Interchange (2023) 54:459–464
https://doi.org/10.1007/s10780-023-09505-8

Open up to Curiosity

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Received: 21 December 2022 / Accepted: 30 September 2023 / Published online: 17 October 2023

Abstract
Curiosity is a fundamental impulse which propels human beings to seek, and discover satisfying answers to life's deep questions. Capturing small but memorable moments of personal discovery, I highlight an element of curiosity within everyone's control: one's choices to be open. I provide a series of personal anecdotes and analogies, to illustrate real examples of how choice, experience, and resultant curiosity are interrelated. Often, the most revealing discoveries are those which can be made during one's routine, daily life. Here, I place emphasis on observations of the moon, previously demonstrated to help develop curiosity in students (Duckworth, 1986). With an understanding that personal experience impacts curiosity as much, if not more, than one's natural inclinations, individuals can wield their curiosity to find interest in and appreciation for subjects that would otherwise miss their attention. Often, this perspective is best gained when shared by another curious person.

Keywords Curiosity · History · Science · Engineering

In psychology, there is this interesting idea called "latent inhibition" (Lubow et al., 1976) that classifies one aspect of how we process our senses in real time. We are constantly bombarded with changing sights, smells, touches, sounds, thoughts, pains, and more. The vast majority of these senses are recurring and common, like the look of our house, or the sound of music coming from our favorite playlist. Our brain naturally processes these stimuli as "uninteresting" or "not worth one's focus", and this is good, even necessary for our sanity, since we can then focus on whatever task we are completing, or some pressing thought on our mind. Cognitive balance helps

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us think about one thing and physically do something else. Our brains must filter out the background to save our fragile attention.

Latent inhibition also gives some insight how "curious", or "open" people tend to operate: they might naturally filter out less of their external environment and process more of what enters their mind. A higher amount of sensory information might lead to more connections, questions, or curiosities. Yet, my point lies outside of cognitive descriptions of individual, subconscious brain function. Inhibition is not completely outside of our control. We have personal experiences, make choices, and meet people who introduce us to new knowledge, all of which tune us to what we are likely to pay attention. We construct filters, consciously and unconsciously, and these filters strengthen and weaken throughout the course of our lives, depending on how we interact with our world.

One example of inhibition in my life is jazz music. Jazz has been a part of my identity since before my birth. My grandfather was a professional jazz musician for most of his life. My father introduced me to jazz before I knew what music was. It was familiar to me as a child, to the point where it existed in the background, as jazz often does. I knew the names of many people, pieces, and albums, yet I did not differentiate all the forms of jazz music, the instruments which contributed to each song, or the signature sounds of its legendary artists. It sounded homogeneous, like flour sieved to a uniform grain, so as a teenager I found and listened mostly to the new and interesting hip-hop, pop, electronic, and neo-soul music I could find online and at the CD store.

Not until after I left home for college did I see my early jazz exposure as a gift. Fortunately, I still liked it. I took a class on its history, learning of its self-transformational nature and its fundamental impact on all music which came after it. I saw live jazz when I could. Sound and sight together, I watched the immense talent and discipline required for artists to simultaneously improvise yet still play in coordination with others. I also noticed more how little my peers enjoyed jazz, how they thought it boring, something "played in elevators". Being more sensitive of my own interest, I felt obligated to defend jazz and its value. I eventually began to encourage those with free time to at least accompany me to shows, since they would not listen to my favorite pieces. I wanted to share my newfound appreciation with the un-hip.

My curiosity about jazz, something old to me, ignited within me because I changed my relationship with it. I engaged it in ways that I previously would have ignored. I somehow acknowledged that my jazz-rich childhood environment did not amount to real understanding, and became more open to learning what I did not know. One's curiosities are not simply a consequence of one's natural inclinations, but can be molded by choice and the effort to be open to the unknown. Perhaps I was destined to mature my interests in jazz music. Below, I describe an experience in which I found curiosity where there was none before.

