

A Comparison of Students' Attitudes towards STEM at Middle School, High School, and Vocational High School

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Abstract

Purpose – The purpose of the research was to compare the attitudes of middle school, high school, and vocational high school students for different grades towards STEM (Science, Technology, Engineering, Mathematics). It also aimed to investigate which school type is more effective in implementing STEM.

Method – The research was a quantitative research. In the research, descriptive statistical analyzes were used to compare the results of the answers given by the students to the STEM attitude questionnaire. The reliability and validity of the STEM attitude questionnaire were calculated. Statistical analysis of the questionnaire using explanatory factor analysis showed that the questionnaire was reliable and had four factors. These four factors were science, technology, engineering, and mathematics. The research was conducted with 3376 students in seven middle schools, five high schools, and eight vocational high schools.

Findings – The results of the research showed that students' STEM attitudes have declining trend from 5th grade to 12th grade. The students' tendencies towards STEM fields also differed according to school type.

Significance – The results of the research revealed that STEM education is more suitable for vocational high schools because many courses in vocational high schools are hands-on.

Keywords: Attitude, High School, Middle School, STEM, Vocational High School.