



Student Centered Assignments Using Pressbooks

Teaching Beyond the Podium Podcast

00:06 Micah Jenkins

Hello, my name is Micah Jenkins and welcome to the teaching beyond the podium podcast series. This podcast is hosted by the Center for Teaching Excellence at the University of Florida and our guests share their best tips, strategies, innovations and stories about teaching. Today's episode is about creating student centered assignments using Pressbooks and online publishing tool that allows you to create and distribute your own course materials to your students at no cost. We spoke with Dr. Matthew Traum, senior lecturer and associate instructional professor in the Department of Mechanical and Aerospace Engineering. Before arriving at UF, Matt was an associate professor at Philadelphia University, a student-centered, teaching-focused institution. His experiences there propelled him to create unique student experiences using Pressbooks. Matt uses a student created Pressbook as the main textbook in his engineering design Capstone courses. So what is Capstone? And what is its purpose?

00:58 Dr. Matthew Traum

So what Capstone is meant to do is take all of the coursework and all of the knowledge from everything that came before it. So basically, you know, four and a half years of undergrad engineering education, and synthesize it all into a project that is as close as possible within kind of an academic environment, to what students would experience in industry, designing and developing a product. And employers know that that's the experience where students sort of stop being students and transition into being engineering practitioners.

01:38 Micah Jenkins

Part of the reason why Matt is so passionate about student-centered assignments is that assigning textbook readings the traditional way isn't always conducive to student learning. Matt explains why.

01:48 Dr. Matthew Traum

You also have to teach the students the theory, right? Like there's - the difference between a technician and an engineer is that an engineer not only has the applied hands-on skills, but also understands the theoretical underpinning for why the machine works the way that it does, right? So that's a key difference. And there's all kinds of ways to convey theory, right? You can give lectures, you can give homework assignments and so forth. But the kind of standard way of conveying theory to students is having them read a textbook, right? That's the way that I learned 1000 years ago, is read chapters in a textbook. And reading chapters in a textbook is bad for a couple of reasons, at least from a pedagogical standpoint of view. Because one, it's passive and boring, right? And two, it's like, what? like, what does this book say, right? It's a lot of times if you don't know the material to begin with, it's like reading a foreign language to like, fight your way through a physics book, or a chemistry book or an engineering textbook. And so you can read the words without actually understanding what you're reading. And that's an experience that I had as an undergrad or grad student, very often is that you work your way through an entire chapter. And then you get to the end, and you're like, what, what did I just read, I have no understanding of the words even though I read them.

03:13 Micah Jenkins

One interesting way to get students more involved in textbook readings is through an activity called reading memos. Matt uses this method to help his students learn content that can be difficult to grasp.

03:24 Dr. Matthew Traum

There's a faculty member at Olin College in Needham, Massachusetts, his name is Sanjoy Mahajan. And he came up with this thing called a reading memo. So his idea was to say, okay, you're gonna assign textbook reading to students. And we got to spin it in some way that makes it active learning and makes it beneficial for them and helps them to understand and so what is it that the students have, that the faculty members no longer have? And the way that I always describe this is that is that I'm, I'm old enough, and I've been around enough time to know that I forgotten what it's like not to know. Right? And and that's something that it's really hard to empathize with students, not knowing if you've been around so long that you've forgotten what it's like not to know. But if you spin that around and turn it into an asset, students, they don't know, right? And if a textbook is written in a way that doesn't engage them, or help them understand, they can tell you what's wrong with the textbook, and give you insight and feedback into how to make those reading assignments better. And that's sort of the underpinning idea behind reading memos is to say, okay, students are experts in what they don't know. And if you ask students to read sections of a book, and tell you what's good about those sections, and what's confusing about those sections, then you can either you know, supplement your lecture supplement the assignments that you give the

students to sort of shore up the places in the book that weren't particularly good or you could find other resources, right, other textbooks that explain those sections better.

05:04 Micah Jenkins

After looking through his students' reading memos, Matt soon realized that there were no traditional textbooks that could explain the material in a manner useful to his students.

05:12 Dr. Matthew Traum

There is no textbook out there that teaches Capstone in what I feel is the right way. So there are certainly copyrighted Capstone, you know, textbooks out there design books out there. But a lot of them are focused on the instructor right, or they're focused on industry examples. So you hear you know, about, okay, let's talk about, you know, the space shuttle, let's talk about Volkswagen and ethical decisions about you know, hiding, you know, emission test result data, you know, but the students, a lot of them don't have any industry experience, or they have very limited industry experience, just from, from internships. And so a lot of the examples in these textbooks for how to do good engineering design go over their heads. So when I had students do reading memos from some of the conventional Capstone books that I was trying to, kind of cobbled together to make a capstone reading list, I realized that there's, there's just no way that there was going to be any available copyrighted book that I could adopt for my class that would convey the information the way that I needed it to be conveyed to teach the class well.

06:31 Micah Jenkins

There's a name for what Matt is describing here, open educational resources, or OERs. OERs are free and openly licensed materials that can be used by educators and students. They can be created by anyone, and they can be legally and freely used, copied, adapted and shared. To get the ball rolling, Matt approached the Center for Teaching Excellence and the UF libraries to create an OER for Capstone using Pressbooks.

06:55 Dr. Matthew Traum

So it's free for students to use, it's got all of the content that they need from all the different subject areas, it's got case studies, written from a student perspective, we actually have student co authors that wrote sections of the book. So case studies from

respective of student co authors, so it's written by students for students. And it's, at least in my opinion, much better than anything else that I would have been able to put together kind of using an external resources.

