

Using Language Learning Methods to Teach Computer-Aided Design

Review of Nancy Cheng (1997). Teaching CAD with Language Learning Methods.

In J.P. Jordan, B. Meinert & A. Harfmann (Eds.), *Acadia '97* (pp. 173-188), Cincinnati, OH: University of Cincinnati

Computer Aided Design (CAD) is an increasingly important aspect of the Interior Design curriculum. A glance through trade magazines reveals the high importance placed on CAD skills by employers. Not only that, but advances in CAD software means that as a tool of efficiency its benefits are becoming undeniable: the ability to correct and alter drawings is perhaps comparable to the word-processor revolution which swept away typewriters a quarter of a century ago. This said, the fact that hand drafting has not been totally supplanted by CAD despite technological advances is in part due to the complexity of drawing practice itself and also of the drafting programmes required to encompass this. Many students in the Interior Design department at London Metropolitan University, for instance, find CAD skills at best a difficult learning curve and at worst overwhelming. So, Nancy Yen-Wen Cheng's article Teaching CAD with Language Learning Methods (1997) holds out the prospect of a recognisable learning framework which could provide a pathway through the different levels of CAD skill acquisition.

Yen-Wen Cheng's premise is simple enough: 'graphics and words are both vehicles for communication. Mastering these vehicles is the challenge in learning to use CAD visualisation tools or a foreign language.' (p. 2). Treating CAD as a visual language, she makes comparisons between syntax and grammar in word and speech with the hierarchical elements in architectural drawing: simple shapes are combining into elements; these in turn are joining to create the overall form - much like words, sentences and paragraphs.

Setting the context of the usefulness of CAD Yen-Wen Cheng then moves on to describe various established methodological models within language teaching and, drawing on the considerable body of language acquisition study, concludes that there are many parallels between language learning and CAD. She further concludes that these are the basis for a structured learning method which has proven success in the field of language learning.

She does this by looking at two sides of language learning: the cognitive process of learning languages, and the process of teaching itself. From both she draws on various studies to illustrate the learning strategies and cognitive phases in language study, and relates these to a potential equivalent in CAD. Her primary purpose in this seems to be to find relevance of study from a CAD student perspective. She makes a strong case in particular for the theme of communication - that this after all is the purpose of both acquiring and using both language and CAD skills.

Using examples of projects undertaken at Hong Kong University Yen-Wen, Cheng argues that the careful structuring of CAD teaching around language teaching models provides useful analogies for students, which can 'humanise a potentially cold and intimidating' computer-based curriculum (p.3). She identifies the motivational benefits of projects structured around communication - seeing this in action, particularly when embedded in interactive projects, is what helps drive the students forward. This dynamic approach of

conveying ideas through the learning process is contrasted with teaching by rote, where students simply repeat and/or copy the teacher until the subject is acquired. Central to this is the notion of communication which is both the motivating factor for Yen-Wen Cheng's students, and the provider of a sense of achievement.

Reflecting on the progress made by students Yen-Wen Cheng identifies comparable developmental levels between CAD and Language study. She notes that "teaching CAD to novices can be like teaching a child to talk, while teaching CAD to traditionally trained designers is like teaching a foreign language" (p.3). The structuring of other CAD coursework aims to take students through language-comparable competence thresholds towards fluency and ultimately independent performance.

In terms of relevance to the Interior Design Degree at London Metropolitan, Yen-Wen Cheng's approach offers many intriguing possibilities. Certainly, students at Commercial Road need a framework and a perceivable series of learning arcs to carry them through the complexities of CAD. At present, students are often baffled and frustrated by the mechanical exercises of CAD teaching which seek to ingrain computing discipline without context. Students often also express frustration at the pace of skills acquisition. In my experience, this frustration comes partly from students' belief - misplaced - that CAD skills are an end in themselves. In other words, students often miss the point that computer skills provide the linguistic means to visual and three-dimensional expression; using them competently does not necessarily denote fluency. Another frustration for students at London Metropolitan - this one more valid - is that CAD is taught as a self-standing entity. Yen-Wen Cheng rightly seeks to integrate CAD development to the wider aspirations of developing communication and a knowledge of architectural (in our case interior design) principles. In both ways her approach would benefit the current structures at London Met, where CAD teaching is perhaps disassociated from traditional design teaching.

Looked at from the above perspectives Nancy Yen-Wen Cheng's methods promise considerable benefits in the CAD learning process within the ID department. They integrate departmental practice within an overarching structure, and are derived from successful models in the field of Linguistics. However, there are gaps in her premise beyond those she highlights herself. The largest is that, judging from her article, there is no compelling argument why language learning is the best or most appropriate model for CAD. Music teaching, or mathematics teaching methodologies may, for example, be just as valid. Both could claim to be concerned with 'languages' which have a concrete structure with various levels of functionality, and yet both are rooted in everyday experience. In addition, although the language model has clearly been translated for CAD in her own teaching strategies, and though these include a learner-centred approach - where learning how to learn independently is valued - there is no sense that the students are cognizant of this parallel and therefore what impact this has on their learning.

Yen-Wen Cheng's article does not outline a scientific analysis of her approach and she is quick to concede that 'there is not a perfect fit between the disciplines' (p. 1) of CAD and language study. Nor does it compare the relative success of language to other study models. However her argument does offer significant advances in teaching and learning strategies over the current CAD structures in place at Commercial Road.

Yen-Wen Cheng's methods at the very least provide an integrated developmental arc which involves student creativity at an early stage, is centred around the principle of communication and provides her students with a motivating framework; all of which are highly desirable. Although much other approach could just as easily be derived from standard good teaching practice, it nonetheless points towards new models for CAD which could draw inspiration from other disciplines and, in so doing, provide a sympathetic framework for students' learning.

Graham Johnston

Visiting Lecturer in the Sir John Cass Department of Art, Media and Design