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Building a Culture of Academic Integrity [Flokstra]

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Building a Culture of Academic Integrity [Flokstra]

Part of the journal section “Forum: Building a Culture of Academic Integrity”

Brittany Flokstra “Building a Culture of Academic Integrity”

1. I bring the perspective of a scientist to this conversation. I teach introductory chemistry courses to students who are science majors. Science professors teach versions of the scientific method, which is essentially how we view and organize information. It is a way to think about the world through the lens of science. In order to be considered a scientific finding, the research must be repeatable, reproducible, and refutable.

2. There have been many conversations and discussion points about teaching our students to think in a particular, discipline-specific way (like a religion scholar, like a social scientist, etc.) All the disciplines have a unique way of approaching information, data, research, and questions that helps individuals integrate and organize that information. I think we should be overt about this with our students. We can connect the way we think about and organize information to the larger community of similar scholars. Making connections between what we are doing in the classroom and the larger community of people with careers in the discipline sets the tone for holding oneself to a standard within that greater community. Ethics then become part of the discipline itself.

3. Our undergraduate students in chemistry are not typically doing cutting edge new discoveries, we don't have to reinvent the wheel each semester when it comes to labs and information. However, beginning in their freshmen year coursework, we start applying scientific methodology in lab situations.

4. I remind my students that it is important to write down all the data and measurements as they take them. If it is not written in the lab book, it didn't happen. Even if the student can remember later that the solution turned blue, unless it was written down, it doesn't matter. They cannot make up a number because they forgot to write something down and if they do, then this is an ethical violation, similar to plagiarism or cheating. We must place emphasis on the fact that people must be able to trust what their doctor or pharmacist or mechanical engineer says, so making up numbers is not an option.

5. Students will sometimes say “it's only a lab report” or “it's only homework” and I will encourage them to think along the lines of the big picture...it's only a blood test, it's only the number I need for the correct medicine dosage, it's only million-dollar cancer research... Even though it seems like the weight of the copper metal in a lab activity doesn't matter in the scheme of things, the training that comes with consistently writing down all information is crucial to scientific endeavors.

6. In scientific content courses there is not a lot of room for personal opinion or different views on the topics, especially at the introductory levels. There is often only one correct answer that students are solving for and therefore, they feel that the stakes are very high. The first homework question in General

Chemistry 1 becomes a make or break for medical school and their dream of becoming a doctor, at least from the student's perspective.

7. These perceived high stakes (and let's be clear, getting into medical school is very difficult) are enough to drive students to cheat - there are answers for most online homework questions out on the web. What students miss, though, is that it is really the understanding of the material that will help them get where they want to go, not the finding of the correct answer. The grade will not matter as much in the end as the ability to actually think through a problem and try to solve it. No matter what kind of problem is in front of them.

8. We have been discussing the culture of integrity and ethics both in the classroom and all around our university. It is easy, then, to project forward to those same chemistry students in their future medical professions. We place our trust in doctors, or anyone that holds our lives in their hands. The hope is that they have both been trained in ethical practices and it is our job as educators to make this connection for our students.

9. So for my students I say— “the numbers you make up on this ‘it's just a lab’ are the same kinds of numbers that society needs to trust that you will NOT make up in your profession. The integrity you show as a student in lab is that of being a scientist or a medical doctor.” Let's be clear, when ethical violations happen in science and medicine, people can actually die. The trust that society places in the persons performing certain functions is profound. We have examples of scientific ethical violations right here in Iowa from recent headlines. One Iowa State researcher, who faked HIV trial data, received jail time and must pay back \$7.2 million of dollars in grant money, which the university is also responsible for. This scientist resigned his job and will likely face deportation when his sentence has been served. (Des Moines Register, 7/1/15)

10. Every year there are reported violations, such as faking DNA results in criminal cases, faking research data, and others. The point of these isn't to say that these issues are common, they are not. The point is to say that we have a system in science that will find out if the data are repeatable, reproducible, and refutable. Science is self-correcting, it may take a bit of time, but the more important the discovery or research the faster it is reproduced elsewhere and either refuted or held up.

11. It is important to realize that the trust that people must place in professionals begins with the choices that we make on a daily basis during the small moments when the stakes are not quite so high. The daily moments of homework, quizzes, lab results add up to helping create that culture of integrity that our college community must share. I think it is our job, as professors, to make those connections clear and present for our students in our courses.



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