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During my undergraduate studies in mechanical engineering, I took a history of science class which emphasized learning through recreating experiments from the past (Cavicchi, 2008). At first, I thought I would read and hear notable scientific war stories, performing demonstrations to match their various descriptions. I looked forward to a curated, distilled historical journey that would enrich all the other classes

which taught history's results. However, we students were told on the first day that there would be no strict lesson plan and that we should choose our own topics of interest to explore (Cavicchi, 2015). I remember feeling some excitement for the possible academic freedom, at the same time becoming frustrated at the lack of structure and the notion of having to do extra work to act on my curiosities.

The first few classes left me confused and unmotivated, as our teacher gave us childlike activities with no aim, only telling us to "observe". In one class, we walked around campus and just drew what we saw: parts of buildings, sculptures, and plants. We even had moments of watching people walk by without drawing. I had no idea of what I was supposed to be doing, and I felt a unique discomfort in this seemingly aimless activity.

A later class placed us on the Harvard bridge between Cambridge and Boston to observe the early evening moon (Duckworth, 1986; Yang, 2018). While I found the moon pleasant to look at (Fig. 1a), I assumed that this activity would be as unsatisfying as the previous ones. We were instructed to draw as we pleased, as in previous lessons; I sketched the simplest outline of two or three buildings nearest to the moon and a circular, noting its location, while our teacher energetically colored the late dusk sky and a multicolored moon in her notebook (Fig. 1b). As the minutes passed, I updated the location of the moon, drawing its new positions relative to its previous ones.

Over the course of ~45 min, we watched as the moon moved from behind the Boston skyline halfway, up the sky, but I did not truly realize until late in our observation session that the moon had moved. The moon moved! Of course it moves; this was perhaps the first time I had actually seen it change place in one sitting. Many thoughts quickly emerged. The moon moved surprisingly fast, it appeared and rose above the Boston skyline in the 45 min we were there. It had a curved trajectory. It seemed to slow down as it went higher into the sky. Again, I was frustrated, this time with myself. How had I missed such a simple fact about the sky? How many times had I seen the moon before? Frustration was soon overtaken by excitement for what I had discovered, with wonder for what else I did not know.

It took me longer than the length of the class to fully understand and appreciate the lesson our teacher wanted to teach. We recreated experiments not to learn about what was done in the past, but to discover new knowledge for ourselves, even if it is

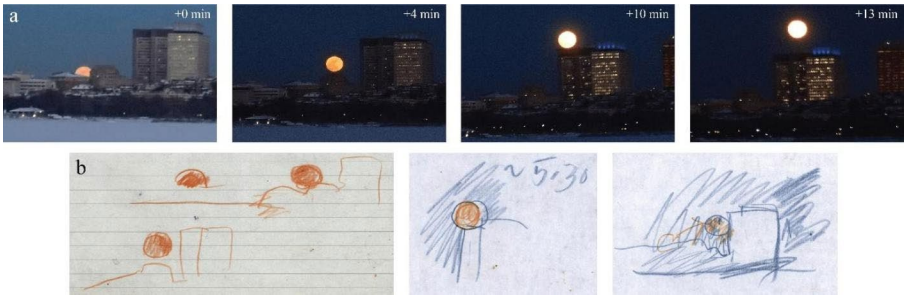

Fig. 1 Views and drawings of the moon from Harvard bridge. Top four photos show progression of an orange evening moon as it rises above buildings in Boston. Drawings capture the observer's interpretation of the same. Photos and drawings by E. Cavicchi (3 February 2015)

old knowledge for someone else. Observing the natural world without aim, without previously held concepts, gives me an experience undistilled, unadulterated, and like that of a child: with curiosity. The views of reality engendered by these experiences integrate with my unchildlike conceptual framework. Therefore, the change in my perception also has a very practical importance. Later curiosities sprung from the class led to an idea which I pursued in a project for another class, resulting in research and a publication (Heisser et al., 2018).

