



Curiosity Is Fleeting, but Teachable

Recently, while I was tucking my 7-year-old into bed, she looked up at her ceiling light and asked, “Why are the curlicue lights better?” I know a stalling tactic when I see one, but I felt compelled to answer. “They’re fluorescent light bulbs, and they use less electricity,” I told her. She wasn’t satisfied. “Why do they use less electricity?” “They’re not as hot, so they turn more electricity into light,” I said. Still, she was curious: “Why don’t they get as hot?” Nearing the limits of my knowledge of interior illumination, I offered a vague explanation about lighting a gas instead of a filament, punctuated with a quip about it being time to turn the lights off.

My daughter’s curiosity made *me* curious, though. Where does curiosity come from? What prompts these espresso shots of intrinsic motivation to learn? And is curiosity an innate characteristic or a talent we can cultivate?

Psychologists have long puzzled over these questions and have more or less settled on a two-pronged definition of curiosity: *trait curiosity* (an intrinsic drive for exploration and learning) and *state curiosity* (interest sparked by external conditions) (Kashdan & Steger, 2007). Researchers have also observed that curiosity is often a powerful and irrational drive—a quest for information that will provide little or no material benefit, as when tabloid headlines at the supermarket pique our interest in the lives of Hollywood stars. At the same time, although powerful, it’s often ephemeral; once through the checkout line, we rarely give those tabloids another thought (Loewenstein, 1994).

It’s not hard to see a deeper curiosity at the heart of invention, science, and entrepreneurship. Indeed, we probably owe most conveniences of modern life to someone’s curiosity.

Cultivating Curiosity, or Quashing It?

Many studies have shown that human beings are generally born with a drive to explore their environments (Medina, 2008). Yet some young children demonstrate more curiosity than others. A longitudinal study of 1,795 children, for example, found wide variance in *stimulation seeking* (the drive to investigate new objects in their environments) among 3-year-olds. Further, those who demonstrated high stimulation seeking scored an average of 12 points higher on IQ tests at age 11 than their low-stimulation-seeking peers did (Raine, Reynolds, Venables, & Mednick, 2002).

These findings might appear to suggest that curiosity is more nature than nurture. However, dozens of studies conducted since the 1970s have discovered quite the opposite: Environmental conditions profoundly influence children’s openness to exploration. A study of 40 preschoolers, for example, found that they were more apt to explore their surroundings in the presence of a friendly, supportive adult than in the company of an aloof, critical adult (Moore & Bulbulian, 1976).

More recently, researchers placed a *curiosity box*—a box with 18 drawers containing novelty items—in classrooms to see how many students would investigate it and how many drawers they would open (Engel, 2011). The major factor determining how much children tinkered with the box was their classroom environment—namely, “how much the teacher smiled and talked in an encouraging manner” (p. 635).

These findings may offer some explanation for a troubling phenomenon evident in research: The longer children stay in school, the less curiosity they tend to demonstrate (Englehard & Monsaas, 1988). In a series of classroom observations,

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Engel (2011) found kindergarten students displaying 2–5 episodes of curiosity per two-hour period; in 5th grade classrooms, that number dropped to 0–2 episodes; many children spent their entire school day “without asking even one question or engaging in one sequence of behavior aimed at finding out something new” (p. 633).

At issue, Engel observed, is that many teachers feel pressured to cover material and therefore have “very specific objectives for each stretch of time” and “put a great deal of effort into keeping children on task and reaching those objectives” (p. 636). As a result, they tend to treat student questions and curiosity not as teachable moments, but as off-task distractions.

Creating Conditions for Curiosity to Flourish

What classroom conditions arouse curiosity? For starters, curiosity begins when we encounter a gap in knowledge, especially something that doesn't fit our expectations (for example, that winds blowing down from mountaintops are warm). We're also suckers for incomplete sequences (1, 2, 3, 5, 8 . . . what comes next?), and for unfinished narratives (a cliff-hanger at the end of a chapter).

Psychologists have also found that curiosity depends on prior knowledge (Loewenstein, 1994). We must know something about a topic to be curious about it, which explains why you're probably more curious about the nocturnal habits of your house cat than those of an African serval. This *reference point* phenomenon suggests that teachers should draw on students' prior knowledge to arouse their curiosity.

Controversy is another spark for curiosity (which may explain the popularity of cable news shows featuring dueling pundits). In a famous

experiment, Lowry and Johnson (1981) randomly assigned 5th and 6th grade students to work in groups; one group was instructed to engage in cooperative learning about a particular topic (such as strip mining or designating wolves as endangered species); the other was encouraged to focus on the controversy regarding the topic. Students in the controversy condition demonstrated more interest in the topic, sought more information on it, and were more likely to give up a recess period to watch a film about it.

Why We Should Care

A recent meta-analysis concluded that together, effort and curiosity have as much influence on student success as intelligence does (von Stumm, Hell, & Chamorro-Premuzic, 2011). Other studies have linked curiosity to better job performance (Reio & Wiswell, 2000); greater life satisfaction and meaning (Kashdan & Steger, 2007); and even longer lives (Swan & Carmelli, 1996). With this in mind, I did some research to encourage my daughter's curiosity. I explained to her the mechanics of mercury vapor, photons, and phosphorescent paint inside the lights above her bed. She nodded, and then asked, “So why are they in a curlicue?”

Good question. I hope her curiosity will keep burning as bright as those lights in her room. ■

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