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[00:00] [background music]

Derek Bruff: [00:01] Welcome to "Leading Lines," a podcast from Vanderbilt University. I'm your host, Derek Bruff, director of the Vanderbilt Center for Teaching. In this podcast, we explore creative, intentional and effective uses of technology to enhance student learning. Uses that point the way to the future of educational technology in college and university settings.

[00:24] In this episode, we feature an interview with Mike Sharples of the Open University in the United Kingdom. The Open University is a public research university committed to increasing access to college through open admissions and online learning. It's been around for more than 40 years and it currently has more than 250,000 enrolled students from the UK and beyond.

[00:45] You may a few years ago that Massive Open Online Courses or MOOCs were getting a lot of attention in the states. I remember that our colleagues in the UK liked to point out, at the time, that open online courses weren't a novelty.

[00:59] Indeed, The Open University had been offering them for years. That said, they too got into the MOOC business, setting up a venture called FutureLearn, offering free online courses to the world.

[01:11] Not only does Mike Sharples hold the Chair in Educational Technology at The Open University but he is also the Academic Lead of FutureLearn. In his interview he draws on that experience to describe the kind of social, collaborative learning that can happen online when you have hundreds or even thousands of learners. Sharples is interviewed by Gayathri Narasimham, Associate Director at the Vanderbilt Institute for Digital Learning, also known as VIDL.

[01:38] VIDL is among many other things, Vanderbilt's MOOC production shop, which is why Gayathri was interested in talking with Mike Sharples about his experience, designing and accessing Massive Open Online Courses.

[01:49] One of the exciting aspects of producing this podcast across several units of Vanderbilt, including VIDL, is that we get to cast a wide net for interview subjects. There are half a dozen of us conducting interviews and we have a variety of interests in the field of educational technology. Gayathri met up with Sharples at a conference this summer and I found their conversation fascinating and encouraging. I hope you do too.

[02:10] [background music]

Gayathri Narasimham: [02:13] Hello, Professor Sharples. It's great that you can talk to me today for the Educational Technology Podcast. To begin with, what were your motivations to explore online learning, from your background in cognition, computer science and artificial intelligence, where did you see the lack in learning and education.

Mike Sharples: [02:33] As an undergraduate, I did my final project around developing a computer language for young people, and I became fascinated by how technology could work to support education, not just acting as a teacher, but enabling people to come together, to learn together.

[02:56] Now we have the opportunity, not just for people to learn together in a small area, but to do it at massive scale. For people all around the world with different views, different perspectives, to be able to share those, and for the technology to act as a way of supporting that, not replacing a teacher, but adding to the experience of learning, and that's what really fascinated me.

Gayathri: [03:21] I'm fascinated that you emphasize social learning and online education. Can you tell us a bit about how you came to practically realize this, that is particularly scaling social learning to large groups of learners?

Mike: [03:35] We know from more than 30 years of research that people learn best when they learn together. When you have an idea and you are sharing it with somebody else, and you are learning their perspective. Then as you get more people round the table, the opportunity to try and reach a consensus, or at least find out about people's different views.

[03:59] That could be in some broad subject, in social sciences, or politics, or it could be in some more focused area like engineering where you may have a number of different right answers and you try to come to some consensus answer. We know that people learn better when they learn together.

[04:17] What we didn't know, was whether you can really scale that up to not just ten people, or a hundred, but thousands of people, and so we've been looking at ways to design computer platforms that allow hundreds of thousands or millions of people to learn in that social way.

[04:38] We had to look at a new theory of learning. We've been exploring at The Open University, a theory of learning based on learning as conversation, the idea that all learning is a conversation. We converse with ourselves as we come to understand and reflect on our own learning, and we converse with other people as well, we share our perspectives and try to reach agreements.

[05:03] Then if you can put that onto technology, onto an online learning platform where people can, not just post their views, but can then have active discussions, and where you can bring in educators and instructors as supporters of those conversations, then you got something really powerful.

