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Embedding enterprise focussed sustainability teaching and learning: lessons from undergraduate student experiences in product design

Dr Francesco Siena[1], Dr Ana Rita Domingues[2], Professor Richard Bull [2], Mr Peter Jensen[3], Mr Allan Cutts[2], Mr Oliver Price [2], Mr Christopher Forbes[2]

[1]Notttingham Trent University, Nottingham, United Kingdom. [2]Nottingham Trent University, Nottingham, United Kingdom. [3]Aalborg University, Aalborg, Denmark

DR FRANCESCO SIENA

DR ANA RITA DOMINGUES

PROFESSOR RICHARD BULL

MR PETER JENSEN

MR ALLAN CUTTS

MR OLIVER PRICE

MR CHRISTOPHER FORBES

Abstract

As the world begins to grapple with numerous sustainability challenges such as zero waste, de-materialisation, sustainable consumption, zero emissions, a fair society etc., product design students must therefore be educated on many of these key sustainable concepts. In industry product designers are embedding sustainable values and processes within their everyday design practice when developing new products and services. The Nottingham Trent University (NTU) Sustainability in Enterprise (SiE) project is working to support local businesses within the Greater Nottingham area to help improve their environmental performance across four key areas: People, Products, Processes and Premises. We present a case study whereby for the first time, first year BSc Product Design students at NTU act as design consultants during a focussed “Sustainability Week” to support local enterprises. During Sustainability Week, teams of BSc Product Design students undertook a project alongside a Nottingham, UK, based chocolate shop and bakery by reviewing their existing product line and packaging solutions. Students selected an existing packaging solution and designed new solutions associated with less and alternative materials for their products.

Students learnt through discovery, experience, experimentation, research, practical doing, and other forms of experiential learning. During sustainability week, qualitative data through observation was collected to analyse the development of the sustainability week. Data from students was gathered at the end of sustainability week to gain insight into their learning experience. We collected quantitative and qualitative data to assess the students' experience and the project through a survey questionnaire. A mix-methods approach was used to analyse data. The development of Sustainability Week has resulted in improved student knowledge on sustainable product development. Delivered sessions promoted knowledge acquisition, skills development, and improved attitudes towards global issues i.e., Responsible Consumption & Production (SDG12). Having attended Sustainability Week, a large proportion of the student cohort suggested that this helped improve their understanding of sustainable concepts within product design. Students submitted a physical model and two presentation boards to communicate their proposed new solutions demonstrating through their project outputs and vocational taught sessions improved knowledge on life cycle assessment, methods of communicating sustainable product solutions through design sketching and a basic understanding of calculating a products carbon footprint. Also, students improved their basic knowledge of designing for longevity, sustainable design considerations and material selection using material databases. Based on the trial of Sustainability Week, the success and positive feedback from students resulted in this intense week of sustainability learning now being fully integrated into the BSc Product Design curriculum, with further improvements planned to enhance Sustainability Week in the future. The implementation of sustainability week to the BSc Product Design curriculum will shape new sustainability-conscious product designers and professionals who have insight into sustainable product development whilst being equipped with dedicated tools/learnings that will enhance their professional expertise.