

SciIntilia

The Official Science
Publication of Surigao
del Sur Division

Maiden Issue
February 2023

If I were in their shoes *By Ryan Paul Vales*

"If I were in their shoes, how would I want this topic taught?" Over the years, this question has guided my teaching practice. Just like my learners, I want to learn science in a fun way. I want to see cells up close. I want to combine chemicals. I want to make things. Experiments excite me, as do my learners, hence giving them opportunities to experiment. ▶p.3



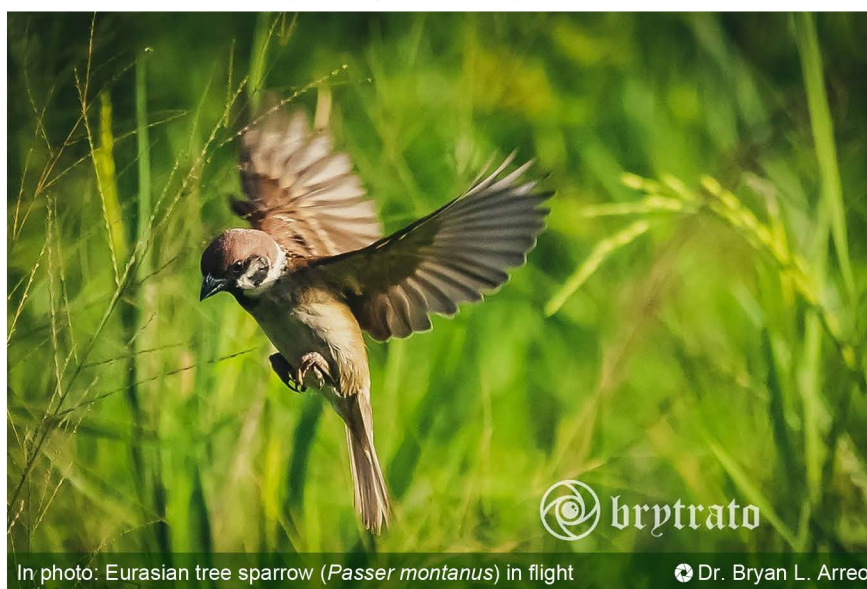
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VIEWPOINT



ART ARTHWART

By Dr. Bryan L. Arreo, CESE



In photo: Eurasian tree sparrow (*Passer montanus*) in flight

© Dr. Bryan L. Arreo

As a science educator and an art fan myself, I have this intuitive lens on the marriage of art and science. While the two disciplines may seem quite different on the surface, it's agreeable that there are intersections in between.

Exploring them can deepen our understanding of both. Both science and art involve a process of creative inquiry. In science, researchers must use their imaginations to develop hypotheses and design experiments to test them. Similarly, artists use their imaginations to create works of art that communicate their ideas and emotions to others.

Both science and

art rely on observation and feeling. Scientists must carefully observe the natural world and collect data to draw conclusions about how it works. Similarly, artists must observe the world around them and use their senses to create works of art that capture the essence of their subjects.

Both science and art can be used to communicate complex

ideas to a wider audience. Scientists must be able to communicate their findings to other scientists, policymakers, and the public in a way that is clear and accessible. Similarly, artists use their works to communicate their ideas and emotions to others, often in a way that transcends language barriers and cultural differences.

Finally, both science and art have the power to inspire and transform the way we see the world. Science has helped us to understand the natural world and to develop technologies that have revolutionized our lives. Similarly, art has the power to move us emotionally and to transform our perspectives on the world around us.

Empowering Education 4.0

By Jake D. Fraga

Embracing the Industrial Revolution 4.0 in the 21st-century education, the country's facilitators of learning need to keep pace with the demands of Education 4.0.

In the time of CoViD-19 pandemic, emerging technologies came into the broader light bringing hope for Education sector to implement learning continuity amid the global health crisis. Social media platforms, application programs, online and offline resources built a new educational landscape for learning, creating an era of technology-savvy learners.

