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A Literature Review

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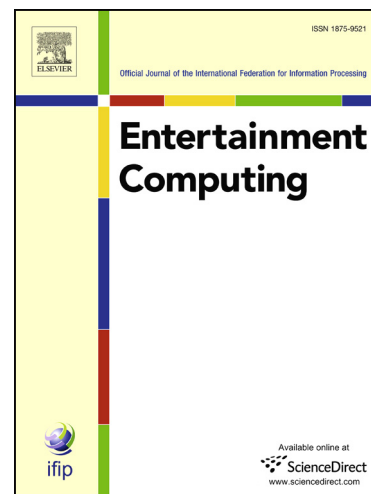
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Empirical Studies on the Maker Movement, a Promising Approach to Learning: A Literature Review

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ABSTRACT

The Maker Movement has gathered much attention recently, and has been one of the fastest-growing topics, due to contemporary technical and infrastructural developments. The maker culture can be described as a philosophy in which individuals or groups of individuals create artifacts that are recreated and assembled using software and/or physical objects. Typical topics of interest in maker culture include engineering-oriented pursuits such as electronics, robotics, 3D printing, and computer numerical control tools, as well as more traditional activities such as sewing or arts and crafts. Scholars and educators have reported a variety of outcomes from the Maker Movement as an instructional process; however, the lack of a summary of these empirical studies prevents stakeholders from having a clear view of the benefits and challenges of this instructional culture. The purpose of this article is to provide a review of the Maker Movement approach in order to summarize the current findings and guide future studies. Forty-three peer-reviewed articles were collected from a systematic literature search and analyzed based on a categorization of their main elements. The results of this survey show the direction of Maker Movement research during recent years and the most common technologies, subjects, evaluation methods, and pedagogical designs. Suggestions for future research include a further investigation into the benefits of using a specific technological tool and analysis of the Maker Movement approach, particularly in classrooms. These future research efforts will allow us to better indicate which aspects and ingredients of “making” work better for which circumstances and student groups. The findings will ultimately allow us to form best practices and a unified framework for guiding/assisting educators who want to adopt this teaching style.

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1. INTRODUCTION

During the last few years, the Maker Movement has appeared as a new trend that derives from the general maker culture, which is also described as a philosophy or phenomenon. The definition of the Maker Movement is very broad and builds on an individual’s ability to be a creator of things, a “maker.” There is a growing community of hobbyists and professionals

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