90% validity. Practicality assessments also showed strong results, with content rated at 90.8% and visual aspects at 90%, categorizing the module as "very valid" and "very practical." The integration of the PjBL method was implemented to enhance active student participation, encouraging collaborative exploration and real-world application of mathematical concepts. The developed module is considered suitable for supporting differentiated mathematics instruction in elementary schools. It accommodates diverse learning styles and promotes student engagement through project-based tasks. The findings suggest that combining differentiated learning with PjBL fosters a more inclusive and effective learning environment, particularly in geometry-related topics. This module not only meets pedagogical standards but also contributes to the advancement of innovative teaching practices in primary education.

**Keywords:** 4D, Learning Differentiated, Mathematics, Project Based Learning, Teaching Module

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## 1. Introduction

Education is one of the aspect important in development source Power quality human beings . In effort increase quality education , curriculum Keep going experience update For adapt with needs of the times. One of them updates made is implementation Independent Curriculum , which aims give flexibility to the teacher in manage learning in accordance with need participant educate . One of the relevant approach in implementation Independent Curriculum is learning differentiated approach This allows teachers to accommodate needs , interests , and abilities individual students , so that the learning process become more effective and meaningful .

Jurais (2023) stated that in learning differentiated , teachers need to understand that No There is One method or method single match For all participant educate . Every child own abilities , interests , and needs different learning .

According to Santoso (2022), learning differentiated allows teachers to designing adaptive learning strategies to difference individual students . Approach This No only focused on results learning , but also on a customized learning process with the needs of each student , so that create experience learn more meaningful learning differentiated can : Improve motivation learning : Students feel more challenged and involved in the learning process when

materials and activities customized with need they . Improve understanding concept : Students can understand draft with more Good Because they given chance For Study with appropriate way with style Study they . Improve results study : Research show existence improvement results Study students who follow learning differentiated , good in matter cognitive and affective .

eye lesson Mathematics , especially in the material Get up Flat , often considered difficult for some big students . Understanding concept and application material Get up Flat need skills think logical , visualization , and problem solving good problem . Difficulty This can caused by the method lack of learning varied and less involving student in a way active in the learning process .

This also happened at Nanasi 1 Public Elementary School Subdistrict Poigar , where students often face difficulty in understand material Get up Flat . Project-Based Learning ( PjBL ) or learning based project is one of the effective method For increase involvement student in learning . Wijaya and Lestari (2022) explain that PjBL give experience in -depth learning with integrate knowledge and skills through relevant projects with the real world . Method This push student For Study through experience direct , collaborative , and resolution problem real . With use PjBL , students No only understand draft but also develop skills think critical , creativity , and work The same team. Based on description said , research This aim For develop Device Learning based learning differentiated with use method PjBL on the eyes lesson Mathematics material Get up Flat . Development module This expected can help student understand material in a way more deep , improve involvement they in learning , as well as support achievement expected competencies in Independent Curriculum .

## 2. Proposed Method

Study This use Research and Development (R&D) methods that aim For develop and test effectiveness Device Learning based learning differentiated with use Project-Based Learning ( PjBL ) method in the subject lesson Mathematics material Get up Flat . The R&D method refers to the steps proposed by Borg & Gall (2022), which have modified For adapt with need study This .

According to Wahyudi (2023), R&D methods do not only focused on development product , but also ensure that product the effective and relevant with need users through a series of systematic trials . In context education , methods This allows development innovation more learning contextual and based need student .

The stages of this 4-D model started from First definition , second design , third development and the last dissemination product end .

a. Stage define : Identification Need Learning Differentiate
b. Stages design : Compilation Teaching tools and validation instruments
c. Stages develop : validation and revision teaching tools

## 3. Results and Discussion

Research result This in the form of differentiated mathematics teaching modules with use Project Based Learning method in the subject lesson Mathematics material Get up Flat at SD Negeri 1 Nanasi . Teaching modules developed by researchers tetera in the attachment thesis . Research development This done with use steps 4D development with four stages activity that is stage definition (define), stage design , stage development .

a. **Define Stage**

At the stage This researchers do analysis beginning through observation and interviews towards class teachers and students at SD Negeri 1 Nanasi

