

# Developing Scientific Concepts on Magnetic and Electric Field using Simple Experiment and Multimedia Learning

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Science experiment plays an important role in developing scientific knowledge for learners in science. Effective teaching methods must emphasize learning by experimenting where students see real phenomena. Through low-cost simple experiments designed for hands-on activity in conjunction with the reinforcement of graphical multimedia, the students have enhanced the matching scientific concepts. This method helps to solve the lack of scientific equipments. The purpose of this research was to develop the students' scientific concepts on magnetic and electric fields using science inquiry process by simple experiments in conjunction with multimedia learning. The pretest and posttest control group design was employed in carrying out the study. The research tools consisted of simple experiments and the multimedia learning, lesson plans based on the science inquiry process, the magnetic and electric fields concepts 2-tiers test, think-aloud interviews on the scientific conceptual test and student's satisfaction test. The data were analyzed into the average percentage, standard deviation, t-test and average normalized gain. The result of the target group shows statistically significant mean differences between the pre-test and post-test at significant level of .01. The class average normalized gain was in the medium gain (0.33). The students' abilities to explain the concepts in levels of good, have positive comments, and have very satisfied about the learning process. This result indicated that science inquiry process by simple experiments and multimedia learning can be used to develop students' conceptual understanding on magnetic and electric fields. The students had an opportunity to experience from actual practice to build up new body of knowledge by themselves, enhancing scientific concepts through the multimedia learning and therefore students have positive attitude for science learning process.

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