Abstract

Project Code:

TRG5780283

Project Title:

Fostering Pre-service Science Teachers' Scientific Inquiry-based Technological Pedagogical and Content Knowledge (TPACK) through a Techno-Pedagogy Enrichment Program

Investigator:

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Project Period:

24 months

Abstract:

The application of mobile and wireless technology in instruction is highly emphasized in the contemporary education of science teachers. This research project aims to promote pre-service science teachers' technological pedagogical and content knowledge (TPACK) for teaching science by the way of meaningful inquiry learning in context of mobile laboratory environment. In order to develop their TPACK, the Techno-Pedagogy Enrichment Program (TPEP) is strategically created based on the TPACK framework by the researcher to provide pre-service science teacher with a mobile technology-integrated pedagogy module, called Mobile Laboratory Learning in Science (MLLS). The current research project aims, therefore, to investigate the effectiveness of the MLLS, in terms of pre-service science teachers' TPACK transformation. One hundred and nineteen pre-service science teachers who were entering into general science teacher education program attended the intensive MLLS module. The results of the qualitative data analysis indicated that the MLLS module can promote the preservice science teachers' TPACK of mobile laboratory learning in a progressive way. The results could potentially inform curriculum design and implementation supported by mobile technology, as well as support professional development of science teachers. This finding

could be used to suggest teacher education and professional development faculties that how to educate science teachers in the 21st century in order to promote the competency for 21st century science teachers.