Effects of inquiry-based instruction: case study of a marine technology school

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ABSTRACT

This aim of this study was to explore the learning effectiveness of inquiry-based instruction among vocational high school students. The sample consisted of 20 students at a maritime polytechnic vocational high school in southern Taiwan, and the instruction focused on the laboratory practices for assembling and disassembling power equipment. We used a single-group design and conducted pre- and posttests to measure changes in basic capabilities, motivation for and interest in studying science, and performance on a skill examination table.

The study results indicate that inquiry-based instruction significantly improved the basic academic abilities and skills of students. This improvement was especially pronounced with respect to the self-efficacy and performance goal dimensions related to the motivation to study science. No significant differences were found for the three dimensions related to interest in studying science attitude toward science, learning atmosphere, and student engagement.

Keywords: Inquiry-based instruction, Science learning, Learning effectiveness