Benefits of using 3D printing in education

More and more educational institutions are incorporating 3D printing (3DP) in their training activities, due to its great benefits for both teachers and students.

3DP can equip teachers with a valuable tool and many possibilities for supporting their work, such as teaching aids, tangible educational resources and assistive technology. It enables teachers to explain complex concepts with the help of physical objects, to increase students' engagement through active learning and to create a great learning environment.
In addition, 3DP is an excellent tool to facilitate learning, to develop skills, to inspire creativity and to improve attitudes towards STEM (Science, Engineering, Technology and Mathematics) subjects and careers. It provides teachers with opportunities for practicing different learning styles such as "learning by doing", "experiential learning and failure" and "enjoying while learning" while encouraging experimentation and supporting the integration of technical knowledge from other courses, thus facilitating multidisciplinary and interdisciplinary approaches.

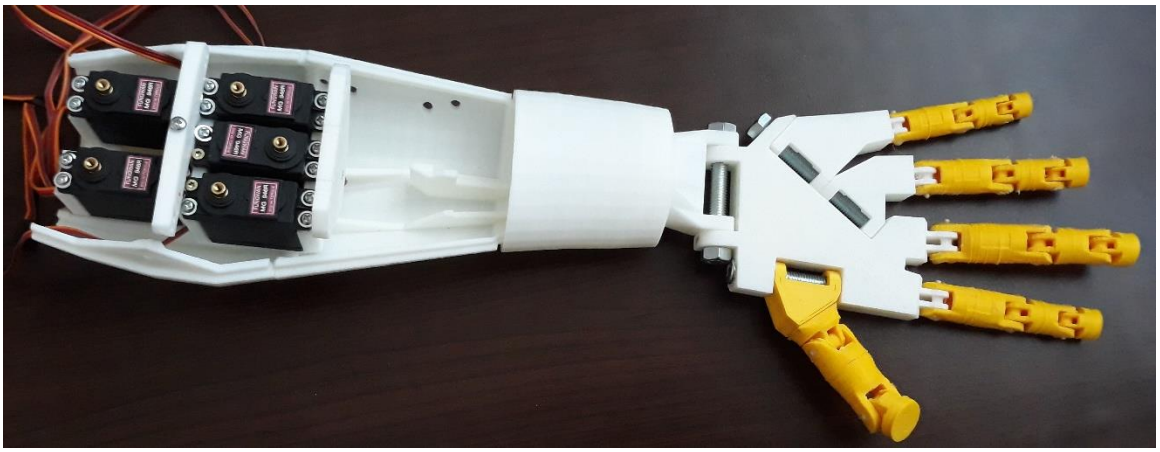

Figure 1 - 3D printed object useful for teaching anatomy and robotics. Source: Ludor Engineering

Regarding the students, 3DP has remarkable effects on their involvement and motivation to study, especially STEM and art subjects. By facilitating the prototyping of ideas, 3DP can boost the creativity and innovation of the students while by enabling collaborative projects, it develops skills such as collaboratively solving problems, critical thinking and team working. 3DP encourages active

learning practices by allowing students to investigate, explore, design or build various objects and to experience them by touch and feel.
3DP can help students that are much more capable and successful when working with physical objects while may struggle with the traditional learning. 3D printed objects used in the learning process help students to better understand the subject matter and to retain information.

3DP opens up new learning possibilities by enabling students to give life to their ideas and to interact with the objects they created, in ways not possible with other means. Besides, teachers and students can duplicate museum artefacts, such as historical items, fossils and art, in order to study them in the classroom. Or, they can design and 3D print various objects to support learning of complex concepts from math, chemistry, biology, geography etc.
3DP provides exceptional learning opportunities and makes easier for students to understand the relationship between STEM subjects and real-world applications, through practical experiments and in an engaging and exciting way.

You will find more information about 3DP benefits for education in the "3DP TEACHERS' GUIDEBOOK" available on the project's website. Make sure you are following the "3DP TEACHER - implementation of 3D Printing in future education" project's Facebook page, and YouTube channel.