However, as the nation continues to recover the learning loss by shifting distance learning to in-person modality, the salient effects of technology led to revolutionizing education. ▶p.2

TEACH-nology: A Key to Science Literacy

It is widely known and agreed upon that the goal of science education is to build a society that is scientifically literate.

Scientific literacy has many definitions, but all of them boil

down to the idea that one must have the ability to solve problems, make evidence-based judgement, and evaluate ideas and information logically. However, given the

system of society, science literacy has become one of the areas where we struggle to improve. One of the problems encountered in science education is the failure to advance teaching

By Princes April S. Arreza

approaches so to fit the changing learning demands of the present generation of learners. It is now the challenge in the part of science educators to adapt the modern approaches to teaching science. ▶p.2



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iLAB Science: A State of the Art

By Stephanie B. Abis

The enigma of the pandemic era has put a lot of pressure on Philippine education in finding the sole solution to learning loss, triggering the truth about quality education. This apparent difficulty laid down the truth that there is severely limited education especially in teaching Science in school.

For instance, the scarcity of classrooms could possibly impair quality indoor science lectures. As a result, classes are sometimes compensated by having sessions in a multifunctional area to satisfy learning. In addition, textbooks and other science educational materials



Ryan Paul Vales

are crucial, linking with the high percentage of enrolment. This insufficiency of learning resources could possibly affect learners' interest. And lastly, giving pure lecture discussion without hands-on learning activities might lead to

poor learning of Science concepts.

One of the highlights in Science Education is the conduct of experiments and discovery. But how could these activities be done or attained in the absence of Science laboratory?

Indeed, it is a challenge to all educators that teaching Science will be more meaningful through real-life activities. Thus, installing essential state-of-the-art Science laboratories for learners to widen their pace in innovation is a must.

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Empowering Education 4.0

By Jake D. Fraga

To address the need for Industrial Revolution 4.0, the Education 4.0 thrives amid the integration of cyber technology, physically or digitally, into learning. It also harmonizes machines and human beings to solve problems and create innovations to improve the lives of people.

Thus, with Education 4.0, we will expect changes in the classroom layout and teaching-learning practices in the schools. Teachers and learners, indeed, will be empowered to use more advanced technology for better learning experiences.

FROM PAGE 1

Teaching Science in the 21st century requires educators to utilize modern technology to teach learners scientific knowledge and skills. With the rise of digital era, students have been so interested and fluent in technology, making them more reliant to digital platforms. Thus, teachers must channel this interest of students in technology to teach

them scientific knowledge and skills.

While it is evident that schools have gadgets and computers to be used for different learning activities, utilization of these technologies as instructional materials in science is yet to be maximized. Digital materials could offer wide opportunities for science teachers to make their instructional

method more engaging and effective. Using digital materials in teaching science will not only enhance the technological skills of the students but will also develop their manipulative skills and critical thinking skills.

There are so many ways to utilize technology as science instructional material. Teachers could use applications that allow

learners to practice their problem solving skills. They could also use digital simulators to demonstrate some scientific concepts. Online platforms could also be used to get students' responses through online surveys and polls. Even in assessment of learning, technology could be a great tool to evaluate the learners' mastery of the competency.

Technology could be used by teachers to present lesson, administer tests, and more. With these, science educators will be able to maximize the utilization of the available technologies in school and will be able to cope with the learning demands of the students.

Utilizing technology in teaching is, indeed, a key to Science literacy.

TEACH-nology: A Key to Science Literacy

By Princess April S. Arreza

ABOUT THE NAME



Atom. Iota. **Scintilla.**

A tiny spark could be a starting point for bigger things to come.

A tiny spark could be hope turning into a full-blown solution.

A tiny spark could be doubt leading to a reassessment of beliefs and values.

A tiny spark is a potential for growth and change.

A tiny spark is paying attention to the smallest details.

