



Accelerated Learning, or Improving Human Thinking? The story of when I realized I've been wrong about what my career has been about.

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In the process of finalizing my chapter for the upcoming *Oxford Handbook of Expertise: Research and Application*, I had many moments to reflect on my career and ask myself: what have I really been doing for decades?

First some context: the book is the brain child of Drs. Paul Ward, J-M Schraagen , Julie Gore and Emily Roth, long term members of the Expertise Research Community with a clear and ambitious vision for this book. I say this because my first draft was booted back by the kind and patient Julie. They wanted us not to prove we have been doing this for decades and we're legitimate card holding members of the field, but rather, after spending decades at the front line of the work, what *have we learned?* *What do we think?* *What can we impart to others?*

Besides making me feel very old, this brought back a graduate school memory. I had a privilege of having some distinguished faculty on my dissertation committee. One of these was Katherine Nelson, who is famous for her work on the development of language in children. One day in class she declared that she realized that all her years of work was really about something else besides language. Rather, she'd been

studying how human beings develop an understanding of *Time*, which it turns out, is profoundly affected by the structure of language.

Writing my chapter for the Oxford book, I had a similar moment. Ostensibly I study how people become experts. Like a lot of people in my field, I focus on a specific area, but all expertise researchers use similar tools. My specific area is business. Specifically, I look at how people develop an intuitive understanding of the underlying conceptual structure of business and therefore, can see what others cannot see in market events, business deals and emerging economic trends, at least in their industry.

For about 20 years, I have been studying how to accelerate the rate at which people can develop this kind of intuitive grasp of business as a domain, challenging the accepted learning curve of 10,000 hours or 9 years. For decades we have been pushing the envelope on an accelerated learning “grammar” we discovered.

We now get about 5 years of expertise in 16 hours of intense activity with our technology.

A lot of our cognitive science research is now explaining why it works. Continued research has identified a minimum “grammar” that must be present. It turns out that building the “grammar” into our technology is all that is required so that my team’s presence is not required to make things work. Here are some of the components:

1. Every task has to be related to an unchanging goal that is non-negotiable.
2. There is minimal or no instruction.
3. There is stress and time compression, often extreme.
4. There is the opportunity for many cycles of trial and error in a short window of time and opportunities to try anything you think might work.
5. There is clear feedback that things are working or not working.

Obviously, there are some subtleties not captured here. For example, it has taken years to refine the idea of non-negotiable goal and design feedback at the right level of granularity, then there is the question of how many cycles of trial and error is enough, but it should be obvious what is happening here.

I realized that I have been really been studying how human thinking improves as a result of disruptive events.

In our case, it’s the huge cognitive requirements needed to accommodate the rapid change brought about by the influx of information technology. And what this means is: When you think about the requirements of an accelerated learning environment, it makes sense that in our work, all we have done is get control of the adaptive unconscious processes, first so named by Daniel Wagner.

Information technology is literally a million times more complex than it was in the 70’s. Most people realize that. What is more significant is that most people have seamlessly adapted, and to me, ***how we have adapted.***

All the research we have done on accelerated learning has really been about how we reorganize our intuitive understanding of the world through iterative cycles of trial and error, not through using conscious processes, such as reflective thought, analysis and regrouping, but rather, through the completely unattainable adaptive unconscious, which has a much larger capacity for learning, learns 200,000 times faster than our conscious processes, and, which is not affected by fatigue (in fact, maybe enhanced by it).

The reason we have been able to adapt and learn as the world has gotten more complex is that the part of our brain that believes this is a life or death disruption has been brought into play.

Our brain sees the increasing technological complexity as akin to a potential extinction event that needs to be survived.

More to the point, it is a part of the brain which was never built to help us with the iPhone, Netflix or even navigating our careers on LinkedIn. It is the part of the brain that is dedicated to rapid learning in order to support our survival in a crisis or emergency situation, marshaling all that we have ever experienced or seen and cycling rapidly through all the possibilities in order to help us to adapt to a life or death change in our environment, all below the threshold of conscious awareness.

In our work, we have found a way to harness the adaptive unconscious's powerful ability to learn. Rather than rely on the normal conscious processes assumed to be required for learning, such as memorization, reflection, analysis and rational thought, we put people into a high stress crisis that just happens to be similar to their jobs, only harder. We set the right goal, set the stage in other ways, and the brain takes it from there.

If it seems like magic, or too good to be true, maybe it is. Just as much of modern life and our ability to adapt and thrive is equally so. We just don't notice because we are doing it without thinking about it, at least consciously.