

PENGEMBANGAN *EDUCATIONAL GAMES* BERBASIS *GAMES BASED LEARNING* UNTUK MENINGKATKAN PEMAHAMAN KONSEP MATERI PERUBAHAN WUJUD ZAT MUATAN IPAS SISWA KELAS IV SD

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ABSTRAK

Penelitian ini dilatarbelakangi oleh rendahnya pemahaman konsep siswa kelas IV SD No. 2 Werdi Bhuwana pada mata pelajaran IPAS, khususnya materi perubahan wujud zat. Hal ini disebabkan oleh kurangnya pemanfaatan media teknologi interaktif serta penerapan metode pembelajaran konvensional yang monoton. Penelitian ini bertujuan untuk, (1) mendeskripsikan rancang bangun educational games berbasis game-based learning, (2) menguji kelayakan educational games berbasis game-based learning, dan (3) menganalisis efektivitas educational games berbasis game-based learning terhadap peningkatan pemahaman konsep siswa pada mata pelajaran IPAS kelas IV SD No. 2 Werdi Bhuwana. Metode penelitian yang digunakan adalah Research and Development (R&D) dengan model pengembangan ADDIE. Subjek penelitian ini meliputi ahli isi/materi pembelajaran, ahli rancang bangun, ahli desain instruksional, ahli media pembelajaran, serta siswa kelas IV SD No. 2 Werdi Bhuwana sebagai subjek uji coba produk. Pengumpulan data dilakukan melalui observasi, wawancara, angket (kuesioner), dan metode tes (pre-test dan post-test). Data hasil tes dianalisis menggunakan uji prasyarat analisis (uji normalitas dan homogenitas) yang dilanjutkan dengan uji-t (paired sample t-test). Hasil penelitian menunjukkan bahwa educational games yang dikembangkan berkualifikasi sangat layak dan efektif untuk digunakan. Hal tersebut dibuktikan melalui persentase hasil uji coba produk sebagai berikut: hasil uji rancang bangun memperoleh persentase 93,75% (sangat baik), uji ahli isi pembelajaran memperoleh 96,15% (sangat baik), dan uji ahli desain pembelajaran memperoleh 93,75% (sangat baik). Selanjutnya, hasil uji coba perorangan memperoleh persentase 83,32% (baik) dan uji coba kelompok kecil memperoleh 78,89% (baik). Hasil uji efektivitas menunjukkan adanya peningkatan rata-rata pemahaman konsep siswa, dari nilai pre-test sebesar 35,56 menjadi 86,67 pada post-test. Sehingga nilai $t_{hitung} > t_{table}$ ($28,3 > 2,056$) pada taraf signifikansi 5%, sehingga H_0 ditolak dan H_1 diterima. Dengan demikian, media educational games berbasis game-based learning dinyatakan efektif dalam meningkatkan pemahaman konsep siswa pada mata pelajaran IPAS khususnya materi Perubahan Wujud Zat kelas IV SD No. 2 Werdi Bhuwana.

Kata Kunci: *Educational Games, Games Based Learning, Perubahan Wujud Zat.*

DEVELOPMENT OF GAME-BASED LEARNING EDUCATIONAL GAMES TO IMPPROVE FOUTH-GRADE ELEMENTARY SCHOOL STUDENTS CONCEPTUAL UNDERSTANDING OF CHANGES IN THE STATES OF MATTER IN SCIENCE AND SOCIAL STUDIES

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ABSTRACT

This research was motivated by the low conceptual understanding of fourth-grade students at SD No. 2 Werdi Bhuwana in the Science and Social Studies (IPAS) subject, particularly on the topic of changes in the states of matter. This issue was caused by the lack of interactive educational technology utilization and the monotonous application of conventional learning methods. This study aimed to, (1) describe the design and development of game-based learning educational games, (2) test the feasibility of game-based learning educational games, and (3) analyze the effectiveness of game-based learning educational games in improving students conceptual understanding of IPAS. The research method employed was Research and Development (R&D), utilizing the ADDIE development model. The research subjects included learning content/material experts, product design experts, instructional design experts, learning media experts, and fourth-grade students at SD No. 2 Werdi Bhuwana as product trial subjects. Data collection was conducted through observation, interviews, questionnaires, and test methods (pre-test and post-test). The test data were analyzed using prerequisite analysis tests (normality and homogeneity tests) followed by a paired sample t-test. The results of the study indicated that the developed educational games were highly feasible and effective for instructional use. This was evidenced by the product trial percentages as follows: the product design test achieved 93.75% (excellent), the learning content expert test achieved 96.15% (excellent), and the instructional design expert test achieved 93.75% (excellent). Furthermore, the individual trial achieved 83.32% (good) and the small-group trial achieved 78.89% (good). The effectiveness test results demonstrated an increase in students' average conceptual understanding, with the pre-test score rising from 35.56 to 86.67 in the post-test. The t-test analysis yielded a value of a value of $t_{value} > t_{table}$ ($28,3 > 2,056$) at a 5% significance level, meaning that H_0 was rejected and H_1 was accepted. Consequently, the game-based learning educational games are effective in improving fourth-grade students conceptual understanding of IPAS, particularly on changes in the states of matter, at SD No. 2 Werdi Bhuwana.

Key Words: Educational Games, Games Based Learning, Changes in the States of Matter.