Embedding sustainability into the design of products and services

The qualities of sustainable design and the obstacles that Design for Sustainability (DfS) faces are explored by a new study which provides recommendations on how to overcome these challenges. It suggests that design education needs to change and provides advice on how to improve our understanding of consumer behaviour.

DfS goes beyond eco-design by integrating social, economic and institutional factors (such as the dominance of mass production) into design, as well as environmental impacts. It considers wider systems of consumption and production and provides greater opportunity for stakeholder participation in the design process, including by consumers.

Funded by the European Commission’s DG Research, this study reviewed the findings of the EU DEEDS (Design Education and Sustainability) research project, which investigated how to embed sustainability into design education and practice and identified important concepts in production, consumption and consumer choice for DfS.

Efficient production is at the heart of improving the environmental dimension of sustainability, say the researchers. This can be achieved by improving the efficiency of the production process itself or by developing options for using by-products and waste.

However, efficient consumption is less frequently discussed. This considers how consumers choose products or services that are satisfying and do not neglect any of their needs. The concept of ‘supply/use efficiency’ can be used to analyse this. A product may be very efficient in supplying its services but have low use efficiency. For example, the average German car is used only 29 minutes a day. The concept of supply/use efficiency can identify possibilities for socio-cultural rather than technical improvements, such as encouraging car-share.

Another useful concept is ‘satisfier efficiency’, which focuses on quality of life for the consumer. It is dependent on various product properties, such as the number of functions it performs, how easy it is to use, its sensory qualities and its symbolic functions, such as status or individualisation.

DfS must also consider what is needed to change consumer behaviour towards more sustainable consumption. Behavioural changes tend to depend on three conditions: personal motivation and information, the ability to change and the opportunity to change in terms of available alternatives (e.g. affordable alternatives). So-called ‘positional goods’, such as cars or dining which act as markers of status, incorporate social context by allowing expression of identity, membership of a group or support for an idea. As a general rule, positional goods tend to be more environmentally damaging so it is a challenge for DfS to design positional goods which are sustainable.

The study identified several obstacles to DfS. DfS is perceived as a challenge to established design practices and is only taught in a few EU design institutions. Design education tends to encourage the ego of the designer and the aesthetics of the product, rather than societal and global needs; sustainability issues tend to be an ‘add-on’ in design education and processes, rather than embedded.

In response to the findings, DEEDS has developed a list of principles called SCALES to form the basis of sustainable design and education. There are 24 principles within eight themes ranging from ethical responsibilities to eco-efficiency production, which can be applied in different cultural and economic contexts. One of the overarching notions of SCALES is to take an integrated or holistic approach to design, which involves different disciplines, stakeholders and consumers.

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1. DEEDS (DEsign EDucation & Sustainability) was supported by the European Union Leonardo da Vinci Programme. See: http://artsresearch.brighton.ac.uk/research/projects/deeds-1
2. SCALES: http://artsresearch.brighton.ac.uk/research/projects/deeds-1/publications-1/14.%20The%20SCALES%20core%20principles%20summary.pdf

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