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Environmental Health Education in a Pandemic: Lessons and Opportunities

Editor's Note: In an effort to promote the growth of the environmental health profession and the academic programs that fuel that growth, the National Environmental Health Association has teamed up with the Association of Environmental Health Academic Programs (AEHAP) to publish two columns a year in the *Journal*. AEHAP's mission is to support environmental health education to ensure the optimal health of people and the environment. The organization works hand in hand with the National Environmental Health Science and Protection Accreditation Council (EHAC) to accredit, market, and promote EHAC-accredited environmental health degree programs.

This column provides AEHAP with the opportunity to share current trends within undergraduate and graduate environmental health programs, as well as efforts to further the environmental health field and its available resources and information.

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The COVID-19 pandemic has emphasized the universal importance of and need for environmental health. As a result of the pandemic, institutions of higher education have faced unprecedented changes. Decisions to keep students, faculty, and staff healthy did not come without unintended consequences as traditional means of teaching and learning were disrupted. Like faculty, students were thrust into the virtual classroom with little to no time to prepare and reported that the mid-semester transition negatively affected the overall quality of courses, which were viewed as less engaging and less instilling of learning (Garris & Fleck, 2020).

Academia collectively limped over the finish line of spring 2020 still facing a future of uncertainties. Environmental health programs scrambled to coordinate internships and meet degree requirement needs throughout the summer months in light of stay-at-home orders and nationwide emergencies. As educators, we grappled with pedagogic uncertainties surrounding the 2020–2021 academic year and anticipated the forms our classrooms could take as a result of the pandemic. The timing of instructional modality announcements throughout higher education varied, leaving some programs little time to solidify course designs and acquire the resources necessary to educate and engage

students. In many ways, it felt like March 2020 was stuck on repeat.

Hurdles in higher education will continue to be encountered as a result of the pandemic; however, environmental health programs have the opportunity to reflect on their experiences from the past year and identify opportunities allowing for the relevance and value of environmental health to be demonstrated during the pandemic and beyond. We owe it to the students of our programs, whose unbelievable flexibility and resiliency during the pandemic demonstrates their commitment to the environmental health field. In this column, we reflect on the lessons learned from the spring and summer 2020 terms and explore opportunities to enhance the means by which we recruit, engage, educate, and prepare students and future professionals.

Prepare for Instructional Adaptability

Learning is hard, especially for science-heavy based curriculums like environmental health programs across the U.S. Adding the virtual layer makes the learning process even more difficult, especially for students who can lack the necessary resources and support to fully engage in online coursework. Along with the shift to online learning, the support services and scaffolding that many of our disadvantaged students relied upon were also online and oftentimes unreachable (Gannon, 2020). The use of videoconferencing and live-streaming platforms makes it difficult for faculty to rely on student body language and nonverbal clues to help gauge understanding (Supiano, 2020). If we are to rely on instructional methods that require the use of video-

conferencing and live-streaming without all students having adequate access, we could be exasperating the inequalities we are trying to fix (Gannon, 2020). While students did not begin the spring 2020 term anticipating online learning and overall student perspectives were negative, they appreciated the flexibility afforded by online learning and research suggests that student acceptance and views of online learning might improve with familiarity, ideal instruction, and instructor confidence (Garris & Fleck, 2020).

This situation presents environmental health faculty the opportunity to critically evaluate the role of traditional classroom instruction in their programs. Investments in professional development and incentives for faculty to expand their pedagogic toolboxes can result in effective content delivery and fuel student engagement. Online educational opportunities might also boost student recruitment and accessibility to help meet demands for midcareer training and fulfill growing needs in the environmental health workforce (Goodman et al., 2019). These opportunities could become essential as higher education considers relying on virtual learning in the postpandemic world in order to allocate appropriate resources to didactic and experiential learning (Govindarajan & Srivastava, 2020). Whether or not we are willing, we must leverage virtual learning to our advantage to educate and engage environmental health students in the face of instructional uncertainties.

Embrace Innovative Means of Didactic Learning

Hands-on learning is a vital component of environmental health education because it provides students with the practical experience needed to link theory to practice. Engaging environmental health practitioners in those didactic environments has also been key to helping students obtain real-world experience that helps facilitate their transition from student to practitioner. How do we, however, simulate those environments in a virtual platform to achieve the same student learning outcomes?

Instructional materials for virtual laboratories can include free YouTube videos and commercially available software packages, and virtual laboratory training has been shown to increase student confidence and facilitate

deep learning (Smith et al., 2019). Reliance on these resources as substitutes for hands-on learning, however, assumes that their content is applicable, accurate, and accessible.

The shortcomings of available virtual materials highlight an opportunity for environmental health programs to create resources that align with course outcomes and develop skills necessary for environmental health practice. The development of virtual materials that enhance didactic learning can foster connectivity between students, faculty, and practitioners to promote student engagement within programs and the environmental health profession. The creation of a platform through which to share those materials that is accessible to environmental health programs can further support virtual didactic instruction while providing opportunities for collaboration between environmental health programs. We have the chance to reevaluate the boundaries of hands-on learning by pulling from the collective strengths of our environmental health programs to create virtual resources that set environmental health students up for academic and career success.

Explore Nontraditional Forms of Experiential Learning

Many students were not able to complete in-person internships in summer 2020 due to state, federal, and/or institutional limitations. As such, virtual internship opportunities were created to help meet environmental health degree requirements. Resources from the National Environmental Public Health Internship Program (NEPHIP), offered in partnership by the National Environmental Health Association and Centers for Disease Control and Prevention, were made available to all National Environmental Health Science and Protection Accreditation Council-accredited degree programs. NEPHIP resources allowed students to obtain valuable certifications and trainings they might not otherwise have had an opportunity to gain with other more traditional internships. It also provided a broad perspective for students to gain a variety of environmental health knowledge as compared with more traditional internships that might be narrower or focused on a specific area. These virtual internship experiences have opened the door to consider what experiential learning looks like and how it is defined by evaluating the skills that can be

obtained in person versus virtually, as well as how virtual internships affect student learning, engagement, and preparedness for the environmental health profession.

Expand Use of Social Media for Engagement and Recruitment

The unique dynamics of recruiting in the COVID-19 era might contribute to more inequalities among colleges (Gardner, 2020). If lower-income, disadvantaged students do not have the appropriate access to resources and technology to be successful in this new learning environment, they could choose to go a different route. It is more important now than ever to place even greater effort in strategic recruitment efforts to target minority students to continue to increase diversity in our programs and the environmental health field.

High-touch and personalized approaches have been shown to be the most successful in student engagement and recruitment in the digital age (Gardner, 2020). Environmental health programs can use social media to their advantage to create a broad reach of recruitment efforts beyond traditional open houses and campus visits, engage students in activities such as student environmental health association chapters, and demonstrate the value of the environmental health profession to public health and society. 🐼

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NATIONAL ENVIRONMENTAL HEALTH SCIENCE AND PROTECTION ACCREDITATION COUNCIL (EHAC)-ACCREDITED PROGRAMS

The following colleges and universities offer accredited environmental health programs for undergraduate and graduate degrees (where indicated). For more information, please contact the schools directly or visit the National Environmental Health Science and Protection Accreditation Council website at www.nehspac.org.

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