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THE EFFECT OF STEAM EDUCATION PROGRAM BASED FOR STEAM LITERACY OF HIGH SCHOOL STUDENTS

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Synopsis:

The aim of this research was to develop a STEAM program based on a traditional Korean instrument and implement it in a high school class to determine its effectiveness. The STEAM program was developed through a continuous consultation process between a development team and external experts and it was taught to a second-grade science class in high school for six weeks.

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Korea has tried to increase students' interest in and understanding of science technology by adding arts to STEM and cultivating STEAM literacy based on science technology and problem solving lately. However, there is no specific STEAM framework that focuses on nurturing convergent talents and there is little research that verifies the effects of the STEAM program. The aim of this research was to develop a STEAM education program and implement it in a high school class to determine its effectiveness. The STEAM program was developed through a continuous consultation process between a development team and external experts and it was taught to a second-grade science class in high school for six weeks. After teaching the program to students, semi-structured interviews were conducted to find out how the students perceived the STEAM program. The interviews of the second-grade students were transcribed and divided into sentences. The interview material of the research participants was divided alphabetically and coded into major questions. This coded material was classified into an upper category collecting similar coding through an inductive category. Therefore, the main questions, such as whether the STEAM program was an engaging class for students and the difficulties of applying STEAM to science class, were analyzed through the inductive category.

The results are as follows. The second-grade students recognized the meaning and necessity of STEAM education as a problem-solving process that resulted in increased STEAM literacy and a development of concepts through sharing opinions. In regards to the utility of STEAM education in science class, most students answered they will use it often because it allowed them to understand the whole problem-solving process. Overall, this STEAM program is apt to cultivate STEAM literacy through bringing together science technology and the arts and it is expected to increase creative problem-solving abilities by suggesting new ideas based on traditional culture. In the future, it will be important to examine the broad utility of the method and the development of the STEAM program examined in this study.