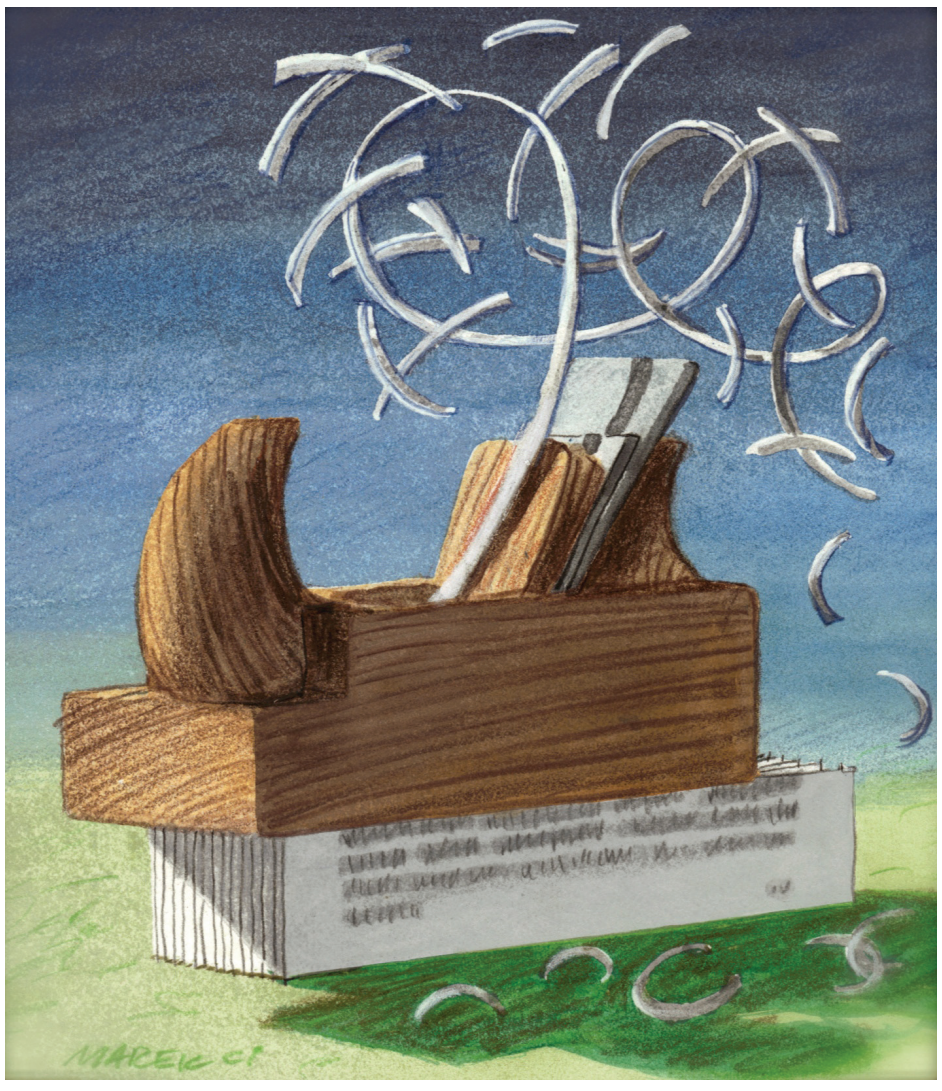
THE CARPENTRY OF THOUGHT

HELPING STUDENTS DEVELOP COGNITIVE SKILLS

BY STEVE JOORDENS



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My brother-in-law Peter has been an independent contractor for many years. A few years ago he accepted a position teaching carpentry at a community college in New Brunswick. He is an extremely enthusiastic teacher and given that teaching is a passion we share, it is something we discuss a fair amount. He teaches small classes, I teach Introductory Psychology to 1,500 students at a time.

He once asked me how I could teach so many students. If he tried to do this with his class he could teach them the basic ideas of carpentry, describe the tools and how they can be used, perhaps even show examples of how people have combined tools and materials to build fantastic things, but there is no way he could give them experience actually building much of anything. Would anyone want to hire a carpenter who had plenty of conceptual knowledge, but absolutely no experience using it?

