Celisa Steele (00:00):

Learning technology is on the cusp of a renaissance. It's really poised to explode. Learntech is proving to be essential to the smooth functioning of society and the daily life of billions of people worldwide.

Jeff Cobb (00:17):

I'm Jeff Cobb.

Celisa Steele (00:18):

I'm Celisa Steele, and this is the Leading Learning Podcast.

Jeff Cobb (00:27):

Welcome to the first episode in a seven-part series on the frontiers of learntech. In this series we'll dig into learning technology and what lies ahead in the unmapped future.

Celisa Steele (00:38):

At Leading Learning, we are interested in theories and big-picture ideas, but we always try to bring in the actionable and the practical. So, while we are looking to the future, the near future is our focus, a future that's near enough that we might call it "the accelerating present," to borrow a phrase from Rohit Bhargava. Rohit's been a guest on the podcast before.

Jeff Cobb (01:00):

A whopping four times, in fact.

Celisa Steele (01:02):

Yes. Rohit has spent a lot of time tracking what he calls non-obvious trends, which he defines as "unique curated observation[s] about the accelerating present." And we want our look at the frontiers of learntech to be practical and valuable in the here and now, so we aren't looking years and years out—we're targeting the accelerating present, and we're hoping we might be able to offer some non-obvious views on the frontiers of learntech.

Jeff Cobb (01:31):

To help us get to those non-obvious views, we've been talking to and interviewing other thought leaders and practitioners, and we've asked them all this question "When you think about that phrase 'frontiers of learning technology,' what comes to mind?" So I think it's only fair that you and I answer that question, Celisa. What comes to mind for you when you think of that phrase "frontiers of learning technology"?

Celisa Steele (01:56):

Star Trek. I think specifically that 1960s TV show version with the voiceover during the opening credits declaring, "Space: the final frontier."

Jeff Cobb (02:07):

Well, that definitely makes sense. Technology was a big part of the draw for that show: the phasers, the transporter, and then, in later versions, the Holodeck.

Celisa Steele (02:16):

Yeah, and the Holodeck is virtual reality, which is definitely on the frontiers of learning technology.

Jeff Cobb (02:22):

And I think, arguably, the *Enterprise*'s mission to explore strange new worlds, to seek out new life and new civilizations, that's really a learning mission. I mean, what is discovery if not learning?

Celisa Steele (02:34):

Indeed. And I will say that I know I'm not the only one whose mind went to *Star Trek*. At least a couple of the folks we talked to for the podcast mentioned *Star Trek* as well. I'm guessing some of you listeners may have thought of it too. I do find it somewhat surprising that a single word—*frontier*—can so powerfully conjure up a decades-old TV show.

Celisa Steele (02:56):

But if I push aside *Star Trek*, there are some other words that the phrase "frontiers of learning technology" brings to mind. I'm thinking of words like *AI* and *XR*.

Jeff Cobb (03:07):

Yeah, I think artificial intelligence and extended reality, which includes augmented and virtual reality, are likely to come to mind for many people. Maybe not quite as Pavlovian a response as frontier/*Star Trek*, but it's still pretty common, I suspect.

Celisa Steele (03:22):

So Jeff, what about you? What comes to mind when you hear the phrase "frontiers of learning technology"?

Jeff Cobb (03:28):

Well, just like for you, AI and AR, VR, XR come to mind but also data. Data collection, data interpretation. Data is just very, very important for learntech.

Celisa Steele (03:40):

Essential even. Without data, artificial intelligence can only be so smart. AI needs generic data sets to function, and it also needs specific data about a particular user. That's how AI can help with personalization and task-specific, situation-specific problems.

Jeff Cobb (04:00):

And, when considering the frontiers of learntech, I also think of ecosystems. The learntech stack needs to be sorted out. What technology does a learning business need to survive and thrive? How does that technology talk and work together?

Jeff Cobb (04:15):

Now, virtual reality, on its own, isn't likely to be enough. It's how a VR platform fits with other systems. That's what makes data sharing and data standards so important.

Celisa Steele (04:26):

Yeah. Essential, again, I think.

