

**Investigating the factors affecting designer's behavioral intention to  
use a 3D printing technology in learning environment**

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**Abstract**

The primary objective of this study is to provide an overview of 3D printing, encompassing its origins, variations, and applications, while examining the factors influencing designers' adoption of this technology within educational settings. Specifically, the study delves into the impact of performance expectancy, effort expectancy, social influence and facilitating conditions. Data collection involved a discussion panel comprising 163 designers, with analysis conducted using descriptive analytical and experimental methods. The findings underscored significant influences: expected performance yielded a score of 4.203, indicating designers' belief in the technology's potential to enhance production in educational contexts. Expected effort scored 3.758, reflecting designers' perceptions of the simplicity and efficiency of 3D printing technology, thereby saving time and effort. Social influence registered a score of 3.652, emphasizing the role of peer interaction in shaping designers' intentions regarding 3D printing adoption. Available conditions scored 3.422, highlighting the importance of supportive infrastructure and technology for its adoption in educational and other settings.

Based on the experiment, a series of recommendations were proposed, with a focus on conducting further studies to explore the impact of new independent variables on designers' behavioral intentions towards 3D printing in educational environments, and advocating for expanded utilization of 3D printing technology in graphic design education.

**Keywords:** performance expectancy, effort expectancy, social influence facilitating conditions, 3d printing.