

## Elements of Educational Technology

I've chosen to discuss learning not only because I think it's the most important topic, but because I honestly believe the authors of the paper miss the mark with their definition. To be sure, the definition of learning has evolved over time. The authors point out that learning has moved from retention to understanding. Ironically, while they highlight the learning's journey from shallow to deep, they fail to understand the reasons that this journey has been made and the tools that have made it possible.

Throughout history, teachers have been the guardians of the facts. They have presented factual information to their students and in turn, used various methods to ensure that this information has been absorbed. Today, however, the technological revolution has essentially rendered facts unimportant. That is not to say that students should not learn how to spell or create coherent sentences, but in the age of spell and grammar checkers, such knowledge need not be taken to heart. I do not have to learn to spell the word conundrum as long as I can get close and let the spell checker correct me. I can leave my participles dangling and my verbs passive safe in the knowledge that my word processor has my grammatical back.

The same holds true with math and science. A student obviously needs the skill to perform simple mathematical computations, but when is the last time a student has performed long division by hand, or computed a square root without a calculator. I would argue that such skills are a thing of the past. The modern student does not need to memorize the quadratic equation as long as they can look it up and apply it.

Technology has pushed learning from memorization to application. It has, by providing ready, usable tools, allowed a giant leap forward in how we teach and learn. Perhaps the best example of this is how technical training is evolving on a professional level. The technicians of today need not concern themselves with component location or schematic representation. They are equipped with tablets containing complete sets of procedures and drawings, available with the swipe of a finger. These tools, rather than natural evolution have transformed the teacher from a controller of learning to a supporter of learning.

It might be thought that these new and wonderful tools have made the teacher's job easier, quite the opposite is true. As the authors explain, guiding learning requires a completely different skill set than presenting facts. Additionally, measuring educational outcomes becomes more difficult and standardization presents problems. Whereas it is fairly straightforward to ask a student to compute the area of an equilateral triangle, it is much harder to measure their ability to repair an internal combustion engine.