Development and Implementation of AR-Card Learning Media to Improve Learning Outcomes in Motor Starter Topics

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Article Info	Abstract
	This research is motivated by challenges in the learning process of motor starter topics, including low student engagement, a lack of teaching aids, suboptimal learning media, and previously low student performance, with 70% of individuals failing to meet the minimum passing grade. This study aims to develop Android-based AR-Card learning media for motor starter topics, assess the feasibility of the media, and compare its effectiveness with other teaching methods in improving learning outcomes and motivation. The research employs the ADDIE development model and was conducted at SMK Bina Nusantara Semarang with 42 eleventh-grade individuals majoring in Motorcycle Engineering. The sample consisted of two classes, each receiving different teaching treatments. The results show that the AR-Card learning media developed is deemed feasible based on expert evaluations. The implementation of AR-Card learning media proved to be more effective than conventional methods. The study concludes that AR-Card learning media significantly enhances both learning outcomes and motivation. The novelty of this research lies in the 3D visualization of motor starter components integrated into the learning media.

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