Yes, **scintilla.**

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FROM PAGE 1

If I were in their shoes

By Ryan Paul Vales

The conceptual framework of the K–12 curriculum's science education depicts hands-on learning as one of the foundations for achieving scientific, technological, and environmental literacy. The K-12's Key Stage Standards for science learning made it imperative for the learners to be exposed to experiments to be scientifically literate.

Apart from meeting the K-12 standards, Paul (2022) enumerated the benefits of science experiments to students: (1) becoming more engaged when learning is associated with action; (2) allowing students to improve their critical thinking abilities, communication skills, etc.; (3) enabling them to be responsible of their own learning while having fun; (4) being assessed effectively on particular concepts; and above all, (5) preparing them for life after graduation.

Indeed, it is critical to provide students with the opportunity to experiment. Nonetheless, there are various obstacles to overcome. In our school in Tagbina, ICT and science laboratories were also used as classrooms. Is this the end of having science experiments? Definitely not.

Like my learners, I want to learn Science in a fun way, seeing cells up close or combining chemicals, etc. Waiting for the perfect labs and materials is far-fetched, so for the time being, we'll experiment anyway.

Breaking through in 2023

By Jerson Matthew Minguillan

New year, new scientific breakthroughs.

The constant search for knowledge and its practical applications for a better way of life has become the driving force behind scientists' unrelenting and persistent research endeavors. A new discovery, a novel idea, or a simple tweaking of old technology's designs, all of which can drastically change the way we see the world and live our lives.



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We are almost two months into 2023 and here are two of the possible science news that could shake up the scientific landscape.

Dengue vaccine approaches debut

Sanofi Pasteur's Dengvaxia shots have added to the vaccine reluctance of Filipinos. While some reasons were venturing towards the absurd and irrational, in Dengvaxia's case, there were numbers supporting fears of vaccination. Children who had never been infected by the virus and received the vaccine had a higher risk of severe symptoms. Most of the deaths showed signs of dengue like hemorrhages of internal organs like the lungs, brain, and heart.

Japan-based pharmaceutical company Takeda has developed a new vaccine, Qdenga, that can protect people regardless of previous Dengue exposure. It has shown in multicountry studies of more than 28,000 people that its vaccine, Qdenga, can safely protect people never infected by dengue. Dengvaxia's problem has not occurred in Qdenga's trials. The European Union approved its use and administration for individuals aged four years and older. The approval follows the positive recommendation from the European Medicines Agency's Committee for Medicinal Products for Human Use (CHMP) in October 2022.

Antidote against fire gas poisoning developed

Buildings around the globe have been vulnerable to fires. Aside from the flames, the burning materials generate toxic fumes of carbon monoxide and hydrogen cyanide. Once inhaled, these gases bind strongly to hemoglobin, cytochromes, and iron containing compounds known as "hemes," and block normal aerobic respiration. It is believed that once an individual is exposed to these life-threatening toxins, it is impossible to effectively remove them from the body. In fact, at present, there is no therapeutic approach available to overcome simultaneous CO and HCN poisoning. This poses a significant challenge in saving the lives of people exposed to toxic gases in building fires.

In a recent development, a team of researchers led by Professor Hiroaki Kitagishi from the Faculty of Science and Engineering, Doshisha University, Japan has developed a synthetic heme-model compound termed "hemoCD-Twins," that acts as an antidote for CO and HCN poisoning. How will this antidote impact our lives in the long run? Prof. Kitagishi muses, "This antidote will limit damage from gas poisoning caused by sudden fires and can be tested for the treatment of various symptoms caused by gas poisoning. With the completion of various non-clinical and clinical trials, within 5–10 years, we hope that hemoCD-Twins can be incorporated in ambulances, emergency hospitals, and other facilities. This way, future generations will have no need to fear sudden fire gas poisoning. We will proceed with non-clinical and clinical trials in cooperation with medical doctors in order to implement this compound as a therapeutic agent in the world. For this purpose, we would like to request the cooperation from the general society."

Here's hoping that we see Prof. Kitagishi's vision for hemoCD-Twins to be used as a powerful antidote come to life!