Using crafts as a context in inquiry based STEM education

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ABSTRACT

Today's science education has attracted the attention of societies on the path of sustainable development, and many efforts are being made to improve it. Science, technology, engineering and mathematics (STEM) is a new approach that is being considered today for science education and many efforts are being made to apply it properly. STEM provides environment for connecting science to technology by using engineering and mathematics. This approach can help to create a positive attitude in students to study basic science in order to provide human welfare. First of all students need to gain a good understanding of the concepts based on learning in three domains of learning (Cognitive, Affective and Psychomotor) by using inquiry method. The 5 E instructional model can be used for this purpose by modifying elaborate step in interaction with context based learning. The crafts should be suggested as context with dual role in education. Using crafts in 5 E instructional model based on the culture of each country, In addition to its impact on the relevance of scientific concepts to everyday life, it also affects on values in education. In the second step, Crafts can be considered as simple technology that students can understand and achieve. In continuing STEM education, by engineering design process and mathematics, the learned

concepts are applied to a technology. In the present study, based on the proposed model, a lesson plan is designed. For doing that, the electrochemistry concepts was selected. In this lesson plan, silver craft was used as context.

Keywords: 5 E instructional model; electrochemistry; science education; teaching; value