

PENGARUH PEMBELAJARAN BERBASIS “STEM” BERBANTUAN “MAR” TERHADAP LITERASI SAINS DAN SIKAP ILMIAH DENGAN MENGONTROL PENGETAHUAN AWAL SAINS

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ABSTRAK

Penelitian bertujuan untuk mengkaji pengaruh pembelajaran berbasis STEM berbantuan MAR dalam pembelajaran sains terhadap literasi sains dan sikap ilmiah mahasiswa dengan mengontrol pengetahuan awal sains. Jenis penelitian ini adalah penelitian eksperimen dengan desain *single factor independent group design with use covariate*. Penelitian dilakukan pada mahasiswa PGSD STKIP Santu Paulus di kota Ruteng. Pemilihan sampel menggunakan *cluster random sampling* sehingga terpilih 2 kelas PGSD dipilih untuk kelompok eksperimen ($n = 87$) dan 2 kelas untuk kelompok kontrol ($n = 88$). Kelompok eksperimen menggunakan pembelajaran berbasis STEM berbantuan MAR dan kelompok kontrol menggunakan pembelajaran konvensional. Penelitian ini menggunakan tes literasi sains, lembar observasi sikap sains, kuesioner sikap ilmiah, dan tes pengetahuan awal sebagai instrumen untuk mengumpulkan data. Data dianalisis dengan analisis kovarians multivariat dengan bantuan program SPSS 16.0 dan RASCH model. Hasil penelitian menunjukkan: 1) literasi sains dan sikap ilmiah mahasiswa yang mengikuti pembelajaran sains dengan pembelajaran berbasis STEM berbantuan MAR lebih tinggi daripada mahasiswa yang mengikuti pembelajaran sains dengan pembelajaran konvensional, 2) literasi sains dan sikap ilmiah mahasiswa yang mengikuti pembelajaran sains dengan pembelajaran berbasis STEM berbantuan MAR lebih tinggi daripada mahasiswa yang mengikuti pembelajaran sains dengan pembelajaran konvensional, setelah pengetahuan awal mahasiswa dalam pembelajaran sains dikontrol, 3) pengetahuan awal dalam pembelajaran sains berkontribusi terhadap literasi sains dalam pembelajaran sains mahasiswa sebesar 8% dan terhadap sikap ilmiah mahasiswa sebesar 4,6%. Temuan penelitian ini menunjukkan bahwa, pembelajaran berbasis STEM berbantuan MAR berpengaruh signifikan terhadap literasi sains dan sikap ilmiah.

Kata kunci: Pembelajaran, STEM, MAR, literasi sains, sikap ilmiah, pengetahuan awal

**THE EFFECT OF MOBILE AUGMENTED REALITY ASSISTED
STEM-BASED LEARNING ON SCIENTIFIC LITERACY AND
SCIENTIFIC ATTITUDE IN SCIENCE LEARNING BY CONTROLLING
THE PRIOR KNOWLEDGE OF SCIENCE**

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ABSTRACT

This study aimed at investigating the effect of Mobile Augmented Reality (MAR) assisted STEM-Based in Science learning on students' scientific literacy and scientific attitude by controlling the prior knowledge of science. This experimental study employed single factor independent group design with use covariate. The study was conducted to the *PGSD* (Primary School Teacher Education Department) students of STKIP Santu Paulus Ruteng. The sample of study used cluster random sampling technique wherein two classes were selected as the experiment groups ($n = 87$) and also two classes were selected as control groups ($n = 88$). The experiment groups used MAR assisted STEM-Based learning and the control groups used conventional learning. The data were collected by means of scientific literacy test, observation sheet of scientific behavior, questionnaire of scientific attitude, and prior knowledge test. The data were analyzed by using Multivariate Analysis of Covariance (MANCOVA) employing SPSS 16.0 and RASCH model. The results indicated that 1) scores in scientific literacy and scientific attitude of students attending MAR assisted STEM-Based in Science learning were higher than students following conventional way in Science learning, 2) after the students' prior knowledge in Science learning was controlled, the scores in scientific literacy and scientific attitude of students attending MAR assisted STEM-Based in Science learning were higher than students following the conventional way in Science learning, 3) the contribution of the prior knowledge in Science learning towards students' scientific literacy was 8% and towards students' scientific attitude was 4.6%. This indicated that the MAR assisted STEM-Based in Science learning significantly contributed to improve students' scientific literacy and scientific attitude.

Key Words: learning, STEM, MAR, scientific literacy, scientific attitude, prior knowledge