

00:00:00,000 --> 00:00:04,297

Alright, so hello everyone. My name is Chris Bender and

00:00:04,297 --> 00:00:08,900

I'm going to be talking about my general chemistry lectures,

00:00:08,900 --> 00:00:14,353

which is what I have gone through the training to sort of modify. So

00:00:14,353 --> 00:00:20,918

I will mention that I took the engaged pedagogy course back in May/June of last year.

00:00:20,918 --> 00:00:26,260

That was when the pandemic crunch was happening and we were all insanely going through this.

00:00:26,260 --> 00:00:30,000

But if you notice, the list of people today, you'll see a lot of science people

00:00:30,000 --> 00:00:33,830

and there's a good reason for that that I'll mention in just a second.

00:00:33,830 --> 00:00:37,506

But I'll also point out that we had to make the decision about getting

00:00:37,506 --> 00:00:41,600

into this course way before the pandemic was a thing like we were like,

00:00:41,600 --> 00:00:44,640

yeah, we're just going to do this. And then, yeah, then we got hit.

00:00:44,640 --> 00:00:50,365

So there were sort of two reasons for me to do this engaged pedagogy and one was because the

00:00:50,365 --> 00:00:54,450

Smith Building was going to be shut down. We didn't know exactly when,

00:00:54,450 --> 00:00:57,508

but we knew it was going to do that and then that was going to shut off

00:00:57,508 --> 00:01:02,236

all of our classrooms in there. And so we were thinking, OK, if we can start teaching in a hybrid

00:01:02,236 --> 00:01:06,414

mode where you know maybe we just meet on Tuesdays and then they do

00:01:06,414 --> 00:01:10,662

everything offline or online on Thursdays, that would give 50% more classroom

00:01:10,662 --> 00:01:14,962

space back. And then the pandemic hit and we were all online. It didn't matter.

00:01:14,962 --> 00:01:20,986

But the other thing that was motivating this, this change to a different modality

00:01:20,986 --> 00:01:27,690

was that CHEM 111 was identified, still is identified, as a class that has a very high DFW rate.

00:01:27,690 --> 00:01:31,940

I mean, it's in the... it's up there. I don't. I saw a list. I couldn't find the list,

00:01:31,940 --> 00:01:35,342

but it's in the top ten of courses at

00:01:35,342 --> 00:01:42,170

Upstate that has a rate that's too high and that is especially now getting noticed.

00:01:42,170 --> 00:01:48,930

So we wanted to change the way it was being taught. So just to give a little evolution of like

00:01:48,930 --> 00:01:54,792

how I was teaching and then how I am teaching now for the first 20 ish years I taught in a quote

00:01:54,792 --> 00:01:59,947

traditional lecture style. I put that in quotes because I was doing exactly what Kristi Miller

00:01:59,947 --> 00:02:05,460

was just saying not to do by picking on specific people all class long. Not the same people,

00:02:05,460 --> 00:02:08,884

different people, the whole class, but I will admit that in the student

00:02:08,884 --> 00:02:12,909

evaluations there were people that love that because they knew it wasn't

00:02:12,909 --> 00:02:19,030

just the one person in front that was going to answer every question. It was very egalitarian, but

00:02:19,030 --> 00:02:22,043

there were of course people that hated it because just saying I don't know

00:02:22,043 --> 00:02:25,800

the answer didn't get them to go to the next person. Like I would say, well, let's figure this out.

00:02:25,800 --> 00:02:30,970

Let's figure this out. So I kind of, when I was lecturing in that style,

00:02:30,970 --> 00:02:35,770

I didn't answer any questions. I posed questions and then these students answered them all.

