

Curiosity and Motivation-to-Learn

Kate Borowske

Curiosity is associated with scientific discovery, idle gossip, exploration of our earth and the universe, interest in the supernatural, puzzles, spectator sports, and murder mysteries. If you've ever been pulled into the drama of a soap opera you didn't really want to watch (but will Todd and Blair get back together?), stayed until the end of a football game that was, actually, kind of boring, or read a mystery that wasn't really that good, you can blame it on curiosity.

We generally think of curiosity as a favorable trait. Aristotle and Cicero equated it with a passion for learning. Since the last half of the twentieth century, educators have recognized that curiosity is a significant motivating factor in student learning. But you may have also heard what it did to the cat.

Curiosity...is insubordination in its purest form.—from Bend Sinister, by Vladimir Nabokov

Eve was told not to eat the apple, did so, and was banished from Eden. Lot's wife was told not to look back on the destruction of the cities of Sodom and Gomor-

rah, couldn't resist a peek, and was turned into a pillar of salt. In Greek mythology, when Pandora opened the box, she released Evil, Sickness, and Unhappiness. Early religious thinkers equated curiosity with a lust for knowledge that only God had a right to possess. The *Confessions of St. Augustine* are thought to have been at least partially responsible for this view.¹

For pleasure pursues objects that are beautiful, melodious, fragrant, savory, soft. But curiosity, seeking new experiences, will even seek out the contrary of these, not with the purpose of experiencing the discomfort that often accompanies them, but out of a passion for experimenting and knowledge.... This malady of curiosity is the reason for all those strange sights exhibited in the theater. It is also the reason why we proceed to search out the secret powers of nature—those which have nothing to do with our destiny—which do not profit us to know about, and concerning which men desire to know only for the sake of knowing. And it is with this same motive of perverted curiosity for knowledge that we consult the magical arts.²

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Curiosity is, in great and generous minds, the first passion and the last— Samuel Johnson

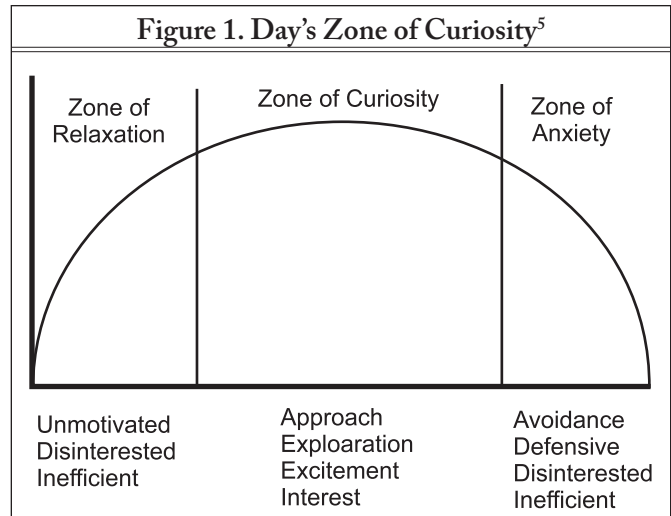
The religious condemnation of curiosity was challenged by Sir Francis Bacon when he published his *Advancement of Learning* in 1605. Bacon, who is also credited with the development of the scientific method, argued that knowledge can be used to improve both man's moral state and the human condition.³ (Evidently the Catholic Church at that time didn't agree, because *The Advancement of Learning* was placed on the Catholic Church's *Index of Prohibited Books*).

In 1890, William James published *The Principles of Psychology*, which would become a classic in the field. James described two types of curiosity. The first is an instinctual or emotional response, in which attention is aroused by seeing something new. You may have observed animals faced with an unfamiliar object: they approach to explore it, retreat because they're not sure whether it's safe, approach again—it could be food—retreat, approach again, and so on. Their willingness to explore the unfamiliar results in their becoming more knowledgeable about their surroundings. But they are somewhat fearful because exploring the unfamiliar can just as easily lead to danger. So, curiosity may lead to exploration, but it also creates anxiety. The other type of curiosity James described is a "scientific curiosity" and "metaphysical wonder" in which the "brain responds to an inconsistency or a gap in its knowledge, just as the musical brain responds to a discord in what it hears."⁴

