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# GRAVITATING TOWARDS TECHNOLOGY IN EDUCATION: PLACE OF MAKERSPACE

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## Abstract

Based on constructivist philosophy which focuses on enabling learners to generate knowledge through interaction with physical objects, the idea of makerspace was initiated. The main essence of makerspace is to stir creativity, innovations and motivate learners towards designing and inventing. This paper is an exposition on the place of makerspace as a new approach to pedagogical activities. The 21st century is immersed in information and communication technology revolution which has necessitated a new way of learning. New generation of learners are referred to as digital natives who are naturally gravitated towards new innovations. This paper relies on recent scholarly publications to point out intricacies of makerspace, the need for educators to embrace it, the new role for educators and other stakeholders in education and the need to manage this change in the educational system. The paper also points out the challenges that this new wave encounters in areas where adoption has taken place and the benefits of adopting makerspace. Conclusion is however made that change is constant and the idea of makerspace may be the new shift that will totally revolutionize the academic world. It is suggested that Faculty and Management need to encourage studies to evaluate accruable benefits of makerspace.

Keywords: Makerspace, education, technology. STEM, learning process, learners.

## 1 INTRODUCTION

Makerspace is a shift in approach to teaching which ([1], p.7) termed 'turning knowledge into action'. This involves encouraging learners to think creatively and giving them the opportunity to do collaborative thinking, practicing, forming and creating new 'things'. [2] has pointed out that Makerspace is a place to allow the minds of learners to do creative thinking and get access to enabling resources that could help them bring their thoughts into reality. Makerspace is also synonymous to teachshops, fablabs, learning commons, hackerspaces, libraries makerspaces etc., ([3]; [4]). The idea of makerspace is pivoted on the constructivist ideology which promotes constructionist educational approach [5].

It has been observed by [6] that Makerspaces encourage personalized learning. Although the concept of makerspace appears to be new, the rate of its spread is high. It is common in elementary and secondary schools while higher institutions are gradually encouraging its establishment for collaborative research known as learning commons. It is envisaged that this form of collaboration will birth inventions that could lead to major breakthroughs in science, technology, engineering and mathematics (STEM) [7]. It has been argued by [8] that level of access to relevant physical objects will determine the level of innovations that will be brought about by students. Studies also agree that children develop psychologically through exposure to some physical objects ([9]; [10]).

The crucible that houses the makerspace concept is the constructivist which emphasizes 'learning by making' philosophy [5]. The maker culture calls attention to creating the space for amalgamation of science, technology, education, arts and mathematics (STEAM). This platform will encourage interaction among all these divisions [11]. A point of convergence for interaction among students and faculty engaged in science, technology, engineering, arts and mathematics (STEM) has become necessary.

Gap has been identified among these subject areas that there is no distinct point of convergence for interaction but individualistic approach to problem solving [12]. It is reasoned that graduates of science, technology, engineering and mathematics have high tendencies to work in related industries after graduation, why can't they begin to interact from school? [13] opined that STEM relationship