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## THE EFFECTS OF 3DP ON STUDENT DEVELOPMENT

The main purpose of education is to raise children by equipping them with future skills to create a future society through innovative teaching tools. Therefore, the education sector should keep up with this flow among the sectors that are accelerating their preparations for the 4.0 industry period with the incredibly rapid technological progress, and there's no doubt that 3DP technologies are leading to the next major industrial revolution to reshaped the future's jobs and of course future's skills. This situation is inevitable, and our duty is to raise our generation more qualified, who is the common denominator of society, who are our future. In this context, teachers have a vital role in shaping our future through education. Therefore, we should support the teachers in improving their innovative IT-based skills and about 3DP. This will make them more qualified teachers and facilitators to their students in the classroom. With these skills, teachers may have encourage to use innovative methods which inline with the changing technology that will motivate students and encourage learning in their classroom practices. . However, student engagement can be difficult for teachers to achieve because each student is different and has different interests, learning capabilities, etc.

In this context, many researchers agreed on the positive effect of the 3DP on students' development in many areas, such as 3DP curriculums, to develop learning outcomes and development on current students' characteristics. According to D.Popescu, Popa and Cotet (2019) the positive effects of 3DP at all levels of education can be summarized as follow:

- Allows students to turn their curiosity and unlimited imagination into results.
- Identifies the problems that appear to be complex around them and enables them to start producing solutions by using design programs.
- Improves innovative and creative thinking skills.
- It enables them to understand mathematics and science by experiencing and enjoy learning in this way.
- Teaches feasibility study and planning using all sensory organs, in another meaning, improves students' not only visual but also emotional comprehension skills.
- Making the imagined product by touching and feeling contributes to their physical, mental, professional, and social development to prepare them for future skills and jobs.



<http://www.skyrimfranchise.com/3d-printer/>

In conclusion, education sectors should be prepared for future skills through integrating the new technologies into the education system and get ready students for future jobs. Generation Z was born with technological innovations. Therefore, their thinking ability is very different from the current generation, by the way, as we teachers, education leaders, or someone who is in the education sector should focus on to open new doors for students to increase their creativity, critical thinking to strengthen them in social and Professional areas of the future. Consequently, it seems one the useful, enjoyable, and effective tool is using the 3DP in each education level.

It is possible to find more information about 3D printing, including applications, trends and its benefits for Education in the “3DP TEACHERS’ GUIDEBOOK”. Make sure you are following the “3DP TEACHER - implementation of 3D Printing in future education” project’s [Facebook page](#) to be the first to know when the guidebook is published on [project’s website](#).