Education, Design and Practice – Understanding skills in a Complex World

• Paper / Proposal Title:
Project Based Learning (PBL) for developing technical and entrepreneurial 21st century skills in engineering students.

• Author(s) Name:
Corrina Cory

• University or Company Affiliation:
College of Engineering, Mathematics and Physical Sciences, University of Exeter, UK

• Abstract (300 words):
Customer desire paths are constantly reviewed in design to ascertain customer needs and requirements. Sometimes the way to come up with the best design is just to launch it and track customer desire paths.

Education involves students as customers and 21st century skills, independent learning and student voice and choice are key aspects of Gold Standard Project Based Learning (PBL) as defined by the Buck Institute of Education (BIE). A project for 1st year MEng Engineering students on an introductory Entrepreneurship module facilitated action research in terms of launching an open-ended project with inbuilt flexibility to respond to student desire paths throughout the project.

The engaging and interactive project launch day created student access to current advanced technology with two Light Detection and Ranging (LiDAR) scanners and Virtual Reality (VR) hardware and software and lectures on Building Information Modelling (BIM) and entrepreneurship. This interaction with industry experts and
technology provided students with motivation through curiosity and the necessary tools, tutoring and support to learn up-to-date technical engineering skills through a challenging industry linked project. The driving question was ‘How can you apply laser scanning technology to create a new product, service or process?’ During completion of the project, teams of students were encouraged to create a learning community, be creative, flexible and resilient and transform the word failure into ‘progress through iteration’. The competency-based assessment criteria focused on the stage gate innovation process, a mid-way storyboard checkpoint for formative assessment as well as a final summative assessment in the form of a short video pitch. This ensured students were pushed to the high order thinking to develop the 21st century skills in technology, problem solving, critical thinking, communication and collaboration required for success as a professional and entrepreneurial engineer during Industry 4.0.

• Author(s) Biography (200 words each):

Corrina Cory PGCE, BEng, MPhil, PhD, CEng

Corrina is an Edupreneur and Chartered Engineer with over 20 years’ experience in education, engineering and entrepreneurship. As Strategic Curriculum Development Lead she is currently co-developing the new 2020 Engineering Programme using multi-disciplinary Project Based Learning (PBL) with a focus on global engineering challenges and entrepreneurship. Students are empowered with freedom and authenticity through industry linked projects to explore commercial opportunities and build 21st century skills as defined by EntreComp. Corrina previously gained a position as a Senior Consultant and Team Leader (Injury Biomechanics) at Arup by pitching an idea to run a new business within the company. She authored and implemented a business plan providing services to the Metropolitan Police, Transport Security Directorate (TRANSEC), Australian Department of Foreign Affairs and Trade, Scottish Power, British Land, Lehman Brothers, Merrill Lynch and Crossrail. She also created a .com company and Cory Scientific Ltd selling technical and consultancy services to global engineering companies. Her company provided innovative services in 3D laser scanning, 3D modelling, injury biomechanics and project management. Her current research strives to create opportunities for wellbeing and injury prevention in healthcare facilities, SMEs, the built environment and green and blue spaces.