07:28 Micah Jenkins

In order to get the OER written and create a valuable learning experience for students, Matt decided to turn the creation of his OER into a class project.

07:37 Dr. Matthew Traum

So the assignment was to write a relevant chapter of a textbook to capture that experience, from the students' perspective. And then what I did is I said, Okay, so there, there's a bunch of different skills that you guys had to walk through, to get to the point that you're at now. So- and this was a group assignment too it wasn't individuals, it was groups of students who were already embedded in their Capstone group. So they're already working together on the capstone project. And each group was responsible for writing a chapter that I assigned to them. So one group did the creative ideation section and other group did a case study based on reverse engineering report, and other group did, you know, so like, how do you start thinking about taking customer needs and converting them into quantitative metrics? How do you quantify the quantitative metrics? So all of those things that we just walked through in the class, the students got to write about from their own perspective as a chapter in this in this textbook.

08:39 Micah Jenkins

Why was Pressbooks such an important component of this project?

08:42 Dr. Matthew Traum

So one of the nice things about Pressbooks which I think was central to this assignment being successful, and ultimately generating the book was how to describe this. It's, um, I'm harnessing the power of the commons, right? It's the same, the same reason that Wikipedia supplanted things like Encyclopedia Britannica. Because I have this whole cohort of students that have their own expertise and their own experiences. And Pressbooks allowed me to make them part of the textbook development experience by becoming co authors, and co authoring sections of the book in areas that they were expert in.

09:29 Micah Jenkins

Not only is pressbooks useful to students from an educational perspective, but it's also practical and cost effective.

09:36 Dr. Matthew Traum

So for example, in Capstone, I think I'm up to I think I'm up to eight required textbooks now. So and each one of those textbooks is like \$200, right? If you buy the book new, and if you if you lease the book, rent the book, you have access to it for one semester, and then it goes poof, and you lose it. And then all of a sudden, it's Capstone so you graduate, and now you transition out into the real world. And all the textbooks that you were using to help you through your Capstone design, and your understanding of all these phenomenon and how to convert them from theory into practice, like all of that support is all gone, right? Unless you shell out \$200 per book. So my class with eight required textbooks at \$200 a book, would be if I do the math, right, that's \$1,600 in textbooks, right. And in a lot of cases, I specify books that the students had in previous classes, but students don't buy books anymore, right, like I said they lease them. And so my assumption that because a student had a fluids class that had a required textbook, that they still had that book on hand is a poor assumption in 2021, right? That's just not, not something students do anymore. And so all of these pieces started to come together to convince me that that I needed my own Capstone design textbook.

10:55 Micah Jenkins

This Pressbooks assignment gave Matt's, undergraduate students a unique advantage that they could take with them beyond their time here at UF.

11:02 Dr. Matthew Traum

You know, okay, so yes, we do undergrad research. And oftentimes, we have undergrad students who are engaged in research, publish at least co co authored and published papers with us. But when have you ever heard of an undergrad writing academic textbook, right? That is, I've never heard of such a thing, right? And so one of the other things that was really important about and we had a whole email exchange about this, if you remember, an important thing that Pressbooks allows you to do is there's a whole section at the end about like, like giving author bios, right, and you give them a headshot, and you give them a little section where they can write about themselves. And so the students that wanted to claim credit for co authoring the textbook, were able to put their bios right there in the textbook. And when we print off the PDF, and distribute it for other people to read those bios, and the fact that those students were co authors, that's in there. And a lot of those students then went off and

when they were, you know, applying for grad school applying for jobs, one of the things that they had on their resumes that they were able to talk about, in, you know, grad school interviews and job interviews was this experience of writing an academic textbook, which made them totally unique from any of the other candidates for those positions. Because it's an experience that undergrad students just are never given.

12:27 Micah Jenkins

Future students will also benefit from this assignment. Matt plans to continue expanding his OER with each passing semester.

12:34 Dr. Matthew Traum

The book is far enough along now that I've at least published sections of it, chapters of it. And I use those chapters in my class, as assigned reading. And by the way, I have the students do reading memos on those sections. And I think eventually, what we'll be able to do is have the student like, like future students, not only do reading memos, but actually go into Pressbooks and edit the chapters as they're reading them. Right? So it's actually better than a reading memo. Because with a reading memo, all you can do is complain about what you read, right? But with Pressbooks, as soon as can actually go in and make revisions to improve the content, right. So it's much more like Wikipedia, than it is like Encyclopedia Britannica.

13:19 Micah Jenkins

If you want to create your own open textbook, Matt has three simple steps you can take.

13:24 Dr. Matthew Traum

Step one is figure out what you want the book to do. Step two is to see if something like that already exists out there. And then if not, then step three, I think is to reach out to CTE and UF libraries to get access to the resources to put together a Pressbooks account and engage co authors and students in the writing process.

13:45 Micah Jenkins

Matt is really proud of the work his students were able to accomplish and he practically glows when he talks about their incredible achievement.

13:51 Dr. Matthew Traum

The thing that surprised me the most was the professional level quality of the final product that we were able to produce with the team, right, to have the students generate the content and then to have you know, myself or one of the other teaching team members go through and sort of, you know, edit it and critique it and put it all together into a final form. We produced something that is indistinguishable from an edited published textbook.

14:23 Micah Jenkins

Thank you for listening to this episode of the teaching beyond the podium podcast series. For more helpful resources developed by the Center for Teaching Excellence at UF, visit our website teach.ufl.edu. We're happy you joined us and we hope we can see you next time for more tips, strategies and ideas on teaching and learning at the University of Florida.