



by Nathalie Rozot

Merely teaching the art and science of lighting is no substitute for a curriculum that also emphasizes critical thinking and 'learning by doing'

I just read the Professional Lighting Design Association's 2011 International Educators' Summit Proceedings. In their feedback on education chair Jean Sundin's "Lighting Design Syllabi," reviewers recommended including learning objectives and conceptual thinking. However, the survey on lighting education topics gave me pause: Only 28 percent of respondents felt writing and research skills were "extremely important" or "very important"; a whopping majority, 72 percent, did not.

I did not participate in the summit nor take the survey, but based on my experience as an educator at Parsons' MFA in lighting and other Master's programs, critical thinking, writing and research are not only all "extremely important," but they represent optimal and interconnected tools to reach learning objectives. When students use concepts and reach new insights, they undergo a transformative experience, because they value their new perspective, and it changes their thinking and research practice. Only when students think critically can they creatively articulate questions and successfully bridge problems and knowledge.

Many years ago, I started teaching in the lighting program at Parsons as a co-instructor in the first design studio, which was all about the discovery of light in experiential observation. We used vision and representation as learning tools, and the teaching of ergonomics, physics, technique and technology was integral to the conceptual process. More recently, I invited two alumni, Stephen Horner and John Newman, to speak in my professional practice class about their teaching

experience at Pratt and FIT, respectively. It struck me that while both presented pedagogical tools and syllabi that greatly varied from one another and from ours, both also wholeheartedly engaged their students into lighting through the active experience and observation of light.

In many ways, this approach could be called Deweyan. A founder of the New School, John Dewey was a philosopher, psychologist and education reformer who wrote extensively on teaching and learning by doing or through experience. He emphasized that getting students interested and developing deep understanding was not enough to ensure learning, and that students must engage in their own "passionate experimentation" of the content.

OBSERVATION THEN KNOWLEDGE

Neuroscience and cognitive science now offer a scientific foundation to the pedagogical strategies that Dewey advocated, which situate knowledge in a personal and experiential process. Robert and Michèle Root-Bernstein wrote that all knowledge begins in observation, and they and other researchers of creativity have emphasized the significance of adventure, curiosity and sensibility. Moreover, in *Descartes' Error*, neuroscientist Antonio Damasio rectified the Cartesian divide, and explained why our emotions and intellect were inseparable. Emotions, senses and personal experience are critical ingredients in learning and remembering. This is due to our neurochemistry: we make robust neural connections when we feel an emotional attachment to the material.

Ideas do not just emerge. Elements of knowledge do not self-assemble into a

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whole, nor does knowledge evolve into critical or creative thinking. Educational models rooted in learning blocks simply do not lead to analysis, synthesis and a culture of research. Nonetheless, today's conventional education models, from curriculum to classroom, often follow the model of knowledge transfer from teacher to students, and learning means filling knowledge gaps or solving known problems.

This past semester, co-instructor Brooke Silber Carter and I developed a series of workshops in the thesis studio at Parsons. Our objective was to expand the critical framework to technique, and to help our students transpose their thesis questions, presented as succinct written abstracts, into lighting technical challenges. We asked the students to use their thesis arguments as prescriptive hypotheses, and to describe the lighting performance of their propositions through a set of incremental criteria that addressed light sources, luminaires and controls. They developed written technical narratives and sketches in preparation for the workshop's group discussions, which they then revised and refined. This process not only helped students to use acquired technical knowledge proactively, but also to conduct research and pursue new knowledge.

As a result, several thesis projects shifted, and became critical and rigorous lighting investigations. For example, theses arguments, which in the start involved broad queries on color and perception, ended with the integration of focused investigations of color-correlated temperature, or contrast in hue and/ or brightness in indoor and outdoor environments.

While some theses findings may (seem to) be irrelevant in today's professional context, what matters is the relevance of the

argument and the critical use of research to support it. For instance, one of my students went from exploring bird-friendly urban lighting to convincingly demonstrating that lighting design should entail specifying architectural glazing and developing zoning guidelines for interior space.

THE CORE QUESTION

Critical thinking is at the core of a successful education, and lighting education is no exception. Critical observation and reasoning are foundational for effective learning and creativity, and we should be thinking critically about curricula in lighting education. Knowledge transfer is only a part of instruction: there is far more to designing curricula than teaching and learning the art and the science of lighting. Curricula should foster learning through experimental and analytical skills, and create a critical culture by expanding perception and challenging current knowledge with new ideas and contexts.

Admittedly, I always advocate for more critical study in our field, but I do not believe it is just good for theory. We need to nurture a critical culture if we wish to see lighting design evolve as a discipline. In the arts and sciences, ideas transform our relationship with the world by opening up new experiences. They inspire us to pose new questions and to find new interpretations. Critical and creative thinking drive the best professional practices, and they are at their best when supported by eloquent argumentation and research. Thinkers made history, they advance practice today, and they will lead future practices. At the present time, we are accountable for educating the next generation.

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