[05:24] We still didn't know whether it would scale up to hundreds of thousands of people, so we've been trying it out on a platform, on a Massive Open Online Course platform called FutureLearn and we found that it works. It really does work.

[05:37] On one course we had 270,000 people just on one course. Just one of those videos in the course there were 55,000 people discussing that video and sharing their ideas. We had a problem, which was, if you've got that richness in conversation, how do you manage it?

[05:57] We had to bring in techniques from social networks of liking and following and profiles and so on, the sort of things that happen on Twitter, on Facebook and bring those into learning. We've now managed to develop an approach that support conversation for learning, and rich, productive conversations but also manages it using social network techniques. That's very exciting.

Gayathri: [06:25] Given your concepts about learning as conversation, how do you see the

role of technology in blended classrooms?

Mike: [06:33] I think that's the next exciting area, which is to not to only have online learning but to blend that with campus learning, with learning in the home, learning in museums, how you can blend these different forms of learning together so that they appear seamless.

[06:52] You might, for example, have a free open course with thousands of people taking part, which then leads into a campus course or people learning online working with people on the campus. You have campus students who are benefiting from those rich interactions with people around the world, and people around the world being grounded in the campus experience and the instructor, educator who's available on the campus.

[07:21] If you can make it work, and we believe we can, then you're going to have an even richer learning experience.

Gayathri: [07:29] I want to backtrack a little and ask you about your learning as conversation and about the platform that you developed, where you had these kinds of social interactions, where you had people commenting on videos, how do you know that they are actually learning? How do you know that it actually worked in imparting knowledge for students and the learners to take that knowledge with them, just like they would in a university?

Mike: [08:01] It's the hardest thing in education technology is to measure effectiveness. We generally don't have any direct measures of effectiveness because we can't look inside a person's head and find out exactly what they've learned. We've got to look for proxies, we've got to look for other evidence of learning.

[08:23] One of them is learners themselves. We do surveys and interviews with all the learners, finding out what it is that they've learned and also how they've learned? What processes they've used? Whether they have used the conversations to support their learning?

[08:37] I was particularly struck by one learner who wrote in one of those interviews that with normal teaching, it's like in two dimensions. You get teaching material and you try to understand it. But when you have that social interaction, bringing in other people's perspectives, it becomes three dimensions. It gives you another dimension, so we've got the direct learner experience.

[09:02] Then we look at all kinds of other measures. We are continually measuring the way in which people learn through the types of conversation they have, and whether those conversations are just people giving different viewpoints or whether they try to reach consensus. We look at outcome measures. How many people complete the courses?

[09:26] We look at progression. Whether people then progress to other courses? Whether they progress on to a university study?. There are many different methods. There isn't one single method you can use to measure this successive learning. You have to come to it from a number of different perspectives.

Gayathri: [09:40] So you triangulate?

Mike: [09:40] We triangulate.

Gayathri: [09:41] different kinds of evidence.

Mike: [09:43] Yeah, different evidence.

Gayathri: [09:45] Do you think that learning analytics in this sense are usable in shaping the future of education?

Mike: [09:51] Learning analytics are one of these exciting opportunities of being able to use the possibilities of very big-scale learning, because when you've been working with classes of 30 children, you can get a certain amount of data, but when you've got 100,000 people, then it's just a whole new scale of information and the data you're going to get.

[10:16] You can do AB testing, for example. You can give half of them one learning experience, half another. You can try out different platform features. You can provide dashboards. Visualizations of learning for the instructors, for the educators, and even more you can feed some of that knowledge and visualization back to the learners themselves, so they can see how they're performing.

[10:40] That's a really effective way of learning. If you can get learners to set goals, to say what it is that they want to try and achieve, and then see their progress towards those goals, that's a very powerful way of learning. Analytics, we're still at the very early stages of analytics for learning, but it's going to be a powerful tool.

