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Science Education and Survival

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The Ending

Everything has an ending. It is estimated that 99.9 percent of all the species that every lived on the Earth have become extinct. Will the human species be an exception to this rule? Humans will likely become extinct, but it may take awhile. Many different scenarios exist that predict how all life on Earth will become extinct. Some of these reasons include climate change, depletion of the Earth's natural resources, pollution, or catastrophic events (such as the mass extinction of dinosaurs about 65 million years ago when a gigantic asteroid hit the earth). There have been five major mass extinctions thus far. Humans probably cannot stop the ending process, but they can slow it down and perhaps add a few more million years to life's longevity.

The first step in dealing with these crucial issues about life is to recognize the relevant problems. Then use emerging technologies, such as Artificial Intelligence (AI) to help find solutions. This requires some understanding and knowledge about science. Good science education is crucial for our survival. I am a professor emeritus of biology and science education. I was a dual faculty member of biology and science teaching at Syracuse University for almost 50 years before retiring in 2009. I mainly taught the introductory biology course and taught more than 50,000 students in my teaching career. I also served as chair of the science teaching department for more than 20 years and helped develop many high school and college teachers.

When I mentioned to a colleague that I taught more than 50,000 students, he remarked: "Yes. You've influenced and offended a lot of people." Communications from past students, reinforced my belief that I influenced many of the students in a positive manner that led to careers in science.

When I first arrived at Syracuse University, there were four separate introductory biology courses, i.e., zoology for potential science majors, zoology for non-majors, botany for potential science majors and botany for non-science majors. I taught the zoology course for non-majors. Eventually, the departments of zoology and of botany merged and a single general biology course was developed. This course was taught by four faculty members biology course, each contributing expertise in different aspects of biology. We all promised to sit in on each other's sections of the course, but that never happened. Everyone, except me, was eager to spend most of their time in their research labs. I assumed responsibility for the entire general biology course, and I developed a multi-media approach that was revised several times over the years.

I never made the separation of science majors and non-majors in my teaching. To me, all students at the introductory level should be able to handle science concepts equally well. My teaching focus was to establish a motivational learning environment. My theme was derived from comment made to me by the deceased father of Joan Baez. He said, "Our job as teachers is to inform and motivate students but, if we motivate them, they inform themselves." I translated this theme into: "Teach students to want to learn."

I incorporated many diverse features into the course with the view that the course should be motivational and experiential. We forget information, but we remember experiences.

At that time, teaching science was largely a matter of memorizing information and concepts. Eventually, science teaching evolved into scientific reasoning, hands-on learning and technology. The biggest difference in science teaching that I have seen over the years is the emergence and development of technology. When my computer breaks down, I can get a ten-year old child to fix it. Students know all the technologies. The problem is that they use it indiscriminately and excessively.

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When my cell phone started ringing in the middle of my lecture to 350 students in an auditorium, I couldn't shut it off. A student came on the auditorium stage and said: "I'll take care of it" … and he did.

What does good science education have to do with the survival of life on Earth? Every human has to be aware of developments and issues in science, whether that individual is a scientist or not. Why should we teach science to non-science majors? In my career, I tried to encourage students to pursue careers in science, but, even if they did not become scientists, I tried to make them supporters of science.

Perhaps, life will be able to survive on other planets in the universe. There are many possibilities that the same conditions that enabled life to exist on Earth are present in some other celestial body somewhere? "Impossible" you say? Human ingenuity has overcome many "impossibilities."

Again, we cannot stop an inevitable ending, but we can prolong it. Good, motivational science education will help.

I can only think of one thing that has no ending, i.e., a circle.

Circles
By Marvin Druger
A circle has no ending,
It has no beginning too,
If I run around in circles
I end up nowhere new.
Circles last forever,
They never seem to quit,
But this article is not a circle,
It has an end
And this is it!

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