00:02:35,770 --> 00:02:41,336

So taught that way for a long time, that sort of ingrained in how I was teaching. But then spring

00:02:41,336 --> 00:02:46,682

2020, of course pandemic. We all went online and that mode of teaching was not going to

00:02:46,682 --> 00:02:51,805

work, at least not for my class online. So I did flip the class at that point and

00:02:51,805 --> 00:02:57,440

then we finished the training and then thankfully now it's still flipped. It's still a flipped class

00:02:57,440 --> 00:03:01,900

but now at least we're in person. So it was online, flipped during the pandemic

00:03:01,900 --> 00:03:06,460

and now it's in person. And when we talk about the flipped classroom,

00:03:06,460 --> 00:03:12,095

that is where all the lectures happen outside. I make videos of that and then in

00:03:12,095 --> 00:03:17,771

class we work problems together in groups. And if you look at the conventional wisdom

00:03:17,771 --> 00:03:23,990

and this is what was taught to us in the engaged pedagogy class was that,

00:03:23,990 --> 00:03:29,275

you know, keep lecture short. And so here's this. First one is a study that was published

00:03:29,275 --> 00:03:33,941
in online classroom saying that at least the University of Wisconsin students

00:03:33,941 --> 00:03:38,828
wanted lectures that were 15 minutes or less, and edx,

00:03:38,828 --> 00:03:44,170
which is that hybrid thing that was started by Harvard and MIT, and now it's a private company,

00:03:44,170 --> 00:03:49,905
whatever, but they run all these massive open online courses. They state that their lectures

00:03:49,905 --> 00:03:55,580
should be less than six minutes. Uhm, if you go, if you watch any of those TED talks,

00:03:55,580 --> 00:04:01,490
they're famously 18 minutes, no more. Even if you're super famous, that's it. You get 18 minutes,

00:04:01,490 --> 00:04:07,880
and even our beloved TechSmith, which is going to be out the window next week,

00:04:07,880 --> 00:04:13,744
what they say is what they want are lectures that are less than 20 minutes with a preference

00:04:13,744 --> 00:04:17,700
of three to six minute ranges, and they even have this data to back it up.

00:04:17,700 --> 00:04:24,070
The green bars are the instructional videos, the red bar, the Gray bars are the informative.

00:04:24,070 --> 00:04:27,530
I don't know really what the difference is there, but there's a formative versus instructional.

00:04:27,530 --> 00:04:31,850
So you can see that most of their it's like, yeah, this sort of three- to six-minute thing,

00:04:31,850 --> 00:04:36,482
and nobody wants to watch these really long ones, but that's what the outside of

00:04:36,482 --> 00:04:41,430
this university people are saying. So what about the Upstate students?

00:04:41,430 --> 00:04:47,530

What do you think their preferences would be? Does anyone have...I'll ask you a question.

00:04:47,530 --> 00:04:50,750

I won't call on any specific person because I know I can't do that,

00:04:50,750 --> 00:04:55,040

but you guys aren't millennials either, right? You are Gen Xers and other.

00:04:55,040 --> 00:05:01,630

So students want longer or shorter? Did they want the six-minute videos? Do they want the-whatever?

00:05:01,630 --> 00:05:05,581

Does anyone have a? 10 minutes? OK,

00:05:05,581 --> 00:05:11,857

so I gave a little...so during the switch, during the pandemic switch

00:05:11,857 --> 00:05:17,921

to online I had been lecturing regularly but then I started making videos and just because I

00:05:17,921 --> 00:05:24,375

had been teaching the same course for 20 years I kept it sort of the same length like the videos

00:05:24,375 --> 00:05:28,871

were 50 minutes long usually. and when I polled the students

00:05:28,871 --> 00:05:35,300

I said what do you want and, based on the polls 68% said we want it to act like a normal course.

00:05:35,300 --> 00:05:38,676

That's what we're used to, and that's what we want. And then a third were like

00:05:38,676 --> 00:05:44,080

now shorten that stuff. I would I want more videos, but you know, I want them to be shorter.

00:05:44,080 --> 00:05:49,380

But that was also pandemic. That was new to pandemic. Like people weren't used to doing online

00:05:49,380 --> 00:05:54,600

stuff. So just last week I polled my current class and said, do you want 50-minute videos

00:05:54,600 --> 00:05:58,800

or do you want them short? Do you want a lot of short ones or fewer long ones?

