

**PENGEMBANGAN SOAL OLIMPIADE SAINS NASIONAL BIDANG
MATEMATIKA UNTUK PENGKATEGORIAN KEMAMPUAN
PEMECAHAN MASALAH MATEMATIKA SISWA SMP**

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ABSTRAK

Penelitian ini bertujuan untuk mengembangkan dan mendeskripsikan kualitas soal OSN bidang matematika yang baik untuk pengkategorian kemampuan pemecahan masalah matematika siswa SMP. Soal yang dikembangkan terdiri dari 10 butir soal uraian untuk mengukur keterampilan menganalisis (C4), dan mengevaluasi (C5). Model pengembangan yang digunakan adalah *formative research*. Hasil uji coba lapangan (tahap *field test*) menunjukkan bahwa: (1) konsistensi internal untuk soal ini menggunakan rumus koefisien korelasi *product moment* dengan koefisien korelasi berkisar antara 0,542 hingga 0,797 yang berarti keseluruhan butir telah valid, (2) koefisien reliabilitas tes yang diperoleh adalah 0,648 termasuk kategori sangat tinggi, (3) indeks daya beda hitung adalah 0,723 dengan kriteria sangat baik, (4) taraf kesukaran butir tes yang diperoleh adalah 1 soal tergolong kategori sedang dan 4 soal tergolong kategori sukar, (5) pengkategorian kemampuan pemecahan masalah matematika siswa SMPN 4 Singaraja yaitu 5% siswa berkategori sangat tinggi, 7,5% siswa berkategori tinggi, 7,5% siswa berkategori cukup, 65% siswa berkategori rendah, dan 5% siswa berkategori sangat rendah; pengkategorian kemampuan pemecahan masalah matematika siswa SMPN 5 Singaraja yaitu 0% siswa berkategori sangat tinggi, 0% siswa berkategori tinggi, 5% siswa berkategori cukup, 42,5% siswa berkategori rendah, dan 52,5% siswa berkategori sangat rendah; sedangkan siswa SMPN 1 Banjar yaitu 2,5% siswa berkategori sangat tinggi, 0% siswa berkategori tinggi, 2,5% siswa berkategori cukup, 72,5% siswa berkategori rendah, dan 22,5% siswa berkategori sangat rendah, (6) peluang siswa menjawab benar menggunakan *Partial Credit Model* (PCM) dengan estimasi abilitas 0,5 diperoleh untuk soal tipe menganalisis dan mengevaluasi, nilai peluang siswa menjawab benar berkisar antara 0,065 sampai 0,271.

Kata kunci: OSN, pemecahan masalah matematika, *formative research*.

**THE DEVELOPMENT OF NATIONAL SCIENCE OLYMPIAD QUESTIONS
IN MATHEMATICS FOR CATEGORIZING THE ABILITY OF
MATHEMATICAL PROBLEM SOLVING FOR JUNIOR HIGH SCHOOL
STUDENTS**

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ABSTRACT

The development model used was formative research. The results of field trials show that: (1) internal consistency for this problem used the product moment correlation coefficient formula with correlation coefficients ranging from 0.542 to 0.797 which means that all items are valid, (2) the reliability coefficient of the test was 0.648 which is very high category, (3) the index of discrimination in counting was 0.723 with very good criteria, (4) the level of difficulty of the test items obtained 1 item classified as a medium category and 4 items classified as difficult category, (5) mathematical categorization problem solving abilities of Students at SMPN 4 singaraja was found, 5% of students categorized as very high, 7.5% of students categorized as high, 7.5% of students categorized as sufficient, 65% of students categorized as low, and 5% of students categorized as very low; categorizing mathematical problem solving abilities of students of SMPN 5 Singaraja was 0% students categorized as very high, 0% students categorized as high, 5% students categorized as sufficient, 42.5% students categorized as low, and 52.5% students categorized as very low; while students at SMPN 1 Banjar, 2.5% of students categorized as very high, 0% of students categorized as high, 2.5% of students categorized as sufficient, 72.5% of students categorized as low, and 22.5% of students categorized as very low, (6) the opportunity for students to answer correctly using the Partial Credit Model (PCM) with an estimate of 0.5 ability was obtained for the type of problem analyzing and evaluating, the value of the opportunity for students to answer correctly ranged from 0.065 to 0.271.

Keywords: OSN, mathematical problem solving, formative research