[11:00] I think the main aim has to be analytics for action. There's no point in just collecting a lot of data. You have to know what you're going to do with it, how you're going to use it to improve learning as it progresses, but also at the end of the course, being able to look back at that course and say, how would you make it better? How would you make it different? There's a cycle of analytics and design which we're still trying to achieve.

Gayathri: [11:26] We see in these early days of the massive, open online courses, a lot of the analytics have focused on the big pictures. Using big data mining, they've shown us a lot of trends in education, and ways that we can improve our courses, what learners want to see.

[11:47] Do you see that this trend is going to change over the next few years? Do you think that they've almost harvested all the low hanging fruit, and we need to be focused more on some of the deeper lessons that we can learn from here?

Mike: [12:00] I think so. That sort of data, at the most general level, gives you an indication of how the course is progressing, and to the instructor, the educator where to focus their intervention. We need to go deeper. There's some fascinating work that a colleague at The Open University is doing, Zdenek Zdrahal.

[12:21] He's looking at predictive analytics. What he's done is take a lot of data streams, and some very sophisticated ways of analyzing those automatically, to be able to predict the learning outcomes from just the first couple of weeks. In the first couple of weeks of a student's progression through a course, he can predict whether they're going to fail or not.

[12:45] It's not enough just to do that. You've then got to intervene. He's providing ways to say, for each individual learner, what an educator, what a teacher should do, to try and help that learner succeed, whether it's doing more supplementary material, taking more tests, getting support from other learners, and then also feeding that back to the learners themselves.

[13:07] What they need to do in order to progress in relation to their peers. That sort of predictive analytics is a very new area, and there are huge possibilities, because you're going deeper into the processes of learning.

Gayathri: [13:22] One of the findings that we see in our Massive Open Online Courses is, learners are coming to the course with different motivations. They're not actually there to

earn a certificate, complete the course, but they might be there to experience a particular concept, how to learn and they leave after that experience, or if they are satisfied with the amount of learning that they have achieved.

[13:50] In your experience, do you see this? Do you think that our learning in our analytics that they're focused too much on retention that seems to convey a very incorrect picture of the learning that is actually happening on the platform? They're not coming there to experience a course throughout. They're coming with a different aim.

Mike: [14:12] I'm sure that's right, and we've found exactly that. In some of our courses, particularly the ones who are aimed at adult or continuing learners, or leisure learners, then outcome measure is retention. Whether somebody completes a course is a very broad and crude measure of the success.

[14:36] There'll be many people who just want to sample, want to gain an understanding. Very often, if the course is well designed, you can gain that general understanding of a topic in the first week. It's not necessary to carry on to the whole five or six weeks of the course.

[14:54] If a course is well designed, it's a bit like a newspaper article where you read the headline, and then you read the first paragraph, and then you read the first part of it, and at each of those levels, you gain some deeper understanding. If you design the course right, there will be people who naturally will drop out in the first week, or during the first two weeks, because they'll have learned all they need to do. That's fine.

[15:19] There are other courses, particularly ones for professional qualifications, where it's important to achieve mastery, where you need to know the stuff in order to become an expert. Whether it's in accountancy, or whether it's in cyber security, there are many areas where you have to know everything. You have to gain competence. We need to design the courses to meet these different sorts of learners.

Gayathri: [15:46] Do you think that a lot of these can be achieved in a Massive Open Online Course and online learning where you do not have, for example, a lab facility or something like that? Can you still provide mastery learning in many areas?

Mike: [16:01] Yes, you can. When The Open University was set up, over 40 years ago now, it was a huge experiment. There was a lot of skepticism about whether you could do that sort

of degree level, online teaching. We've shown over 30, 40 years that it's possible, not just for the areas you might expect, but also, for instance, for science.

[16:25] We have very strong astronomy course at The Open University, where our students get access to a remote telescope. They can book time on a telescope. They can do observations, they can control the telescope. They're not just doing simulated, fake science. They're doing real science, with real equipment.

