Online Instruction: Busting Misconceptions and Providing Best Practices for Engaging Students

Dr. Kerrie Douglas, Purdue University Assistant Professor of Engineering Education, talks about misconceptions of online learning - from both faculty and students - from a NSF-funded study to develop an evaluation framework for large STEM online courses. She shares best practices to connect faculty and students in a meaningful way.


NSF Award: https://www.nsf.gov/awardsearch/showAward?AWD_ID=1544259&HistoricalAwards=false

TRANSCRIPT

We love being on campus. I really enjoy being in the classroom and physically being present with my students and being able to go up and interact with them one on one. All of us are missing the time that we'll have together this semester. But when we talk about the actual just learning part of the university experience, we can still accomplish the same learning goals that we had set even when we were in person. It may be different but it's still possible to have a good quality education. So over the years myself and others have started to notice misconceptions about online learning and I thought it might be a good idea to just kind of go through some of those to remind what is the truth, what's possible, and not be worried about, or be so worried about what moving to virtual learning means.

Misconception: Online Learning is Worse Quality Learning
One of the misconceptions I think is really prevalent that's out there is that if it's online learning that somehow it is worse quality than an on campus experience. You can find low quality courses on campuses all across the country and the world just as easily as you can find low quality courses online. Now the poor quality online version have at times made the news and people have taken some advantage, but this is Purdue we're talking about. The same professors that were teaching in person here on campus that have been vetted by the university and hired are now the same instructors that the students are having. We're not all of a sudden bait and switch things. This is the same instructional support team, the same TAs. So quality's really dependent on the qualities of the lesson, the course, and quality of the learners, and how those two things come
together. Is this course meeting the needs for those specific learners, and how that's being done. So whether an online learning opportunity is good or bad is how it's done.

**Misconception: Online Learning is Impersonal**

Another misconception is that online learning is by default, or by nature, impersonal, or isolating, it's very passive, it's boring, it's something I go and do on my own. I think it's good to remember that you know it doesn't have to be, again it's how it's done. And so it's entirely possible to do group projects. It's entirely possible to take the time to connect with each other, it's just how it's done. For example if we create groups of learners that can connect offline in their own communities, whether its connecting through a Google doc, or using a Flipgrid, or other apps that allow for video uploads. There is also discussion boards. There are a number of ways that learners can connect with each other, but it does take some thought. When you take the time to think through you know how to create that meaningful learning opportunity and engage more learners then we can make those things happen.

So another thought on that is, researchers for years have found that just sitting and passively watching in lecture is not a particularly effective way to learn. We learn best by hearing and doing, by interacting. And so one way that this can be done in online pretty readily is by "chunking" the lesson down, or the lecture down into more tangible pieces and then posing questions and prompts back to the learner so that they'd have time to digest that information and then start to think about what else they can do with it.

**Misconception: Cheating is Easy in Online Learning**

Another misconception is that cheating is really easy in online learning, or that courses are automatically way easier because it's online. Or courses that are online are more flexible. The content and the assessments posed don't have to be a whole lot easier, or even easier at all, than what they would be given in person. At Purdue, the Teaching and Learning Technologies group has on their website posted a number of ways that instructors can assess the students and still maintain the integrity of the exam. For example, you can have electronic proctoring. We have options that are both for free, or paid for, and they would know if a learner has clicked on a different page or you can set the time limit for the exam so that it's only accessible. There are a number of ways to prevent and do quality control.

**Misconception: Group Projects are Not Possible in Online Learning**

Another misconception is that group projects are not possible. I was just recently talking with an instructor for the EPICS program, which is engineering projects and community service. They are working in teams with members of the community to design solutions that will work for that nonprofit organization by splitting the students up into groups allowing them to connect and work together in whatever way they are currently working together. Whether that's GroupMe or whatever social networking apps that they currently use, then they can just be reporting back to the instructor. So the team works don't need to just stop, they can continue doing what they need to do just not physically
in the class. They're able to talk with each other and they could go to the Flipgrid, which is again an app for uploading videos, and so they could physically show in the video “here's what we've made,” or “here's what I made,” and then the instructor can look at that video and make a video directly back to them.

Another way is setting up something like a Google Doc where the learners could contribute, and they don't even have to all contribute at the exact same time. If there are questions posed, or they're working on a document together, then they can each hop in when it's available. This is more like what the working world is like. We have engineers who are working across the globe to design the same part of an airplane. They're all maybe working on one different piece across the globe and yet that whole thing comes together and maybe those engineers never came in face-to-face contact with each other. This provides the students an opportunity to learn about teleworking and collaborating with folks when you can't be physically present. It also gives an opportunity for us to learn a little bit more about being flexible and adapting when crises arise.

Another example is in my class I ask the students how they wanted to resolve the issue. We had an assignment in groups and we've been planning for it all semester. When we first heard that classes were going be canceled, I had this like “oh no, what I am going to do!” moment. They're supposed to do presentations in class... they've been working on these activities... and final projects? And so, I just put it back to the groups and asked, “How do you want to handle this?” They are already currently connecting with each other through a number of mediums that are online, or electronic, and they started coming up with solutions. So I think if we utilize the resources that we have, that these are digital natives so to speak, that they know more of what's out there probably than we do. I don't know all of the social networking apps and which ones work best for what, but our students probably do. If they're included in being part of the solution, I'm sure they will help us come up with some really creative ways of doing group work. And actually, during this time, I think it's possible for some innovation to come about. Maybe through this time where we're having to be more resourceful and creative and think outside of our usual box, if we keep focused on what's most important, which is our students and their learning experience, and we can let go of some of the other things then, I think we can up with some really novel ideas that we may utilize long after this coronavirus has come and gone.

**Misconception: Online Courses Just Means Lecture Videos**

Another misconception is that to move a course from on campus to online is just, “Now I'm taping lecture videos.” Moving a course to online, as we've been talking about through this misconception list, and in other videos, really requires thought and intention on how we're going to engage the learners and what other learning materials are going to be there. So in my opinion making the lecture videos are probably the easiest part about taking a course online. It's really all of the thought around how are the learners learning this information. So it would be the similar to thinking that if I just took you know a fire hose and sprayed my garden that that would suffice for helping it grow and everything. Where in reality, it needs a little bit of water, it needs sunlight, probably some...
kind of fertilizer, and right temperature conditions. So in the same way for the online courses, certainly the lecture videos and that direct instruction is important but so is also how learners are going to meaningfully interact with that content, what activities they're going to do, how are they going to be assessed, all of those type of considerations.

See more videos that talk about recording online lectures: https://youtu.be/aRIrmnKz6tc and https://youtu.be/yztS0vBrfOU