Celisa Steele (04:29):

And if you're trying to figure out the right learntech stack for your learning business, we encourage you to check out BenchPrep, our sponsor for this series.

Joe Miller (04:37):

BenchPrep is a pioneer in the modern learning space, digitally transforming professional learning for corporations, credentialing bodies, associations, and training companies for over a decade.

Joe Miller (04:49):

With an award-winning, learner-centric, cloud-based platform, BenchPrep enables learning organizations to deliver the best digital experience to drive learning outcomes and increase revenue. The platform's omni-channel delivery incorporates personalized learning pathways, robust instructional design principles, gamification, and near real-time analytics that allow organizations across all industries to achieve their goals.

Joe Miller (05:15):

More than 6 million learners have used the BenchPrep platform to attain academic and professional success.

Joe Miller (05:22):

BenchPrep publishes regular content, sharing the latest in e-learning trends. To download our latest e-books, case studies, white papers, and more, go to www.benchprep.com/resources.

Celisa Steele (05:39):

Now struck us as a good time to focus on the frontiers of learntech because learning technology is on the cusp of a renaissance. It's really poised to explode. Learntech is proving to be essential to the smooth functioning of society and the daily life of billions of people worldwide. And there are three main reasons for this explosion.

Jeff Cobb (06:03):

The first reason is the world is coming off a year when the COVID-19 pandemic forced individuals and organizations to rely on learntech significantly. So the adoption of learntech has skyrocketed in a really relatively short period of time. Pretty much everyone now has firsthand experience with using learntech.

Celisa Steele (06:24):

Second—and we've talked about this a lot on the podcast—supporting technologies have improved. They've gotten cheaper, and they're more broadly available. By supporting technologies, I mean things like 5G, mobile devices, data storage.

Jeff Cobb (06:41):

And third, as we've also mentioned before on the podcast, the learntech space is really hot with investors. Lots of companies getting investments. Thinkific got $22 million in investment last year. LearnUpon got $50 million. Bizzabo, which is focused on the virtual events market, got $138 million. Udemy. which I often describe as a kind of Amazon.com of online courses, got $50 million in investment. BenchPrep, whose CEO we'll talk with as part of this series, has gotten over $28 million in investment.

Jeff Cobb (07:11):

And there are also lots of acquisitions happening out there. Community Brands, a big player in the association world, bought Pathable, which is another big virtual events provider. Symphony Technology Group bought EthosCE and, more recently, CommPartners. Both of those are LMS providers. And they also bought CadmiumCD, which is focused on events. And then Open LMS bought eThink, one of the big Moodle companies that's out there, while Learning Pool bought Remote Learner, which is another one of those big Moodle companies.

Celisa Steele (07:38):

And you just ticked off a number of examples there, Jeff, but those are just some highlights. There's a lot more investment, there's a lot more M&A activity happening in learntech.

Celisa Steele (07:49):

But those are the three reasons—the investment and M&A activity, the improvements in supporting technologies, and then the COVID-induced widespread adoption—those are the three reasons why we thought now was the time to explore the frontiers of learntech on the podcast.

Jeff Cobb (08:06):

And, to help us explore the frontiers of learntech, we're talking with some other thought leaders and practitioners, people who can speak insightfully about one or more aspects of what that phrase "frontiers of learntech" means to us.

Celisa Steele (08:19):

Around the topic of artificial intelligence in the context of learning, it's hard not to think of Donald Clark. In fact, he's written the book on the subject. His *Artificial Intelligence for Learning* was published in 2020, and he brings decades of hands-on experience with AI for learning, dating back to his work in the 1980s on intelligent tutoring. He's now CEO of WildFire, an AI content creation company, and, more broadly, he's an investor in learntech. And I speak with him for this series.

Jeff Cobb (08:50):

And Donald Clark is definitely a leading thinker on AI for learning. I think it's also fair to say that he's a bit of an iconoclast.

Celisa Steele (08:57):

Yeah, he definitely likes to take a contrarian or non-obvious stance. For example, he thinks it's problematic to view AI in terms of technological revolutions. He says the fourth industrial revolution that we hear so much about is neither the fourth nor an industrial revolution.

