

## Investigate the Effects of Inquiry-Based Science Education, Integrated with Mobile Technology, on the Academic Achievement of Fifth-Grade Elementary Students, with the Mediating Role of Academic Motivation

Maryam Faraji\*  
Azam Esfijani\*\*

### Introduction

The aim of this study is to investigate the effects of inquiry-based science education, integrated with mobile technology, on the academic achievement of fifth-grade elementary students, with the mediating role of academic motivation.

### Method

This study is an applied research which employed a quasi-experimental design. The research population of the study included all public elementary schools in Shahinshahr city in the academic year of 2019-2020 from which two schools were selected through cluster sampling method. In order to assess the motivation of students in this study, the learning motivation questionnaire was used and to assess the academic achievement of students, a researcher-made test was used. The method of research data analysis was path analysis and the data were analyzed using Amos software.

### Results

The investigation of direct effects in the research conceptual model revealed that inquiry-based science education with the integration of mobile technology has a positive and significant effect on the deep motivation subscale, but its effect on the two subscales of surface motivation and achieving motivation is not significant. Also, the research findings showed

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\* M.A., University of Isfahan, Isfahan, Iran.

\*\* Assistant Professor, University of Isfahan, Isfahan, Iran. *Corresponding Author:*  
[esfijani@edu.ui.ac.ir](mailto:esfijani@edu.ui.ac.ir)

that the educational method used has no direct, positive and significant effect on academic achievement. Findings regarding the effect of motivation dimensions on the academic achievement indicated that deep motivation of students has a positive and significant effect and achieving motivation has a negative and significant effect on students' academic achievement, but surface motivation has no significant effect on academic achievement. Regarding the indirect effects, the results showed that the indirect effect of inquiry-based science education with the integration of mobile technology with the mediating role of deep motivation, on the academic achievement of students is positive and significant. Inquiry-based science education with the integration of mobile technology with the mediating role of surface motivation and achieving motivation does not have a significant indirect effect on students' academic achievement.

### **Discussion**

Based on the findings of this study, it is recommended that teachers by choosing authentic, relevant, real-world tasks through inquiry-based educational approach attempt to increase the level of deep motivation in students and then help them improve their academic achievement.

**Keywords:** Inquiry-based science education, academic achievement, academic motivation, mobile technology

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