In the early twentieth century, scientists approached curiosity as one of the drives, along with hunger, thirst, and sex. But the research took a new direction with the studies of Daniel Berlyne. His research led him, similarly to James, to divide curiosity into two types: diversive and specific. Diversive curiosity is a general tendency for a person to seek novelty, take risks, and search for adventure. Specific curiosity is a tendency to investigate a specific object or problem in order to understand it. Berlyne further determined that curiosity can be aroused by external stimuli with the following characteristics:

- Complexity
- Novelty
- Uncertainty
- Conflict

The level of stimulation is significant: if it is too low, there will be no motivation to explore; if it is too



high, it will result in anxiety; if it is just right, it will result in exploratory behavior. The latter was described by Day, a colleague of Berlyne's, as the "Zone of Curiosity." See Figure 1.

Just out of curiosity, do we have a Plan B?—Nathan Lane as Preed in Titan A.E.

Loewenstein noted that "curiosity occupies a critical position at the crossroads of cognition and motivation"⁶ and that "educators know much more about educating motivated students than they do about motivating them in the first place."⁷ He synthesized a number of other theories on curiosity to create what he called the "information-gap" perspective. This states that, in order for curiosity to be present, the student must already possess some level of knowledge. Then, "to stimulate curiosity, it is necessary to make students aware of manageable gaps in their knowledge." If the gap between the students' current knowledge and their desired level of knowledge is perceived to be too large, closing the gap will seem overwhelming and will discourage learning. If this gap is perceived to be too small, it will seem not worth the effort to pursue.⁸ Burns and Gentry state that "identification of manageable knowledge gaps that complement the natural curiosity in a learner, combined with explicit connections to the learner's value system, will generate tension-to-learn in the learner."⁹

In the early days of the web, advertisers eager to take advantage of the medium were faced with the question, "How do we get them to click on our ad?" Menon and Soman conducted a study of the effective-

ness of a web advertising strategy using curiosity to stimulate interest. Following are their recommendations:

- Arouse curiosity by demonstrating a gap in the consumers' knowledge
- Provide just enough information to make them want to resolve their curiosity
- Give consumers time to try to resolve their curiosity on their own¹⁰

For example, there is a currently an advertising campaign on the web for the broadband telephone company, Vonage. Each of the ads is animated and uses simple, bold images and text. The first thing that comes into view on one of the ads is an attractive, somewhat abstract map of the United States with animated dotted lines that start at one point and connect to another and appear and disappear. Next, the phrase, "Nice move" appears, followed by a pause, then, "Keep your phone number and area code" followed by "Wherever you go, nationwide." Finally, the invitation to "See for yourself" appears. This is a link to their home page and more information on their service.

Museums also need to attract the attention of visitors. They are informal learning environments where attendance is not (usually) required and museum personnel can not directly control what visitors do once they enter. In the late 1970s, researchers examined the effectiveness of an exhibit on the Ice Age at the Smithsonian. They observed and interviewed four types of visitors, which they described as:

- The Commuter
- The Nomad
- The Cafeteria Type
- The V.I.P (Very Interested Person)

The Commuters were, basically, just passing through the Ice Age exhibit in order to get to another part of the museum. The Nomads were wanderers, not looking for anything in particular; not really expecting anything, but open to a new experience. The Cafeteria Types were there to explore the entire museum, "sampling" the exhibits as they traveled from one to another, ready and open to becoming interested in something new. They wandered into the Ice Age exhibit, but also stopped to explore. Finally, the V.I.P.s wandered into the hall, but, because of a pre-existing interest in the Ice Age, were more deliberate in the way they explored and interacted with it.¹¹ Given these types of visitors, how does a curator design an exhibit that, first, attracts

the attention of everyone from the Commuters and Nomads to the V.I.P, then, leads to exploration and, finally, to learning?

One of the strategies artists use to capture attention is juxtaposition; they place objects next to each other that, at first glance, are unrelated, or place a familiar object in an unfamiliar or incongruous context. The surrealists were masters of this. One of the more famous surrealist images is by Rene Magritte. It is a very simple painting of a pipe on a flat, painted background with the words "*Ceci n'est pas une pipe*" ("This is not a pipe"). His point was that the image of a thing and the word for the thing are not the same as the thing. Whether or not this is the point the viewer understands, it has provoked much discussion.

