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Design and Validation of Doodly-Based Physics Teaching Materials to Enhance Teachers' Digital Competencies

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Abstract

In the rapidly advancing digital era, the integration of technology in education has become essential for enhancing the learning experience. One promising tool in this regard is animation software like Doodly, which can significantly elevate the quality of physics teaching. This research seeks to develop teaching materials for physics that leverage Doodly's animation capabilities, aiming not only to bolster teachers' digital skills but also to increase student engagement in the learning process. The methodology employed in this study involves a descriptive approach, with design validation conducted by experts in physics, multimedia learning, and educational technology. Expert validation sheets and revision guides were used as instruments, and the data were analyzed using Aiken's V formula to assess the validity of the materials developed. The findings suggest that the Doodly-based physics teaching materials are of excellent quality, demonstrating high validity scores in terms of presentation feasibility (0.89), content feasibility (0.86), and language use (0.89). The animation-based approach in these materials has proven effective in improving students' comprehension of challenging concepts while enriching their learning experience. However, the research also points out that certain aspects, such as visual design and video duration, could still benefit from further refinement. Ultimately, the study confirms that Doodly-based teaching resources are highly effective in enhancing both teachers' digital competencies and student engagement, contributing significantly to the development of more dynamic, technology-driven physics education.

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