Jeff Cobb (09:16):

Yeah, he doesn't like that the focus is so much on the physical technology itself. He'd rather focus on the cognitive aspect. So he likes to talk about cognitive revolutions.

Celisa Steele (09:26):

Yeah, and he has a very broad definition of learning technology. He includes language as a learning technology. And so when he defines various revolutions in learntech, he's thinking about things like language, writing, alphabets, printing, the Internet, and now AI. And Donald points out that almost everything we do online is now mediated by AI—whether that's shopping on Amazon or watching Netflix for entertainment or social media like Twitter or Facebook. But note that it's *almost* everything. Learning is still the big exception, but that's about to change.

Jeff Cobb (10:08):

We also speak with Sae Schatz. Aside from having what I think is just a great name, Sae is the director of the Advanced Distributed Learning Initiative, the ADL Initiative for short. And when we think of the data in learntech, the ADL Initiative almost immediately comes to mind. That initiative is behind the development of SCORM, which was first released in 2000. SCORM, of course, is the shareable content object reference model. It's so important as a specification in the e-learning world. And, more recently, ADL has been behind the development of the experience application programming interface, better known as xAPI or Tin Can, which was first released in 2013.

Celisa Steele (10:54):

The standards, like SCORM and xAPI, are so important to the future of learntech because they help ensure interoperability. They help ensure that systems play nicely together at the data level so that data can be shared and leveraged. And playing nicely is important now, and it's going to be even more important in the future of learntech, as data becomes more and more essential. You have to have the data there for AI, for personalization, and more.

Jeff Cobb (11:23):

And the data isn't likely to all come from a single platform or system. This is where the concept of the learning ecosystem comes in. And Sae is an editor and contributor to the ADL Initiative's *Modernizing Learning* e-book, and the e-book is subtitled *Building the Future Learning Ecosystem*.

Celisa Steele (11:42):

And that e-book, by the way, is available for free. So check out the show notes at leadinglearning.com/episode265 for a link to download that.

Celisa Steele (11:53):

One of the four major sections in the e-book is on technology, and it includes chapters on interoperability, data security, learner privacy, analytics and visualization, and personalization—all very important topics when thinking about the future of learntech.

Jeff Cobb (12:10):

The learning ecosystem and the learntech stack are also part of what I talk about with Ashish Rangnekar. Ashish is a self-described lifelong learner and co-founder and CEO of BenchPrep, which makes a learning platform targeted to credentialing bodies, associations, and training companies. And he's a big believer in the necessity of organizations undergoing a digital transformation.

Celisa Steele (12:35):

I think Ashish and Donald Clark are in sync on that—and you and I are too, for that matter—this idea that we're on track for transformation, for learning and technology to merge so cleanly that it's almost nonsensical to talk about technology-mediated learning and learning that's not technology mediated. All learning involves technology.

Jeff Cobb (12:59):

And not just language-and-alphabet technologies, but Internet- and device-enabled technologies.

Celisa Steele (13:04):

Right. And this is the idea that we're more and more accustomed to some tech being involved in every learning experience that we participate in, even face-to-face classes that integrate online polling, or maybe they make use of a learning management system to post pre- and post-class assignments and resources.

Jeff Cobb (13:25):

And Ashish's company makes a platform, and, of course, he's proud of BenchPrep and believes his platform to be top-notch, but even he says it's not sufficient on its own. It's only a piece of the puzzle. A learning business needs a learntech stack, multiple platforms, and it needs those platforms to exist in an ecosystem so they can exchange information and inform one another.

Celisa Steele (13:49):

Virtual and augmented reality are some of the other subjects that came to mind when we were thinking about the frontiers of learntech. And to get perspective on XR, I talk with Sam Sannandeji. He's the founder and CEO of Modest Tree, a simulation company that develops augmented reality and virtual reality training.