As I thought about what he said in the context of my own course, I couldn't help realizing that we had similar goals. Our students may not build houses, but we do hope that we're teaching them skills. That is, we hope they leave university with an improved ability to think clearly, critically and creatively and we hope we've taught them the skills needed to communicate their thoughts effectively and efficiently. These are some of the primary attributes I associate with someone being described as a scholar.

So how are we doing? Well, overall, I would give universities a poor grade, I'm afraid. In fact, I think it is often the case, especially in our large first-year classes like the one I teach, that the experience we are providing is not that different from the sort of experience Peter imagined when envisioning teaching carpentry to a large class. We teach them all about other thinkers and the conclusions they reached but we seldom give them direct experience thinking for themselves. Maybe it's enough to show them the way and hope they learn to model good thinking by example?

Unfortunately, it is not enough. Cognitive skills are like any other skill; they develop with practice. You can read and learn all you can about, say, karate, and I suspect I'd still be able to kick your butt. Well, maybe that's not true for all of you, but some! The point, of course, is that one can only perfect a skill by actually performing it, and performing it repeatedly, preferably across a range of contexts. This is what we need to be giving our students, repeated practice with deep thought and clear efficient communication, preferably across a range of contexts.

This is the point where most educators say something like, Yeah yeah, you're talking about written assignments like essays. The logistics involved with written assignments make them extremely hard to use in large classes. In fact, we used to use them more. Their voyage on a path to apparent extinction is precisely because they are logistically inefficient.

Of course, this is an argument that I myself have been at times associated with, but really I am not arguing in favour of essays at all. I actually think that traditional essay-type assignments are not that effective in promoting deep thought. They are better than multiple-choice exams in the sense that they can theoretically allow open-ended answers that are needed for inviting creative or critical thought, but they should hardly be seen as the gold standard. We can do much better.

As an example, allow me to highlight a learning process I use in my class, one that relies on peer assessment. A peer-assessment exercise can begin much like a traditional essay, with students given some sort of open-ended assignment, preferably one that promotes either critical or creative thought and the clear and efficient communication of ideas. But then, rather than send this off to some "expert" who eventually provides some feedback, students instead see the compositions submitted by five or six of their peers and are asked to comment on the strengths and weaknesses of those compositions via clear feedback. Note that this requires the students to analyze, compare and evaluate in order to come to an impression of relative quality and then to verbalize this impression into clear, effective comments. They are also directly seeing how their work compares to that of their peers.

As they assess the work of their peers, five or six peers evaluate their work and they quickly receive the comments from these peers. They then are asked to revise their composition in light of those comments, but only those comments that they feel were useful. Hence they again evaluate and analyze in the context of self-reflection: Would my composition be better if I changed it as suggested?

Once resubmitted, the teaching assistants can then mark the final product and they can also evaluate the process. For example, did students provide good comments to their peers? Did students appropriately revise their work, given the comments they received? This sort of assignment promotes deep thought in a variety of ways and allows us to assess students in terms of the quality of their thought as well as their final product.

Sounds great from a pedagogical point of view, right? Sounds horrific from a logistical point of view, right? How can one distribute compositions and then reorganize them afterwards in the manner described? How is all this information going to be made available to TAs? Well, it turns out that while professors are good at pedagogy, technology is good at logistics. Software exists that can be used to manage such assignments in a smooth way. How smooth? I used this approach this year for an assignment completed by 1,500 students and did it at a "cost" of 200 additional TA hours.

If these sorts of assignments became common, students would be given regular experience engaging in high-level cognitive practice, just the sort of regular practice needed to make these cognitive skills fluent. And let's face it, virtually all of the content we provide in our courses is easily available online. The cognitive skills we teach our students will have a much greater impact on their lives and success than will the content we provide. If our students leave our university as scholars, we have done our jobs well, much like a carpentry course that produces carpenters who you would actually want working in your house. Thanks, Peter!

Professor Steve Joordens teaches psychology at the University of Toronto Scarborough and is a member of the university's Teaching Academy. The Teaching Academy was founded in 2006 and consists of members who have received the President's Teaching Award, the highest honour for teaching at the University of Toronto. While individual members of the academy serve as teaching ambassadors, the collective advances teaching as a valued pillar at the University of Toronto.