00:05:58,800 --> 00:06:04,660

And my... it was the same data! Like they want the longer videos

00:06:04,660 --> 00:06:09,370

because, of course, they can stop and pause and rewind all that stuff even for longer videos.

00:06:09,370 --> 00:06:15,480

So I'm not sure what kind of stuff people are watching at the University

00:06:15,480 --> 00:06:22,110

of Wisconsin or EdX or whatever. I don't know, but I can say my students don't want that.

00:06:22,110 --> 00:06:29,079

They want long-form videos. [Chad Mueller} My students replied similarly, they didn't...

00:06:29,079 --> 00:06:32,790

they just had a hard time remembering which ones they watched and didn't watch.

00:06:32,790 --> 00:06:37,290

if they're little. [Chris Bender} I can see that, too. I didn't ask the Whys, they were just like

00:06:37,290 --> 00:06:42,909

yeah, we want the longer-form videos. So which is good because making lots of, for me personally,

00:06:42,909 --> 00:06:48,365

just making lots of little videos, especially some of the problems that we do in chemistry

00:06:48,365 --> 00:06:52,100

are more than six minutes long. And so it's like I'm going to cut this in half.

00:06:52,100 --> 00:06:56,110

Watch the exciting conclusion to this problem in the next video.

00:06:56,110 --> 00:07:02,933

Like I don't...we're not doing that. So yeah, 50 minutes gives me lots of time to do that.

00:07:02,933 --> 00:07:09,452

Alright, so there's that. So when we were online and we were all dealing with Collaborate or

00:07:09,452 --> 00:07:14,410

however you were trying to get the information out, we were doing,

00:07:14,410 --> 00:07:19,053

you know the lectures, were prerecorded. They watch those, and then they would come to class

00:07:19,053 --> 00:07:23,248

and do these worksheets and I would break everybody up into groups, the breakout groups.

00:07:23,248 --> 00:07:27,010

But of course, we never turned on cameras because bandwidth issues

00:07:27,010 --> 00:07:32,925

were an issue. And I would, at first, I just threw problems on this breakout group and then I would

00:07:32,925 --> 00:07:36,480

wait for answers to come. And I would cycle through the six or eight

00:07:36,480 --> 00:07:39,730

breakout groups and sort of like prompt people, will you please answer this? Yeah.

00:07:39,730 --> 00:07:45,026

What do you think about this? I realized that wasn't working. So let me see if I can get a

00:07:45,026 --> 00:07:50,134

little laser pointer here. So what I decided to do was kind of assign everybody problems. So

00:07:50,134 --> 00:07:54,762

you can see that there are six problems here and each row would

00:07:54,762 --> 00:08:01,140

be taken by one person. That's not very collaboratively, but at least I could say yes.

00:08:01,140 --> 00:08:06,680

this person who's writing in on this is doing the problem. And if person #3 wasn't writing

00:08:06,680 --> 00:08:11,254

anything, I could say, hey, what's going on? And then I get the silence, you know,

99

00:08:11,254 --> 00:08:15,680

like Kristie was saying and so. So that's how we were doing these problems.

00:08:15,680 --> 00:08:19,820 And then every once in a while like this problem at the bottom. OK, that was sort of a group effort.

00:08:19,820 --> 00:08:26,196
Like, can you figure this out? But now that we're in person, I don't have to deal with individual

00:08:26,196 --> 00:08:31,620
problems for individual people, so this is more what a problem set looks like now.

00:08:31,620 --> 00:08:36,813
And it is worked collaboratively by the people in the group.

00:08:36,813 --> 00:08:41,106
So before there was virtually no communication going on between these. The people

00:08:41,106 --> 00:08:45,470
would write their answers and then just never communicate with other people.

00:08:45,470 --> 00:08:49,890
But now that we're in person, people are at tables. They have the little whiteboards.