1) Student experience difficulty understand material get up flat in a way conceptual and contextual
2) Learning style student diverse (visual , auditory , and kinesthetic ) but teachers have not yet designed learning that accommodates difference This.
3) Teacher still tend monotonous and not yet There is device learning available differentiation

b. **Design Stage**

Researchers design :

1) Differentiated teaching modules
2) Varied LKPD in accordance style Study student
3) Instrument assessment ( rubric and questions) evaluation )
4) Instrument validation device

Design done based on principle learning differentiated and syntax PJBL design project implementation , monitoring, and reflection.

c. **Develop Stage**

Device learning that has been designed validated by two experts

1) Material and learning media expert give assessment on aspects issi appearance and practicality

d. **Validation results**

1) **Validity content** 90% (Very valid)
2) **Validity Appearance** 90 % (Very valid)
3) **Practicality content** 90.8% (Very practical )
4) **Practicality** 90% **display (Very** practical )

**Discussion**

Validation results show device The learning developed is very valid and practical , in line with with theory development device Borg & Gall (2022) study . The height score validity show that content , design , and instruments in accordance with standard curriculum as well as need student .

Practicality device shown through response positive teachers and students , which is appropriate with theory constructivism that learning effective happen when student involved active in activity meaningful with teacher guidance . In addition that , use Project - oriented PjBL real support improvement motivation learning and skills collaboration students , as emphasized by Wijaya & Lestari (2022).

Findings study this is also consistent with results study Sumilat (2021) which shows that device learning based project can increase skills think critical elementary school students . Similarly , Pangkey (2022) found that implementation learning differentiated in effective elementary school mathematics increase understanding draft students . With Thus , the results study This strengthen findings UNIMA PGSD lecturers as well give contribution new in the form of device that integrates PjBL and differentiation in One unity learning .

Involvement student in projects simple , like make sketch get up flat or house model from paper , giving experience Study contextual . This is in line with Contextual Teaching and Learning theory which emphasizes relatedness between material lesson with life real (Johnson, 2002).

Device learning differentiated with method PjBL developed on the material get up flat at school base proven valid and practical . Device This support improvement involvement students , understanding concept , as well as skills collaboration . Research This strengthen theory learning differentiation and PjBL , as well as in line with study UNIMA PGSD lecturers.

Research result show that device developed learning can used in a way effective and practical in implementation learning mathematics differentiated .

a. **Compliance with style Study student**

Modules and LKPD designed customized with style Study

1) Visual Using drawings and diagrams of buildings flat
2) Auditory Equipped verbal instructions and narrative learning
3) Kinesthetic involving activities building a building model flat from tool props

b. **Effective Implementation of PJBL**

Modules and LKPD designed customized with style Study

1) Designing floor plan House use get up flat

2) Compiling a project groups and present the result Student become more active , collaborative , and understanding draft through experience direct

c. **Achievement Objective Learning**

Evaluation results Study student show improvement

1) Discussion Draft geometry base
2) Ability connect material with situation real
3) Skills presentation and reflection learning

d. **Challenges faced**

Teachers need time addition For understand PJBL flow is needed teacher training to be able to designing differentiated LKPD in a way consistent

## 4. Conclusions

Based on findings from research conducted at SD Negeri 1 Nanasi related development mathematics teaching module with approach learning differentiate on material get up space , then conclusion from results study This is as following.

Development differentiated teaching modules with Project Based Learning method at SD Negeri 1 Nanasi This has implemented with good at every stage in the 4D development model . Although Thus , testing to quality product at stage practicality only done through assessment by mathematics teachers . Trial direct to participant educate Not yet can implemented Because limitations time from party researchers , considering material in this teaching module new will used in the next semester.

Developed teaching modules in study This own very valid and very practical results so it is very worthy used in learning material geometry in elementary school with apply learning differentiated with Project Based Learning method .

## 5. Recommendations

Based on results research and discussion that has been done , researchers submit a number of recommendation as following. **For Teachers** Teachers are expected can utilise mathematics - based teaching modules learning differentiated This as one of the source reference in implementation classroom learning , so need Study every participant educate can fulfilled with Good. **For Researchers Furthermore** Researchers next recommended use results study This as base For develop study more carry on with applying models and procedures different development as well as expand coverage material , use produce more mathematics teaching modules systematic and interesting in research that will be come .

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