

AAI Education Committee Launches “Teaching Tools” Series

In 2016, the AAI Education Committee initiated a new session focused on improving immunology education: the Immunology Teaching Interest Group (ITIG), which serves as a resource for novel teaching tools and practices that can be implemented in courses to enhance immunology education. The session has grown from an audience of 20 in 2016 to more than 100 participants in 2018. Because of the great interest in this topic, the AAI Newsletter is launching a series to disseminate ITIG highlights.

Integrating Caring and Human Dimension to Improve Student Learning of Immunology in a Diverse Classroom

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Traditionally, student learning consists of fundamental knowledge (understanding and remembering information and ideas), the application thereof (critical, creative, and practical thinking, and managing projects), and integration (connecting ideas and people). According to Fink (L. Dee Fink. *Creating significant learning experiences*. 2013. John Wiley & Sons, Inc.),¹ however, significant learning depends on additional dimensions, including “caring” (developing new feelings, interests, and values, which will foster energy needed for learning) and “human dimension” (learning about oneself and others). How can we incorporate these dimensions in the immunology curriculum? How can we facilitate this additional learning in ways that a diverse student body can apply to the discipline?

In the following, a few classroom activities are described that build on Fink’s matrix of significant learning, effective teaching practices disseminated by the Association of College and University Educators (ACUE), and numerous workshops conducted by the Center for Effective Teaching and Learning (CETL) at California State University, Los Angeles. All of these activities have the goal of personally engaging each student in the subject matter.

1. <https://www.deefinkandassociates.com/index.php/resources/>

The first activity is launched at the outset of the course term. To capture students’ interest and immediately establish the relevance of course material to their futures, students are tasked with writing a one-page essay following the first lecture. In it, they are to define immunology, describe their career goals, and indicate how the class can help them attain their goals. Then, at the conclusion of the course, students are asked to write a reflective essay in which they redefine immunology, reevaluate their career plans, and describe which experiences from the class they could take with them.

The second activity helps demonstrate to students that what they are learning relates to them and their families. Clinical images showing patients from different racial backgrounds who are suffering from diseases in common are retrieved from the web and embedded in the lecture slides. In a similar way, to increase confidence and spur interest among students in a scientific career path, primary research articles with diverse student first-authors are discussed in class after introduction, with a short testimony on the part of the student scientist. (The AAI StoryBooth videos on YouTube are a wonderful source for these testimonies.) Students are then asked to reflect on the achievement of the chosen student researchers—an endeavor that for many students is an eye-opening and inspiring experience.

Finally, a third activity involves showing videos or short films in class about cases that have stirred controversy and inspired emotional public reaction, and students are asked to discuss not only the science presented, but also their reactions. These discussions engage the students while also affording them an opportunity to enhance their capacity to weigh and respect varying opinions. The documentary about David Vetter, the “Bubble Boy,”² is an example of an excellent resource for this learning tool. Through the film, students learn about Severe Combined Immune Deficiency (SCID) while also gaining appreciation of science’s progress and its continuing limitations since the Vetter case unfolded. In the process, students plunge into the ethical issues and questions of responsibility inherent in the case and others similar to it.

Based on anecdotal observations and student feedback, the activities described above have improved student learning and performance in my upper division elective course MICR 4600 Theoretical and Applied Immunology—and they continue to enrich my teaching experience.

2. <https://www.dailymail.co.uk/news/article-3619420/Incredible-photos-Texan-boy-lived-12-years-bubble-desperate-hope-scientists-cure-auto-immune-disease.html>