00:08:49,890 --> 00:08:54,130
They're very interactive and things seem to be going much better.

00:08:54,130 --> 00:08:59,874
And I'll show some data here in just a minute to show them. So there are all kinds of

00:08:59,874 --> 00:09:05,292
activities that we can do as well, and this is actually a screenshot

00:09:05,292 --> 00:09:10,280
of what's called PFET Simulator. I don't know if it's going to work. OK.

00:09:10,280 --> 00:09:16,720
Maybe I shouldn't have done that. I'm going to a web page, so. The screen. OK, Yep.

00:09:16,720 --> 00:09:23,118
So there's a bunch of these different PHET

00:09:23,118 --> 00:09:26,952
simulators that are out there that cover all kinds of different science, chemistry,

00:09:26,952 --> 00:09:33,260
and physics and other kinds of things. And so what we can do is, in class I'll create

00:09:33,260 --> 00:09:38,474

a series of questions about making atoms, for instance, and so they have to sort

00:09:38,474 --> 00:09:42,470

of move things around, and it will tell them to do this kind of stuff,

00:09:42,470 --> 00:09:45,910

and then it tells them, Oh well, that's not a stable configuration of an atom.

00:09:45,910 --> 00:09:52,560

And so they can sort of get the build...work as a group, so they're seeing what's going on.

00:09:52,560 --> 00:09:56,740

And so there's a lot of these different simulators, so I really like those.

00:09:56,740 --> 00:10:00,490

UM, that's all I really want to show for that. And.

00:10:00,490 --> 00:10:03,490

[no speech detected]

00:10:03,490 --> 00:10:08,430

[no speech detected]

00:10:08,430 --> 00:10:13,210

And so just how the class works in general: the videos are posted prior to class.

00:10:13,210 --> 00:10:17,626

I don't lecture at all in person anymore. It's all prerecorded videos.

00:10:17,626 --> 00:10:21,850

I do give a daily one-question quiz.

00:10:21,850 --> 00:10:28,776

I started when we were online doing that. With that program now the name escapes me

00:10:28,776 --> 00:10:33,290

'cause I don't use it anymore. Padlet. I did it in Padlet before,

00:10:33,290 --> 00:10:38,210

but now we've adopted a new OER source and they have an online homework thing,

00:10:38,210 --> 00:10:41,707

so I just create a one-question quiz in there that at least keeps the students

00:10:41,707 --> 00:10:44,780

motivated to keep watching those videos 'cause that question is directly

00:10:44,780 --> 00:10:48,190

related to the video that they should have watched for that day,

00:10:48,190 --> 00:10:52,977

that day's work. Students do work in groups, same groups all semester and there are

00:10:52,977 --> 00:10:56,890

no more than six people 'cause each table doesn't have more than six people.

00:10:56,890 --> 00:11:01,225

I have found some pluses and minuses to this. So I didn't... the groups sort of

00:11:01,225 --> 00:11:04,980

just formed themselves the first day of class and then they were locked in

00:11:04,980 --> 00:11:10,802

there. And for whatever reason, certain groups are made up of super people with

00:11:10,802 --> 00:11:16,797

great brains and they just get it all. And then there's other groups that are

00:11:16,797 --> 00:11:23,670

less robust and they are struggling. So when I have a problem set I might have five questions,

00:11:23,670 --> 00:11:28,610

one for... Certain groups get through all 5. Another group gets through one.

00:11:28,610 --> 00:11:33,297

I do post all the questions in Blackboard. You know every week so they can see all

00:11:33,297 --> 00:11:37,330

the questions that they should have done. But the... and I've even talked to Jennifer about this.

