What happens when you combine a Social Network with a Dentist, Accountant, Logistician, some Physicists and a sprinkling of Engineers from OLLI? An eight-year-old boy in Missouri gets a hand!!!!

The eight-year-old boy for whom this diverse OLLI group made a prosthetic hand was born with a physical anomaly as happens in one out of 1,200 births. In his case, he was missing most of his right hand. Although he is growing up normally…a football player and a rabid Oakland Raiders fan…there are some difficulties. He cannot ride a bicycle and faces the prospect of being teased by school mates, or in the very least, having to explain why he is different from his classmates.

You might ask why he cannot be fitted with a commercially available prosthetic hand. The reason is that such prosthetics cost $12-50,000. Most families cannot afford these devices and the insurance companies will not pay for them because children will grow out of them within a year or two and, then, another device needs to be purchased and fitted. Insurance companies will pay for the devices when the children grow to be adults. However, by that time many children’s brains develop such that they literally are not aware that there should be a hand at the end of the arm. So they go through life making do with one hand.

The 3D Printing and Design Special Interest Group (SIG) at OLLI joined E-Nable ([www.enablingthefuture.org](http://www.enablingthefuture.org)) which is an international User Group dedicated to providing 3D printed prosthetic devices free of charge to people around the world. Last year, members of the E-Nable Group provided over 700 hands and hand-arm combinations to people who were born with these anomalies or who have lost hands and arms due to accidents or war. The group has almost 3,000 volunteers living on five continents. It is comprised of “Designers” (volunteers who design the devices and implement improvements to existing designs), “Matchers” (volunteers who assess the anomaly and match it with a myriad of prosthetic device designs to best deal with the anomaly), “Fabricators” (volunteers with 3D printers who download the appropriate 3D models and print and assemble them), “Fitters” (volunteers who fit the device and monitor for the relatively few problems that may arise), “Clinical Follow-up” people (volunteers who survey clients to find how the devices are used, recommend design improvements, document benefits, etc.) and other volunteers who maintain E-Nable’s website, provide communications and other services.

The story is developing in even more amazing ways. According to Reid Becker, one of the OLLI members of the 3D Printing and Design SIG, besides learning about this subject, the group wants to bring these technologies into our local schools. These technologies will be critical to our economy in the not-too-distant future and children who grow up unfamiliar with them will be at a disadvantage. Furthermore, if we as a nation do not develop these technologies, we will fall behind other countries which are embracing them. To date, three schools have requested the SIG’s help to teach their students how to print prosthetic hands! Again, according to Reid, “it is one thing for a group of OLLI members to produce a hand for a child, just think about the possibilities of a whole classroom producing a hand for one of their peers!” We even know of one situation where the children secured a hand for their teacher. See the link below for a news story released on February 5, 2015, where children from Gettys Middle School are learning to build and assemble prosthetic hands:

<http://www.cbs46.com/story/28029450/easley-students-learn-to-print-3d-hands-and-plan-to-make-one-for-their-principal>

Not only would we like to help the schools get started printing hands, 3D Printing and Design offers a wide variety of STEM-related (Science, Technology, Engineering and Math) possibilities. With the involvement of hand fabrication, these activities will have a purpose and relevance that is more attractive to students. Furthermore, according to Reid, 3D Printing and Design offers unique benefits to schools’ STEAM (Science, Technology, Engineering, Art and Math) programs. Based upon his limited exposure to this technology, Reid believes more than half of the objects printed using a 3D printer are “objects d’art.” Today, people are printing pastries (using sugar and chocolate – yes, he said CHOCOLATE!), jewelry, shoes, dresses, sculptured objects and almost anything one can imagine. Objects are printed in more than 70 materials ranging from gold/platinum, titanium, plaster, wood, etc. In China, they are printing houses using cement. In that particular technology, after ground preparation homes can be produced in less than a week! Oh, and they are printing livers, kidneys, and skull replacement parts. Late last year, a 3D printer was installed on the International Space Station so design files can be transferred electronically to print a part at the Space Station, rather than flying completed parts.

Today’s members of the 3D Printing and Design Special Interest Group (SIG) are: Tony Caruso, Bob Choban, Fay Choban, Tom Crocker, Nick Hollingshad, Ray Meyers, Pete Peterson, Dan Ruck and Reid Becker. Bernie Zeiler is the SIG’s liaison to the SC STEM Upstate Collaborative and an active hand-builder. Anyone interested in learning more should contact Reid Becker at (954) 646-9730, or send an email to Reid at [reid.becker@gmail.com](mailto:reid.becker@gmail.com). You can also contact Bob Choban at [choban@usucceed.com](mailto:choban@usucceed.com).