

Title	中等化学教育における創造性の評価に関する研究
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Citation	
Issue Date	2014-09
Type	Thesis or Dissertation
Text version	ETD
URL	http://hdl.handle.net/10119/12294
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Abstract

Educate problem-solving skills, not only accordance with determined steps, the learner to understand the various situations, Leveraging knowledge, the thought and judgment on their own. In this paper, about the development of creative problem-solving ability, the core of the problem-solving is not the process or method. Was focused on creative thinking would be related to the problem situation voluntarily, and to understand the various situations, and create new solutions and ideas. Focusing on Chemical Education of school, creativity, evaluation of creativity, development of creativity, was analyzed on the basis of the results of the three researches.

The Gardner and Csikszentmihalyi, creativity is achieved by the three regions Domain, Individual, Field. In other words, creation holds by the knowledge, personal ability, and Social environment to evaluate them. This paper, in the results of a survey about the development of creativity, as with previous studies, development of creativity was not linear. Also, the three creativity test problems were shown different aspects.

In order to evaluate the creative thinking in chemistry education, we propose "chemical creativity test", and verified its usefulness. The result, ①the Scores of S-A creativity test and academic achievement (overall score) was low Correlation. ②the scores of chemical creativity test and academic achievement (overall score) was low Correlation. But, with academic achievement (chemical) was high Correlation. S-A creativity test and school curriculum Related less, the contents of the answer is wide. On the other hand, an object that incorporates the contents of the chemistry curriculum, knowledge of chemistry and physics has been used a lot. In actual use properties, the item in the 'help to study', more of the chemical creativity test was significantly higher.

In order to more effectively creative thinking, Subject to the thinking of their own, then monitor and control is important. This study, was intended for graduate students of Laboratory of the experimental system, the survey results of the meta-cognition in observation and experimental activities, found 4 factors "The reflective thinking by themselves", "Clarification of thought by relationships with others", "Knowledge of thinking", "The reflective thinking by relationships. Main effect of "reflective thinking by themselves" is was not observed, Main effect of "reflective thinking by involvement with others" was observed.

Keywords: Creative thinking, Evaluation of creativity, Metacognition