00:11:37,330 --> 00:11:41,712

Should I mix and match the groups? And I've actually gotten a little pushback

00:11:41,712 --> 00:11:45,556

from the good groups because they actually hold each other accountable. If

00:11:45,556 --> 00:11:50,130

they don't get through all the problems, I've actually heard them say, hey, I know it's Friday,

00:11:50,130 --> 00:11:53,540

but let's all work these problems and then talk tonight and see what you got

00:11:53,540 --> 00:11:58,747

for an answer. Like that's not me. That's just them doing it on their own. And so yeah,

00:11:58,747 --> 00:12:05,416

so the good people are getting even better and the bad people, I just have to spend more time in

00:12:05,416 --> 00:12:08,240

class as I'm going around. Like yeah. You, the good group? Oh yeah,

00:12:08,240 --> 00:12:11,580

you got that right. Now with a bad group. OK, now let's talk about this. Why did you do this?

00:12:11,580 --> 00:12:16,955

Yeah. yeah we do. They use all those little handheld whiteboard things and I switch around

00:12:16,955 --> 00:12:22,248

who's writing the answers to make sure that everybody is getting experience with that.

00:12:22,248 --> 00:12:26,990

We do have periodic in-class quizzes, but that's after they've had tons of practice.

00:12:26,990 --> 00:12:31,160

And of course, we have in-class exams that are spread throughout the semester.

00:12:31,160 --> 00:12:35,083

I'm in one of these active learning classrooms and they have all these

00:12:35,083 --> 00:12:38,994

little barriers that you can put up. I have never used those and I haven't

00:12:38,994 --> 00:12:42,750

needed to. Like when I give the test or quiz, they just are looking at what they have.

00:12:42,750 --> 00:12:45,471

Of course, I have multiple versions so that looking at the person next

00:12:45,471 --> 00:12:52,230

to them isn't going to help them, but I don't see the wandering eyes, which in the old way I thought

00:12:52,230 --> 00:12:56,960

people were always looking around. So yeah. This is...I don't know what's happened there, but yeah,

00:12:56,960 --> 00:13:01,888

they don't expect it. So let's talk about results because we're science people. We like to

00:13:01,888 --> 00:13:06,940

do that that it turns out so this graph is showing the just W rate.

00:13:06,940 --> 00:13:10,925

The withdrawal rate for classes

00:13:10,925 --> 00:13:15,203

Spring 2018, fall 2018. Uhm, Spring 2019,

00:13:15,203 --> 00:13:20,510

Fall 2019 and then, of course, there was pandemic years which I didn't plot.

00:13:20,510 --> 00:13:24,660

all of those and this last one for fall 2020 is in red because that was scary.

00:13:24,660 --> 00:13:31,220

These are just the people who withdrew. This isn't the Ds and Fs which would add a lot more to this,

00:13:31,220 --> 00:13:36,662

but then for this semester, it's significantly down. Like the drops are

00:13:36,662 --> 00:13:40,027

only 21% and this is not including any of the Scholars Academy kids

00:13:40,027 --> 00:13:43,763

'cause I have a lot of them in there. So this is excluding those because

00:13:43,763 --> 00:13:47,370

they don't drop. They can't drop. And they're usually better students anyways.

00:13:47,370 --> 00:13:53,086

So this is just the college students. But yeah, so I'm thinking that this whole

00:13:53,086 --> 00:13:59,372

flip thing might be working. I don't know. At least they're staying in, so there's there's that.

00:13:59,372 --> 00:14:04,992

It's yeah, maybe. Makes my Dean happy, too. So like I said,

00:14:04,992 --> 00:14:10,450

the flipping seems to be working at least by the withdrawal rates. It's much lower compared to

00:14:10,450 --> 00:14:14,350

previous semesters. The Daily Quiz is just make sure that people are keeping up with the material,

00:14:14,350 --> 00:14:17,590

but it's one question so it's not like, oh I missed it, but it's just one question.

00:14:17,590 --> 00:14:22,972

So and I threw out their lowest three anyway, so there's that. And then also, I'll just mention

00:14:22,972 --> 00:14:28,960

don't be afraid to make long videos, because sometimes students want them. And that's all I got.

00:14:28,960 --> 00:14:31,701

That was right at 15 minutes. [clapping]