

**ABSTRAK**

**PENGEMBANGAN PROTOTIPE PERANGKAT PEMBELAJARAN  
GEOMETRI MATERI BANGUN RUANG SEDERHANA BERDASARKAN  
TEORI *VAN HIELE* UNTUK SISWA KELAS IV SEKOLAH DASAR.**

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Penelitian berawal dari potensi dan masalah terkait kurangnya pemahaman siswa kelas IV SD N Sendangadi 2 terhadap bangun ruang sederhana. Potensi yang ada adalah konsep geometri bangun ruang sederhana dapat membantu siswa mengembangkan kecerdasan matematis-logis dan ruang-visual. Masalah yang adalah 57% siswa tidak paham rusuk balok, 52% siswa tidak paham bidang sisi balok, 47% siswa tidak paham bidang sisi kubus, dan 47% siswa tidak paham jaring-jaring kubus, serta guru kurang bervariasi dalam menggunakan model pembelajaran. Maka peneliti mengembangkan prototipe dengan tujuannya menjelaskan proses pengembangan dan mendeskripsikan kualitas produk.

Penelitian dan pengembangan (R&D) ini menggunakan 6 langkah menurut Sugiyono yaitu: (1) potensi dan masalah, (2) pengumpulan data, (3) desain produk, (4) validasi desain, (5) revisi desain, dan (6) uji coba produk. Produk yang dihasilkan berupa prototipe perangkat pembelajaran berdasarkan lima fase *van Hiele* yaitu: fase informasi, fase orientasi bebas, fase penjelasan, fase orientasi bebas, dan fase integrasi. Prototipe telah divalidasi dengan skor rata-rata 3,60 dengan kategori sangat baik, maka layak diujicobakan.

Uji coba terbatas dilakukan di SD Negeri Sendangadi 2 pada tanggal 16 Desember 2016 dengan menerapkan lima fase *van Hiele*, dari fase terakhir yaitu fase integrasi peneliti mendapatkan data jika siswa memahami sifat-sifat kubus.

Kata kunci : pengembangan, perangkat pembelajaran, geometri, bangun ruang sederhana, *van Hiele*.

**ABSTRACT**

THE DEVELOPMENT OF LEARNING I GEOMETRY INSTRUMENT  
PROTOTYPE ABOUT SIMPLE 3D SHAPES BASED VAN HIELE THEORY  
FOR FOURTH GRADE STUDENTS OF ELEMENTARY SCHOOL.

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The research started from the potential and problems related to a lack of understanding fourth grade students of SD Negeri Sendangadi 2 about simple 3D shapes. The potential is simple 3D shapes concepts can help students to develop logical-mathematical intelligence and visual space. The problem are 57% of students do not understand the rib beams, 52% of students do not understand the field side of the beam, 47% of students do not understand the field side of the cube, and 47% of students do not understand the nets of the cube, because of learning model which used by teacher is less variation. Researcher then developed a prototype with the aim to explain the process of developing and describing quality of products.

This research and development (R & D) applied 6 steps by Sugiyono which named: (1) the potential and problems, (2) data collection, (3) the design of the product, (4) design validation, (5) the revision of the design, and (6) test product. The product is instrument prototype of geometry learning based on the five phases of *van Hiele* which named: information phase, direct orientation phase, explication phase, free orientation phase, and integration phase. The prototype has been validated with with the average score of 3.60, the result mean excellent category then deserves tested.

Limited trial implementable at SD Negeri Sendangadi 2 on 16 December 2016 by applying the five phases of *van Hiele*, in the last phase mean integration phase the researcher get the data that students understand the properties of a cube.

Keywords: development, learning instrument, geometry, simple 3D shapes, *van Hiele*.