

Where are the humanities?

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My first glimpse of geology came from the pages of an action-adventure book *Night of Error* by Desmond Bagley. It was a boring summer and I had just passed tenth grade with no thoughts about what I wanted to be when I grew up. I picked up the old paperback mostly from having nothing better to do, and got sucked into an international intrigue around mining manganese nodules from the ocean floor.

I don't really remember anything much from that book except a discussion among the protagonists about how ten thousand year old rocks are considered "recent," and wondering that if ten thousand years is supposed to be "recent" then what would geologists consider "old"?

That sense of wonder about the immensity of geologic time remains with me till this day.

Growing up in the lower belly of one of the most densely populated cities in India, I did not have access to rocks, or open spaces, or anything related to nature, really. I had a slice of sky framed by our street level window, and I had books. I could escape with Captain Nemo to the deepest oceans and furthest islands any time I wanted. I could travel with Tintin and his gang from the Andes Mountains to Tibet and beyond. I never had a class in geology until I got to college as a geology major, but my love affair with the planet earth started way before I realized what geology was all about.

As I look at my students, not that much older than my fifteen-year-old self, I try to find what might bring out that sense of awe, wonder, and curiosity in them. In our courses we focus on developing transferrable skills. We talk about workforce development, career options, and somehow among all those worthy, tangible goals, the harmony of the spheres seem to disappear.

Where are the humanities in all the interdisciplinary earth science course modules we create and teach? Where are the poets? Storytellers? Wordsmiths? The capacity for imagination is essential so we can visualize what sustainable societies of tomorrow should look like, before we can work towards making it a reality. How do we teach our students that skill?

This is not a new or original line of thought. The publication *Branches of the Same Tree* (National Academies Press, 2018) makes the case for why the arts and humanities should be integrated with STEMM (science, technology, engineering, mathematics, and medicine) disciplines in higher education. At the same time, the volume points out the logistical challenges in offering such integrated curriculum in terms of assessment, fulfilling degree requirements, and transferring course credits between institutions, among others. However, despite all these very real issues, I believe the future of earth science education for a sustainable society requires integrating the humanities in the curricula, or conversely, infusing the earth sciences in the humanities curricula to the extent possible.

On our campus my colleagues and I are currently working on developing interdisciplinary, team-taught courses spanning the humanities and the sciences around the overarching theme of water. We envision students looking at local and global freshwater issues through the optics of poems, water quality assessment, life stories, GRACE data, oral histories, droughts, floods, immigration policies, rain dances, aquatic ecosystem, fiction, local festivals and traditions around water, environmental justice, tourism and economics, and any other combination of topics we can come up with. We have just started working on this, and I am sure there will be real logistical challenges along the way, but for now, I feel a real sense of excitement among my colleagues as we sit around and talk about how we can meld different ways of thinking, learning, knowing, and communicating knowledge in our courses.

Among all the ways the humanities can enrich earth education, ways to effectively communicate science seems to rise to the top. While we teach data-rich courses on topics relevant to the critical societal needs, we don't seem to be able to teach students the skills to communicate those needs at the gut level. We talk about the causes and effects of groundwater depletion, rainforest destruction, soil erosion, and all those important issues happening all over the world, but don't seem to make students feel what it is like to be a person dealing with those issues. A storyteller can make them walk with a girl trudging several miles under the desert sun for collecting water for her family. We cannot.

We need the kind of connection with the "real world" in our courses that can only happen through imagination. We need courses that teach students the need for planting trees through creative writing workshops, and how to find resilience in the face of climate hazards through stories. We need to be able to reach out to the communities and connect with their needs, not as experts, but as fellow humans with knowledge of the earth systems. We need the humanities.