CAD/CAM and jewellery design education [abstract]

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CAD/CAM and Jewellery Design Education

Abstract for ‘Making Future’ Conference @ Plymouth University

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Research Questions:

To what extent has the introduction of CAD/CAM impacted Jewellery Design education in universities over the last 10 years?

How can teaching enable students to exploit CAD/CAM to improve problem solving, material experimentation and form generation?

What might be considered best practice for teaching CAD/CAM in Jewellery Design Education?

Abstract

The paper will explore pedagogical methods for incorporating computer aided design and manufacture into higher education jewellery design. It seeks to identify weaknesses and strengths in contemporary teaching practices; highlighting innovative methods that nurture design problem solving, technical competence, exploration of new materials and dynamic form generation.

Investigations are divided in three sections with the first concerning an overview of possible pedagogical methods in instructing students in the use of computer aided design (CAD), through software such as Rhino3D, JewelCAD, Illustrator and Maya. Alongside modes of teaching computer aided manufacture (CAM) including subtractive and additive technologies such as 3D Printing, CNC milling, laser cutting and etching.

The second section derives from an interview survey of lecturers and undergraduate/postgraduate students from universities in Italy, Denmark, the Netherlands and the UK. Questions have been framed to ascertain the extent to which CAD/CAM has been successfully incorporated into the institutions’ teaching framework. As well as discerning how approaches to digital design and production sit alongside traditional means of designing and producing jewellery. Attention will be given to the availability and cost of hardware and software as a marker of commitment to digital production. Activity in the institution will also be analysed in relation to industrial production and accordingly seek to identify how teaching can facilitate pathways for students to employment post graduation.
The concluding section will discuss and present best practice in jewellery education. It will therefore attempt to establish examples in terms of innovative pedagogies strategies that promote dynamic methods of problem solving and form generation through CAD/CAM.

The chronological period for investigations will bridge 2005 and 2015, permitting comparisons between a generally pre-digital era in jewellery design pedagogy and the post CAD CAM era. Case studies will include Politecnico of Milan, Italy; Birmingham University School of Jewellery, UK; Eindhoven University of Technology, NL; Kolding Design School, Kolding, Denmark. This study is based on the development of studies between Politecnico of Milan, Design Jewellery dept. and Loughborough University, School of the Arts English and Drama. The theoretical framework will build up on work carried out by Edward Hutchins ‘cognition in the wild’, Kuuti ‘Activity theory’, and work by Paulo Rives and Design Research through practice studies.