# What ISN'T Technology Good At?

## For teachers, it's empathy. For students, it's PASSION

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In Part I of this two-part essay, I presented the idea that in teaching, the biggest thing that machines don't provide—and the reason we require human teachers—is empathy.

Now let's turn our attention to the students. In the students' realm, the biggest thing that machines don't, and can't provide—is passion.

Passion is the most important trait to have and encourage in the realm of school and learning—and in life as well, perhaps—because passion is the true motivator. Once a person has a passion to know or do something—anything—the chances are excellent that they will do much, on their own, to follow that passion. In fact, it's often hard to stop them—much of what educators need do is to just get out of students' way, and to subtly guide them in directions where their passion can have the greatest positive effect on their lives.

Machines can, of course, *support* passion. They can, in some cases perhaps, even inspire it.

But they do not possess it. Passion is (at least for the foreseeable future) a human trait.

A lot of inspiring stories about passion are found in the books of Sir Ken Robinson. He writes of many now-famous people who only became so after they found and followed their passion (or their "Element" as he calls it)—often overcoming roadblocks (and in some cases school and teachers) to do so. Paul McCartney, for example, was told by some of his teachers in Liverpool he had no talent for music!

But passion is not just for the (potentially) rich and famous. Every person—and that includes every student—has something in him or her that they are passionate about at any given time (I often ask kids who say they "don't know" what their passion is "What do you do you like doing when no one tells you what to do?") And that passion can motivate them to do work beyond what many (including them) think is possible.

Passion, however, will not just enter education automatically—especially since, in many cases, it has been, over many generations, systematically kept out. Several things about passion in general—and student passion in particular—are worth noting, in my experience.

First, many student passions are hidden, at times from the student's own consciousness, but much more frequently from their teachers' knowledge. The reason for the latter is very simple—most teachers never ask.

Almost all teachers think, quite rightly, that their own passion for their subject is important. But too many assume that their job is to pass their passion for the subject to their students, rather than *to bring each student to their subject through that students' own passion*, whatever it may be. "I spend so much time trying to show my own passion," a teacher once said to me, "it never occurred to me that each student in my classes has a passion of his or her own. Now I know why," he continued, "when I say certain things, certain heads go up."

The distinction between all students adopting the teacher's own passion, versus a teacher's channeling the subject matter through each student's passion, is a crucial one. The former, of course, never actually happens—while some students are, of course, inspired to "go into" specific fields by the passion of a teacher, it is relatively rare. If a teacher truly changes the path of a few students (in a class or even in a lifetime) to their subject, they are fortunate. True, our best, or most inspiring teachers have more than a few "conversions," but the number of such teachers is not large, and the number of "converts" is rarely all that large compared to the number of students they have taught.

On the other hand, teachers who take as their goal to open the eyes of each of their students to how the subject they are teaching relates to the passion the kid already has, have the possibility of a much broader and more powerful effect. The math teacher who convinces the sports-oriented, or musically-inclined kid of the power of math to increase their capabilities in the field they love; the English teacher who feeds each student inspirational stories in the area they are passionate about (and biographies of people who have succeeded in that field), can affect every kid in a way that kid will remember and appreciate. Requiring all students to read the same book or do the same tasks, whether to "broaden their experience," or "for their own good" or because "it is in the curriculum" is a road to growing boredom and rejection in most students.

A second important issue for teachers to bear in mind is that all fields and potential outlets for students' passions are very broad. I have been told, when inquiring about student passions: "My kids all just want to be pop (music) stars or basketball stars—and they won't be." True, of course, for all but a tiny minority (some students, somewhere will of course get there). But the trick then becomes to find the passion underneath. Is it for music? Or sports? Or perhaps money and success? Those can all be encouraged.

Peoples' talents, abilities and potential vary greatly. Everyone has an affinity group, and James Paul Gee says, in which he or she can be in the top 20 percent. The trick is to help each kid find it. (That's why, for example, the Paralympics are so inspiring.)

