Opinion: The perplexities of lighting education

We have a problem over how to educate future lighting designers and practitioners. This is a *divergent* problem, in the sense coined by E. F. Schumacher in his book *A Guide for the Perplexed*, in that some say that those who have knowledge and experience should *teach* and those who lack knowledge and experience should *learn.* In contrast, others say that we should provide an *environment* where the student is allowed the freedom to flourish. Schumacher suggests that we should transcend these opposites by actually caring about the student.

I have spent most of my professional life addressing this question and have seen many changes in architectural and urban design as well as transformative developments in light sources and lighting controls. Here I outline what I feel to be the essential components of a rich lighting education and would like to warmly acknowledge Robert Sedgewick of Princeton University whose writings on the future educational landscape have informed my thoughts.
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The problem is that we need light to live. Depending on how we deliver lighting we can either enhance or destroy architectural intent; we can increase the legibility of our cities or generate insecure, threatening environments. We can reveal or distort the nature and modelling of faces, surfaces and objects. These are complex problems that require the lighting scholar to draw from many different disciplines—the natural sciences, engineering, the social sciences, architectural and urban design as well as photometry and colorimetry.

There are three educational abstractions that are needed for the education of the lighting designer or practitioner. We need **textbooks** for use by students to *learn and study*. We need lighting **courses** that encourage communities of students to learn together. We need **web content** for use by students to *explore and interact with* lighting topics. For textbooks we have excellent offerings in the areas of human factors, lighting calculations and the overall design of lighting. But there seem to be gaps regarding good textbooks on solid state lighting, daylighting prediction and visualisation, light and health and lighting design strategies at the urban scale. Digital technologies now give us the opportunity to deliver web content such as video, animations and lighting demonstrations forming a *living online document* supporting and extending the textbooks available. They also give the facility to deliver *reproducible research*— transparent and freely available lighting design computations and daylight modelling processes whose details and intent are currently hidden. And our lighting courses need to deliver lighting material, engage with students and, importantly, provide *validation* of

their learning. Much of this can be delivered in lectures, seminars, workshops and project briefings with peer review. And there must be a research component—perhaps a dissertation or a technical report, design document or feasibility study similar to outputs generated by consultants in the real world.

To become a fully rounded lighting professional takes time but with the potential of light to make such an impact on our lives, surely we must rise to the challenge.

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