



Enzyme Tales

Transcript

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Narrator: Enzyme Tales Author Interview. Introduction. So my name is Natasha Ramroop Singh, I am an associate teaching professor here at TRU with the Biological Sciences Department. I've been at TRU for a little over six years now. So I was hired to essentially deliver the biochemistry or biochemistry based courses within the biology programs.

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Narrator: And in terms of my background, I am a chemist, bioanalytical chemist, to be exact. And so it was really exciting for me to be able to impart my chemistry knowledge to biology students, apply chemistry to living systems, and essentially be able to show students the utility between these two sciences. Um, in terms of my role in this project, it kind of came about a little bit fortuitously in as much as it's something that I have done before, which is where I want to ask students to contribute to their own learning resources. And so that's kind of how the idea of asking students to create videos that is going to support their own learning came about. How did the idea for this Open Educational Resource come about? So as

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Narrator: the person in charge of delivering a lot of the chemistry content to biology students within the biological sciences department at TRU, it is my responsibility to ensure that students really have a good solid background in organic chemistry so that they can apply it to biological molecules and to biological systems. Unfortunately, many of the students that I encounter don't necessarily love chemistry. Some might find it a bit boring, some might find it difficult, some might see it as unnecessary. And so I think it was I was kind of challenged in that way to come up with a tool that would engage them sufficiently, kind of integrate that fun aspect, because, you know, students love fun and, of course, help me to achieve the objectives of the course itself. What sources or inspirations shaped your work on this OER?

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Narrator: So for a previous OER that we've done, which is Introduction to Genetics, one of the things that we did was to ask students to create videos to basically augment the material

in that textbook. So that's kind of how the idea started. That was so successful that I thought in my advanced biochemistry course, it's a third year course, I can ask my students to do the same thing, whereby there is a specific topic that kind of always gives people a little bit of problems. And it's essentially how does one explain or understand the mechanism of how an enzyme might work? So because this was a bit of a sore topic because the basis of it is organic chemistry, I decided that I would ask my students to delve into the literature for themselves, give them an enzyme, a random enzyme that they might encounter either in my class or in other classes as well.

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Narrator: Of course, all related to the body, living systems, and so on. And I would ask them to delve into the literature, understand the mechanism, but then give it back to me in a very, very different engaging way. So they can use whatever story line they want, for example, it can be a romance, a sci fi, crime solving, whatever they want. Some people choose to do interpretive dance. Some people do poetry, some people do it's just really up to their own imagination.

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Narrator: So I'm asking them to tell me or explain the mechanism of how the enzyme is working, but not in the traditional way. And I feel like as an educator, I always know that if you can explain something to someone in very simple terms, especially a complex topic, that means you understand it. So I was kind of guiding my students essentially to do this. How has working with the TRU Open Press supported or shaped this project? I feel like without the support of the Press, it would not, this resource specifically would not be possible, simply because the Press provides, you know, the technical support, you know, they give advice on how to, you know, lay out things, just basically, you know, outside of the funding, of course, which is super important for me as an instructor, I think that the ability to kind of give you that technical advice so that you don't have to worry about those details.

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Narrator: You just need to focus on the content was really, really helpful for me. What was it like collaborating with your research assistants or students on this project? This specific resource, really is created wholesale by students. I feel like I was just a facilitator, giving them guidelines on how to create their videos and get the right information. I would, of course, would have looked at the information that they gave and looked at the videos that they produced to make sure that they were correct, scientifically accurate, and so on.

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Narrator: But students really created this resource. And for me, it was amazing to see the result of their work kind of put into one place because I feel like I mean, I've been teaching for I don't know how long, 20 something years. And essentially, you give students projects all the time. And it's original work, or at least we hope it's original work, right? And then we read it, we grade it, and then that's it, right?

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Narrator: It just gets lost in the whole whatever. So I feel like it was really nice to see all of my students work now in this one place and that I can go back to and other students can go back to. And I just feel like it's very rewarding for them to see that their hard work is now not just lost in a grade somewhere, right? It's going to be used over and over again. Yeah. What impact do

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Narrator: you hope this OER will have on learners or educators? Specifically on learners, I really want my students to see the importance of chemistry to biology. You cannot be a good biologist without understanding and appreciating the role of chemistry and biology. You know, when students come to university, for example, and they say, I want to be a biologist, they immediately believe that chemistry is not going to be a part of that conversation. So through these videos and through this resource, I want students to see that the chemistry is vital.