What is curiosity, then? One can be curious about particular things, yet in the background also lies a general curiosity, more like an unfiltered appreciation for what one comes in contact with. Almost some sort of "pre-curiosity", observing after quieting one's prior knowledge and, perhaps, even one's natural inclinations can produce new curiosity where there was none before. I had no intention of learning something about the moon, and more importantly, I never had the thought that something could be learned from simply watching the moon. Yet as I watched, I learned, I left with new wonder.

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Interest about the moon remains, as I continue to note new things about it as I look into sky. Recently, living in Ithaca, I have taken up the habit of walking outside to watch the sunset become early night. I find sunsets unique here; I figure that its particular geography of rich foliage, hills, and lakes impacts the air moisture and cloud formations, adding extra complexity to the day's final sky colors. Although I usually walk to clear my mind and wind down the day, curious thoughts always return. The brief but dynamic sunset moments find me looking around to capture, in my mind or phone, the interesting views in the sky.

Some months ago, my appreciation of the sunset sky unintentionally produced yet another realization about the moon: its glow points towards the sun. Simple to understand, I again felt as if I had never even considered a basic fact about something I constantly see.

In this instance of looking, a mid-Spring evening, the sliver-crescent moon was above the hill West of downtown Ithaca. The sun had already hidden itself behind the hill, yet the sky was still light behind the moon (Fig. 2). Therefore, it was very easy to see the whole moon beyond the lit crescent. When the daytime moon appears, the

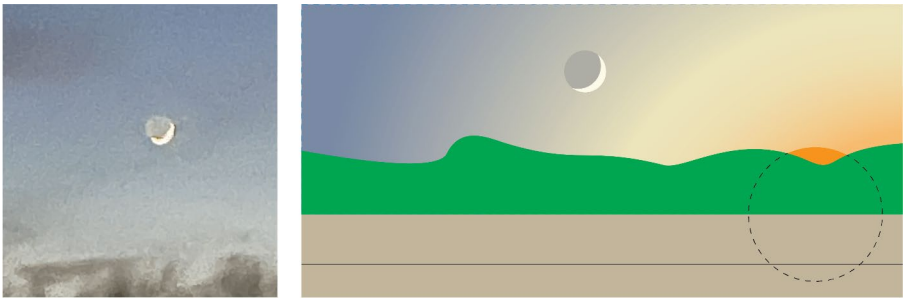

Fig. 2 A fully visible, partially lit moon. Left image is actual picture of moon, taken with a cellphone camera (digital zoom). Right image is illustration of the moon's landscape. Black line represents actual horizon line, while sun hides behind a hill, an effective "horizon"

unlit part is usually hidden by the sky, nearly invisible to the eye, just as it typically is at night. The brightness I experienced this particular evening was more pronounced, somehow. It reminded me that the shape of the crescent is distinct, not being the shape of the full moon, as I might unconsciously accept when glancing at the sky. What cartoons are like. This view of the moon had nuance in the crescent; the light we see exists as a relationship between the moon, sun, and observer. The light and its shape are real, yet are because the sun and moon are visible to each other. A crescent, then, is how we find the moon, and it points to the location of the sun.

Seeing the moon like this and having these curiosities brought me past a two-dimensional image I take for granted and closer to the actual, three-dimensional, moving, interrelated being it is. I thought about the system spinning about with its imperfections. After all, the moon needs the earth to rotate about and needs the sun to shine. I knew these things before, yet knowledge became embodied through observation.

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These personal discoveries taught me that I know very little about the moon. Not to say that I know little lunar astronomy, or physics, or geology (which is true); I know very little about just what I see every day. Similarly, a person could pass by some store every day on their commute to work for years, never entering it, never learning of what is sold inside. No education about shops in general, previous shopping experiences, nor people's accounts of shopping at that particular store would replace their own personal experience of smelling the air, interacting with different employees, walking past shelves, and examining the inventory. The latter requires a person's physical and mental presence to learn. So, what may be learned is unknown, waiting for a beginning. "Being curious" is not simply a state of mind or a personality trait. It is an act of will.

Funding 'Open Access funding provided by the MIT Libraries'

Declarations

Competing Interests The author declares no competing interests.

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