Curiosity: a magic wand for learning?

Interest doesn’t always translate into effort

by Martijn Meeter
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A few months ago, I visited a math class in a secondary school. Under the school’s bring-your-own-device policy, students were expected to take notes and access learning materials on their own laptops. From the back of the class, I had a good view of what the students were actually doing. I saw some Facebook pages, some screens showing what looked like first-person shooter games, and a cluster of girls who seemed to be engrossed in Zalando, an online shopping website.

Meanwhile, the teacher was explaining the basics of probability theory rather competently, with asides that I, at least, as a non-adolescent, found amusing. When I asked him afterwards whether he knew what the students in the back had been doing, he sighed and explained that he, like all his colleagues, had always had problems with this class. At least the students had endured their boredom in silence, he added.

He is not the only teacher to face this challenge. Secondary school teachers often complain about the difficulty of motivating their students, other than through tests and similar means that, according to the literature, could just as well have been designed to kill intrinsic motivation. And yet every teacher knows how quickly a truly interested student can learn, like the eight-year-old dinosaur buff whose grasp of the Jurassic period is better than that of most adults.

Is there no magic wand that teachers can use to ensure that all of their students are intrinsically motivated and engaged with the material?

Unfortunately not, although it is certainly possible to influence motivation. A review of interventions designed to increase motivation revealed that while they were based on very different theoretical frameworks, almost all of them showed positive effects. However, the effects were rarely large. Often, they merely slowed the rate at which motivation decreased, relative to the control group, over the course of the intervention.

Lately, however, attention has focused on a new kind of magic wand: curiosity. The idea is that if kids are curious, they’ll learn. Indeed, curiosity seems to have very positive effects. For example, being allowed to explore an unknown virtual world primes the brain for later learning, suggesting that the brain is either paying more attention or learning more efficiently while it is in a state of curiosity.

Of course, the idea that curiosity helps learning is nothing new. High-quality textbooks often start each chapter with a teaser intended to pique the students’ curiosity, and many teacher-training programs tell teachers to begin class with a lesson starter serving the same purpose.
“Being allowed to explore an unknown virtual world primes the brain for later learning.”

There is a whole body of literature on a related concept, namely interest. Interest might be described as the more mature, stable sister of curiosity. An interested student is the ideal learner: highly motivated and in most cases self-regulating. Unfortunately, it takes a long time for stable interest to develop, and it must come from children themselves.

However, teachers and others can promote what we refer to as situational interest – an interest triggered by a given situation. So is this the solution? Do we simply have to create situational interest? Perhaps that is one answer, but it requires quite a bit of work.

Research shows that situational interest is only temporary. It is usually triggered by posing a question or presenting a problem, and lasts only until the question is answered or the problem is solved – or until it seems that solving it would require too much effort. This is very similar to how curiosity works, according to most theories: it is the feeling that we have a gap in our knowledge, and want that gap filled. Once it is filled, the curiosity is gone. And if the gap exists for too long (i.e., quite some time passes between the question and the answer), for most people curiosity becomes quite an unpleasant feeling.

Moreover, piquing students’ interest may not be enough to make them work. I recently conducted a study involving college students, who received assignments designed to prod them to do independent study. Students rated some of the assignments as interesting and others as less so, but that did not change how many hours of independent study they put in: it was exactly the same for interesting and uninteresting assignments.

All students rated some assignments as more interesting than others, but there were also differences between the students in how they rated the assignments. Some students found all assignments more interesting than other students did. And these students, who were more interested overall, reported that they were more intrinsically motivated to learn, studied more hours, and got better grades than students who were less interested overall.

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Does that mean that interest and curiosity are the magic wand after all? No, it merely shows that people differ; they differ in their physique, in their abilities, and also in how easily their interest is piqued. Some kids are easily motivated to learn everything they can about dinosaurs, while others would rather spend their hours looking at Facebook.

Curiosity and interest clearly play an important role in education, but we cannot expect to make everyone a math buff (or even a dinosaur buff). It is hard work to encourage curiosity and interest, and the effect is short-lived. Such efforts have to be repeated over and over in the classroom setting. But good teachers already know that.

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