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Narrator: You need to understand it, you need to appreciate it. You need to use it in order to be a good biologist, and that it can be fun, as well. It does not have to be boring organic chemistry reactions and pushing arrows all day. Yeah. What challenges did you face during the development process, and how did you overcome them?

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Narrator: In terms of the development process, I mean, this assignment, I would say, was given to students during the semester, for a grade, as well, I would say. I will like to say at this point, that there were some students that were not comfortable with having their work displayed online. And I made it very clear that if that was the case for anyone, please let me know, and they can still submit their project to me, be marked just like everyone else, and that would be it, right? And that did happen for a few people. And that's perfectly fine.

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Narrator: So it was for a grade, only students who agreed to have their work displayed online in the OER, that's what happened, right? So, I mean, the challenge, that was a little bit of a challenge. Well, not really a challenge, but something to be aware of, I should think. And then also, you know, it's during the semester. Um, they're working in groups.

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Narrator: So, you know, a little bit of time management, making sure everyone gets, you know, hits their targets on time and so on. But if you're working with students, during this semester, there's always going to be, you know, a time constraint as to how much you can do and what you can do. So I think, you know, having that expectation going in so that you understand, you know, what the outcome should be. And the outcome really is for them to appreciate chemistry. It's not to produce this fantastic, high-end video that's going to get 1 million views.

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Narrator: That's not what we're about, right? So just being realistic about your expectations is really important. Was there a moment during this project that really stood out to you? Something you'll always remember? The day that I was able to put the QR code up on the screen in front of the class for 80 something students.

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Narrator: And I said, Okay, everyone, just scan this using your phones and tell me what you think. And this was the QR code for the book itself. They knew that, of course, I was doing this, but, you know, they scanned it and they saw it. And the kind of uh, what's the word I want to say? The emotional response that I heard from everyone.

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Narrator: It was just overwhelming because they were also proud to see that their video was it's now online. They were showing that this is mine, you know, they were comparing notes. I mentioned to them, Hey, you can put in your CV now that you've contributed to an OER, which is what they've done. And I think a lot of them really, really appreciated that. So for me, that's what stood out specifically for this work, yeah.

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Narrator: How do you see the role of open education evolving in the next few years? Well, I mean, education definitely in general is evolving at a very rapid rate. And so is open education. Mostly because of, I think, you know, AI technology. For me, I think that AI is going to play a huge role in how open resources are created.

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Narrator: I think that there's going to be a lot of discussion around the ethical and responsible use of AI when we're using or trying to create these kinds of platforms for students, something that comes to mind as well as digital equity, so not everyone has access to technology, and so there are going to be some students who, you know, might be at a disadvantage if we tend towards this kind of openness. But certainly, I can see where if we do it the right way and we incorporate community based learning, we incorporate working in groups, we incorporate communication. And for me as a scientist, scientific communication, both oral and written, I think that's going to be, you know, the next age in education. Open that's the way everything is going. I just know that there are going to be there's going to be the need for checks and balances within the system to ensure quality and, you know, always remember the human element of education at the end of the day.

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Narrator: If someone is thinking about creating an OER, what advice would you give them? Well, the first piece of advice I would give is that it's going to take much longer than you think it's going to take. Okay. So, you know, time management is very, very important. I would also say take some time to look and see what's out there already.

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Narrator: There's a lot of material that's out there. Some of it is not good at all, and some of it is really great. You don't want to spend time reinventing the wheel. You want to be able to go and find something. And if you think that it's good, then you can just go ahead and, you know, remix it and adopt it accordingly. Again, that saves you time.

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Narrator: And I think maybe as well, getting the student input is always really great as instructors, sometimes there are things that you would take for granted. There are things that you would say, Oh, yeah, you know, my students understand this or they remember this, but, you know, sometimes it may not be the case. So always getting feedback from your consumers of the material is going to be a really good thing, you know, to ensure that what you create is going to be useful and sustainable over time. Yeah. Thank you for the interview. Natasha.