[16:45] We've got a virtual microscope, where you can look at very high definition microscope slides, and zoom in, look at it under polarized light. It's pre-prepared slides, but they're working with real data, including data they wouldn't be able to get access to at a normal university such as digitization of moon rock.

[17:07] They can look at slides of rock that was collected by Apollo astronauts on the moon, that they just wouldn't be able to in a traditional university lab. There are lots of things you can do online, even with science, that maybe go beyond some of the traditional lab classes at universities. There doesn't seem to be any area that it's impossible to do.

[17:33] At Udemy University, I know they've got an online course on surgery. You have all the courses training surgeons, but what they do is these are people already qualified as surgeons, and they get additional training, additional expertise. There doesn't seem to be any limits to what you can do at the moment with online learning. We're still exploring.

Gayathri: [17:56] One of the ideas about FutureLearn when you designed it with social learning, and learning as conversations, I would think it would be very applicable in humanities, where a are a lot of discourse needs to happen for learning to be very effective. Is this your understanding? Can you tell us a little bit about it?

Mike: [18:15] Yes. We haven't shied away from humanities learning and even controversial topics. One of our courses was on Muslims in Britain, another one on climate and climate change. We were prepared for lots of very vehement arguments. We found people who were taking part in these discussions, who were at odds with the consensus, so we had the climate change deniers.

[18:49] The way the conversations worked was that, the people who responded didn't just say, "You're talking rubbish." But they tended to respond with, "Well, that's very interesting

viewpoint, can you provide evidence? Can you justify it?" The community seemed to do its own moderation and that was something we were very pleased about and also quite surprised about that the community became self-moderating.

[19:15] If I'd say, the most controversial and most annoying person of all of our courses was a Shakespeare denier. Somebody on our courses about William Shakespeare who claimed that Shakespeare didn't exist and that he didn't write the plays. He was the most annoying person that we've ever had to deal with. But we've been pretty fortunate and I think that's because we have this self-regulating community of learners.

Gayathri: [19:42] What do you see for the future of colleges and universities, particularly as technology shapes that future?

Mike: [19:51] I think there are a number of possible futures. I think some colleges are going to find it very difficult to survive in an online world. There may be some traditional colleges and universities who just can't cope with the move to online. I think, many of them will see it as a new opportunity.

[20:13] There is a huge need worldwide for higher education. There is expanding population of people who are desperate to get access to higher education. It's a massive opportunity for universities to expand online and to satisfy that need for further and higher education.

[20:36] To do that we've got to move beyond our narrow constituency. We've got to look at people from other cultures, other societies, we've got to understand how people come to learn online with different technologies, different accesses, different political systems.

[20:51] It's up to us now to try and welcome and accommodate people with those differing cultures and viewpoints in technologies. That's a challenge. Some universities and not just universities, some other institutions will be able to live up to that challenge, some will struggle.

Gayathri: [21:10] Do you think that technology can be used for innovations and education beyond what's currently happening?

Mike: [21:16] There are many innovations that we're just seeing. We've produced a series of reports at the university called Innovating Pedagogy, where we've put a focus on pedagogy,

on teaching, learning and assessment and tried to explore some of these innovations that are just coming along.

[21:36] Ones like embodied learning. How can you learn about your body and how can you learn with your body? How can you make the most use of all of your senses in order to be able to learn?

[21:49] Cross-contextual learning, so how can we learn across different locations and in different locations? Learning on field trips, learning in museums, learning at home. How can you connect these sorts of learning? How can you make use of the personal devices that you have in our pockets?

[22:06] We've got really powerful learning tools, our mobile phones, our tablets, have huge potential for learning. They've got cameras, we can do as you're doing now, voice recordings, video recordings. They've also got sensors built into them so you can sense your environment. You've got temperature sensors, vibration sensors, accelerometers. so they're portable science labs.

[22:33] Each person now with a mobile phone has a portable science lab. There are lots of possibilities to make learning much more personal with your own mobile and personal technology but also shareable to be able to network with other people around the world. I think it's an exciting time for education and technology.