A third issue, often raised an objection by teachers is that passions may change. Although that is certainly true, that is no reason not to uncover and encourage the passion of the moment, because it is the idea of following your passion that should be encouraged.

A final, and incredibly importnat issue is that there are people who claim passion is not what matters. New York Times columnist David Brooks, for example, writes:

> Worst of all, they [college graduates] are sent off into this world … told to… find their passion and then pursue their dreams."

Brooks interprets this as "[finding oneself] first and then [going] off and [living] their quest." But "very few people at age 22 or 24", he cautions, "can take an inward journey and come out having discovered a developed self."

But what Brooks is suggesting is not even close to what today's kids need. Getting out of school and then starting to look for your passion *is* a bad idea, because *it's what school should have been about!* The old wisdom used to be to learn a bunch of standardized stuff, and then use whatever connections you had to find something that—whether you loved it or not— enabled you to earn a living. Your passion, (if you happened to recognize what it was) was something to keep as a hobby on the side. Perhaps that was good advice once. But tomorrow's jobs will not reward passionless people as they have in the past. In fact, they might not reward them at all—what employer with options wants to hire someone who is not passionate about the field and job?

So doing something you are passionate about—and doing it with others who are passionate about what they are doing—is the key to learning, success, work, and, I believe, to happiness.

How, though, does passion relate to technology, and to educational technology in particular? We live in an age of brain-technology symbiosis. What technology offers education most powerfully, I believe, is a new and better way to differentiate instruction, and learning—not just by speed, or learning preferences, or instructor, or even intelligence, but by passion.

Technology can, when used well, provide access to equivalent-level materials (texts, articles, books) in any imaginable field. It can provide (although it doesn't yet today) lessons on any math or science, or language or social studies topic through the lens of every conceivable passion. All this takes are teachers who share those passions personally to create the materials—something that with today's tools and templates, is quite easy. This is the best extension of Sal Khan's thousands of math lessons—not one

good lesson for every topic (that's a start) but thousands of good ones—each with a different slant.

Kahn's work is passion-agnostic, focusing instead on clarity of abstract expression. Or perhaps his lessons will eventually be the best for kids with a passion for math or something else. But musically-oriented math teachers (I'm sure there are many) could easily present each of Khan's lessons filled with relevant music examples. Teachers of other subjects, from language to art, to science, to social studies, could post or create texts and lessons that relate each topic or standard in whatever curriculum we use to the passion they prefer.

The internet, of course is already the great provider, finder, and storer, of such information. As our sophistication in using the Internet for education increases, we need to emphasize its ability not just to find stuff, but to find useful , accurate stuff that each student wants to use.

In the industrial age (that many of today's teachers grew up in) educational conformity was important—conformity of subjects, of knowledge, of curriculum, of standards (and of course, behavior). That age is now over. We have now entered the age of passion, where each person will succeed not by conforming, but rather though fine-tuning their own individual lens on the world. That is why passion counts so much in education, along with the empathy to encourage it. That is why, in education, despite our fantastic technology, people are here to stay. Perhaps the greatest help a teacher can provide is to help each student find that passion, recognize it in themselves, feel supported and worthwhile because of it, and take, develop and direct that passion as far as that student is capable.

The crucial expertise in teaching and education is shifting from possessing and communicating common, standardized knowledge, to learning whatever is needed through passion-inspired exploration and creativity—this despite the misguided efforts of many to create and promulgate a "common core curriculum." But approaching education and learning though the lens of individual passions is not easy. To pull it off, we will have to get the symbiosis of humans and technology right. I call that finding Digital Wisdom.

e live increasingly in a human-machine world. Anyone who doesn't understand this, and who is not struggling to adapt to the new environment—whether they like that environment or not—is already being left behind. Adapting to the new fast-changing, technologically-enhanced context is one of the major challenges of our times. And that certainly goes for education.