Curators also use the art of juxtaposition, as well as other strategies informed by curiosity theory. Museums were once merely warehouses of objects—valuable and interesting, but, still, collections (museums evolved from the sixteenth and seventeenth century Cabinets of Curiosities, or *Wunderkammern*). Today, museums are designed for learning. Curators design exhibits that encourage visitors to explore, to make connections between objects and with themselves, their values and experiences. They include areas where children can explore, provide opportunities for experiencing the unexpected, and pose problems to solve.¹²

Curiosity is the thing. If you don't give life to curiosity, you haven't done your job.—Carlos Picon, Curator-in-charge of Greek and Roman Art, Metropolitan Museum of Art

The academic library, like the museum, is sometimes thought of as a warehouse full of things. While a trip to the library is frequently required, we cannot directly control what students do once they are in our building. Like the advertiser on the web, we can't force anyone to click on our links. Unlike the faculty at our institutions, we are not teaching a subject discipline; the skills we teach are, essentially, a means to an end.

Most of us have library web pages which we carefully design to guide students to resources. Additionally, many of us have developed online guides and tutorials to provide another level of assistance. And many of us have been frustrated when these online resources are underutilized. We are increasingly faced with students, faculty, and administrators who associate computer skills with research skills, who use the World Wide Web for research and don't understand the complexities

of information. Some students come to library sessions so confident of their internet skills that they, out loud, ask “Why are we here?”

How do we engage the Commuters, the Nomads, the Cafeteria Types, and the V.I.P.s? Curiosity theory offers strategies that can help us design instruction that motivates as well as teaches. The following strategies are selected from Kashdan and Fincham:

- Create tasks that capitalize on novelty, complexity, ambiguity, variety, and surprise
- Purposely place individuals in contexts that are discrepant with their experience, skills, and personality
 - Allow opportunities to play
 - Create challenges that match or slightly exceed current skills
- Provide choices and participation in decision-making process
- Give clear information about task structure and expectations
- Emphasize the meaningfulness of activity and efforts
- Express empathy for individuals’ emotions, values, and needs
- Express and model interest in individuals and activities¹³

Curiosity, easily frightened, takes refuge in puzzles, murder mysteries, and spectator sports.—Mason Cooley
 Could Google be just as much a refuge for the anxious as it is a vehicle for the overconfident? Both Loewenstein’s information gap theory and Day’s Zone of Curiosity include zones where curiosity and willingness to explore are overwhelmed by too much—too much uncertainty, too much unfamiliarity, too much complexity. Our hope is to help create engaged, confident students who will become lifelong learners. We can use strategies such as those cited in this paper to help motivate the unmotivated. Whether we use curiosity as a series of strategies to improve our students’ motivation or as a value that informs everything we do as educators, there is still room for inspiration in the library, the building or the online portal.

In teaching, you must simply work your pupil into such a state of interest in what you are going to teach him that every other object of attention is banished from his mind; then reveal it to him so impressively that he will remember the occasion to his dying day; and finally fill him with devouring curiosity to know

what the next steps in connection with his subject are. . . . Divination and perception, not psychological pedagogics or theoretic strategy, are the only helpers here.¹⁴

In the absence of “divination,” thank goodness for strategy.

Notes

1. Loewenstein. *The Psychology of Curiosity: A Review and Reinterpretation*, 76.
2. St. Augustine. *The Confessions of St. Augustine*, Book 10, Chapter 35.
3. Benedict. *Curiosity: A Cultural History of Early Modern Inquiry*, 19.
4. James. *The Principles of Psychology*, Chapter 24.
5. Arnone. *Arousing and Sustaining Curiosity: Lessons From the ARCS Model*, 3.
6. Kazdin. *Curiosity*, 414.
7. Loewenstein. *The Psychology of Curiosity*, 93.
8. *Ibid.*, 94.
9. Burns and Gentry. *Motivating Students to Engage in Experiential Learning: A Tension-to-Learn Theory*.
10. Menon and Soman. *Managing the power of curiosity for effective Web advertising strategies*.
11. Wolf and Tymitz. *Whatever Happened to the Giant Wombat?* 10–11.
12. Ellis, Koran and Koran. *Visitor Learning in Museums*, 34–38.
13. Kashdan and Fincham. *Facilitating Curiosity*, 490.
14. James. *Talks to Teachers*.

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