[22:53] All these things that we've talked about 20 or 30 years ago, about how technology can enable new forms of conversation, how you can develop intelligent tutors, adaptive learning systems, analytics and dashboard, they're all starting to happen now and starting to happen in big scale. So it's an exciting time.

Gayathri: [23:11] Do you think there will come a day when we don't have courses or classrooms?

Mike: [23:16] I hope not. Particularly courses because there's something about courses that's different to just educational materials, and we've discovered this over the last few years. We originally started putting up bits of content, open educational resources online, a video clip or simulation. I think they were OK but they didn't really work as learning resources. It's the putting them together into a story, into a narrative that makes them really effective.

[23:47] We have a course on FutureLearn around Forensic Science. That's done us almost like a soap opera. Every week you have a recreation about murder. They recreated a murder that happened in a car. Each week you had to use a different forensic technique to try and investigate that murder — footprint analysis, blood analysis. The learners on that course all work together to try and solve this murder.

[24:15] Each week it progressed, you've got more information and it was really exciting. The learners were really engaged and you just wouldn't get that if you just had one piece or individual pieces of learning. It's the course, it's the flow which is supported by the learners and the support from trained teachers and educators all working together that makes it exciting.

[24:38] I think we will continue to have courses. We will continue to have something like universities. The universities are not just about teaching. They're also about research, about a community of scholars, people working together to explore knowledge. For some of that you need to have them grounded in a real location.

[24:59] I think universities have been around since medieval times. I think they're going to survive a few more years yet. But you're going to have a much richer diversity of forms of teaching and learning, including online learning that will reach out to people who can't get onto the university campus.

Gayathri: [25:16] Given all these possibilities on the horizon what would you like to see happen in educational technology in the next three years?

Mike: [25:24] In the next three years, I would like to see some of the things we're doing now, such as learning analytics really working to closing that loop of using the analytics to inform the learners, using the analytics to inform the design of courses. So really making the analytics work for us.

[25:44] I'd really like to see blended learning working. There is good evidence that blended learning is really successful when you've got online learners working with campus learners, where you've got people taking free courses working with people taking accredited courses. I would really like to see those blends working, so that it becomes seamless from perhaps watching a T.V. program, taking an online course, doing further study.

[26:11] Lastly, I really want to see learning as a lifelong activity. It's not something you just do for a few years during your life. It's something that continues throughout your lifetime. The idea of supporting a lifetime of learning and a lifetime of people learning together so that you get friends for learning for life. That's what I'd like to see.

Gayathri: [26:33] It is exacting to be in educational technology at this time, I think. Now we have a standard question we are asking all our guests on this podcast, what's your favorite analog educational technology?

Mike: [26:46] My favorite analog educational technology, I guess two of them maybe, one is books. FutureLearn is based in the British Library and it's just the most wonderful place to work where you're surrounded by books. As you go in, you see George III Library just in front you. It is the showpiece.

[27:10] Just being able to be in a world of books and just being able to smell and touch the books. I just hope that the feel, and the touch and the smell of books are going to survive.

[27:24] [background music]

Gayathri: [27:24] I hope so. Thank you Dr Sharples, it was great that you could spend some time with us.

Derek: [27:31] That was Mike Sharples, Chair of Educational Technology at The Open University and Academic Lead of FutureLearn. You can read more about Sharples by following the links in the show notes. You've been listening to Leading Line a podcast on Educational Technology from Vanderbilt University.

[27:47] The podcast is produced by the Center for Teaching, the Vanderbilt Institute for Digital Learning, the Office of Scholarly Communications and the Associate Provost for Digital Learning. For more on the podcast visit our website leadinglinespod.com (https://leadinglinespod.com/) or follow us on Twitter @leadinglinespod.

[28:01] We would love to hear what you thought about this episode, so feel free to reach out to us. Look for new episodes, the first and third Monday of each month. I'm your host, Derek Bruff. Thanks for listening.

[28:13] [music]