As computers become able to do more and more of what has traditionally been considered the province of teachers and students—from presentation to computation—and as technology becomes increasingly entwined with all aspects of our lives, we need to come to grips with some important new challenges:

- **How do we use the technology wisely?**
- **How do we find best symbiosis of brain and machine?**
- **What should we outsource to machines, and what should be reserved for humans and human minds?**

"Digital Wisdom" is the term I use for the successful answers to those important questions. Cultivating digital wisdom in education—and not just digital knowledge or digital fluency—is crucial for all of us. In my new book ***BRAIN GAIN: Technology and the Quest for Digital Wisdom,*** I suggest ways to do this, and to avoid uses of technology that are merely digitally clever, or, worse, digitally dumb.

An important question to ask is: What do computers, or any technology, do less well—fundamentally—than people? What things are still best handled only by humans, and human minds? What are the capabilities that make human teachers indispensable?

Knowing which of the teacher's key roles and functions cannot be replaced by technology in the foreseeable future allows us to look for and encourage those particular human skills in those we hire, while providing those teachers with training and guidance in using technology in other areas. As we gradually adjust both *how* and *what* we teach to reflect our new human-machine symbiosis the result will be a better education for all.

What are the key "human" skills of a teacher not replaceable by technology? There are a number of these, to be sure, but I would propose *empathy* as the most important element a good teacher offers that technology cannot replace. Machines do not have the human ability to care about students, to understand each student as an individual, to empathize with each student's unique struggles and passions. The "human" part of teaching is, at its core, *liking* students—and wanting, almost desperately, to help them. Machines help teachers help students, of course, but they do not provide the fundamental emotional—and human—connection that student need to succeed.

We would like all our teachers to have empathy for their students to as a high a degree as possible. But empathy—unlike technology skill—is very hard, and perhaps even impossible to acquire if it's not innately there. Moreover, while the amount of empathy varies significantly among teachers, empathy is not an easy thing to quantify. There is

rarely, if ever, a "score" of a teacher's empathy on teacher exams, applications or evaluations. Empathy is an "intangible," hard to measure and figure in.

But hard does not mean impossible, and intangible does not mean unknowable. Most people—students, parents and administrators—can detect, see and feel differences in empathy and know when it's there and when it's lacking. That empathy is more difficult to quantify than test scores is no reason not to work at measuring it.

In fact, there are important reasons to do so. As we undertake more complex, technology-based analyses of our education system (such as the Gates Foundation-supported program in New York City that is trying to figure out each teacher's relative "value-added" to students), it is crucial that we do not forget or omit variables like empathy—if we do, the results will have little meaning. Even the great quantifier Bill Gates recently wrote in *The New York Times* that "student test scores alone aren't a sensitive enough measure to gauge effective teaching….A reliable evaluation system must incorporate other measures of effectiveness, like students feedback about their teachers and classroom observations by highly-trained peer-evaluators and principals."

Certainly a key part of educational technologists' job is to help all teachers learn to use technology to leverage their instruction, individualization, and practice, and to help teachers realize when particular students would learn better from technology resources than from the teacher's own abilities in some areas. But no machine will, for the foreseeable future, put its hand on a student's shoulder, understand his or her family situation, or cut him or her some slack on tough days. No machine will fully share and encourage our students' passions, participate in their joys and pains, or recognize when a kid is being bullied. Empathy is a human job.

Yet this is still a place where educational technologists can help. An additional useful role for technologists is to help design and create technological tools to measure and increase teachers' non-technology-based skills—including empathy— in ways that are accurate and fair. Collecting student feedback, as Gates suggests, could be one piece of measuring empathy. Setting up teacher evaluation systems by students, parents, colleagues, and administrators—similar to "360 degree" systems used in business—is another approach. Even better would be to invent systems that allow individuals and administrators to assess a person's (and one's own) empathy for students *before* ever becoming a teacher, or choosing teaching as a potential field.

In today's education—and in the world—the advance of technology enables us to create a new human-machine symbiosis that improves how we do almost everything. We need to all join the quest for digital wisdom in our practice—and in our lives as well.

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