Incorporating 3d Printing Techniques, As A Step Forward for Upgrading the Design Process in Architectural Education

Dr. Osama Khalifa

Assistant Professor, Architecture Department, Faculty of Fine Arts, Helwan University

osama_khalifa@f-arts.helwan.edu.eg

Researcher.Tariq Alsherif

Master Student, Architecture Department, Faculty of Fine Arts, Helwan University

tariqrabieahmad@gmail.com

ABSTRACT

3D Printing Technology nowadays enabled us to achieve unlimited complex forms and scales for prototypes up to real products in many various fields, moreover, in architectural filed it gave the ability to design, model and build a real full building projects through using a large scaled 3D printers, which Offered the chance to reach a unique Design and production tool for architect that helps him to Unleash to achieve a various number of future and complicated architectural designs. That make an urgent call for upgrading the architectural educational curriculum to keep up with the advantage of those technologies to enhance the students' design thinking and improve its performance and efficiency. For that, the research is issued with investigating the effective impact role of 3D printing technology on improving the design cognition for architecture students. It started by assuming that the use of the 3D printed prototype will support the students' design logic and improve their quite understanding for the real architectural product. for that, a survey was taken to ask the students about a how a "Villa" project that was designed and modeled as virtual 3D model and then exported to be 3D printed on their understanding for the project and get in touch with all its details. They presented a project which was designed via computer modeling software "google sketch up" and then the printed model for that project. The survey outcomes showed a great development in students' design abilities, understanding and insured that the 3D printing role in enhancing students' capabilities in design and creativity.

KEYWORDS

3D Printing technology, Digital Fabrication, Architectural Education.

DOI: 10.21608/MJAF.2021.77778.2350