Celisa Steele (14:09):

His sense of the future of XR is that, in the near future, we're still mostly in R&D mode. There are good real-world uses of AR and VR for learning, which he, of course, knows very well because he's been part of creating them, but until device prices come down, you know (think of the Oculus headsets, for example) and until there are more standards—so note again the importance of standards—until there are more standards that make the user experience and interface more consistent and familiar across devices, regardless of the maker (similar to how smartphones work about the same whether you have an Apple iPhone or a Samsung Galaxy), until that happens, Sam thinks XR is going to remain more of a limited application. But he does think that the point will come quickly where we're going to tip. Maybe not in the next three years, but maybe the next five or six.

Jeff Cobb (15:06):

So you get to hear from all four of the folks we just mentioned—Donald Clark, Sae Schatz, Ashish Rangnekar, and Sam Sannandeji—in upcoming episodes in this series.

Celisa Steele (15:28):

There are two more concepts that feel important to us to mention when thinking about the frontiers of learntech. The first is personalization, and we've touched on personalization a bit, but we want to focus on it more directly.

Jeff Cobb (15:45):

It does seem like personalization has been kind of the Holy Grail of learning.

Celisa Steele (15:47):

Yeah. Or maybe one of the Holy Grails. I think anytime, anywhere, just-in-time learning has been another of those Holy Grails.

Jeff Cobb (15:55):

And those two grails go hand in hand. If you can add personalization to anytime, anywhere, just-in-time learning, then you've really hit it out of the park.

Celisa Steele (16:03):

Yeah. And Donald Clark points us back to Benjamin Bloom for some of the earliest proof of the power of personalization. In a 1984 paper, Bloom compared mastery in learners who were taught through straight lecture alone, those taught through a lecture with formative feedback, and then those with one-to-one tuition, and he found a whopping 98-percent increase in mastery for one-to-one tuition.

Jeff Cobb (16:30):

I think it's great that he's able to tie it all the way back to Bloom, and it probably goes further back than that. But, of course, finding that many tutors or teachers—like that Bloom example, one for every learner—that's hard and cost prohibitive usually.

Celisa Steele (16:44):

But with adaptive AI, we can get to true personalization, a made-for-one experience that could potentially yield the same astounding learning benefits as Bloom's one-to-one tuition.

Celisa Steele (16:59):

And personalization came up in my conversation with Joe Miller. Joe is currently vice president of learning design and strategy at BenchPrep. So he's on the technology side now, but he's also worked on the publisher side with companies like Britannica and Cengage Learning. And here's what Joe had to say about personalization.

Joe Miller (17:20):

We need to make sure that technology's intuitive, it's easy to use, it needs to be flexible. And I think the other part too is…. How do I think about it? If you're familiar with software development, agile, one of the principles there is you iterate, is that the very first time you put something out, it's not. So you need data in order to inform how your solution is going to improve. Data analytics and personalization, being able to adapt to different learner use cases,

designs, and strategy. So not only understanding how your program is performing, but then also is it flexible and adaptable for it?

Celisa Steele (17:57):

And Joe also talked about the role of personalization in moderating the level of content for a learner, using technology to find that Goldilocks, just-right level. And I thought he had something interesting to say about the use of social learning and personalization together.

Joe Miller (18:16):

I think monitoring difficulty levels is important. If you think about how Duolingo works, for instance, the algorithm is based on feeding out questions as you answer them, right or wrong. If you answer a bunch right, then the questions ratchet up in difficulty. If you start to get a bunch wrong, then they bring it down. And the reason for that is that a learner that loses confidence will just give up and it's "Oh, this is too hard. I don't want to do it." And they're done. So when you do any of these exercises, they can't be too easy, and they can't be too hard. And technology can be just tremendous at being able to monitor that.

Joe Miller (18:55):

I think the other ingredient here is also a social component. I think if you can combine these with an ability to either share with your peers or be rewarded or recognized or something along those natures, I think that takes it to another level. It increases that engagement.

Joe Miller (19:12):

And I think stickiness as well. One of the things I've talked about is, you can be personalized, but you don't want them stranded on a personalized island. It's better to have some friends, so to speak.

Jeff Cobb (19:26):

I like that. It's a good analogy. A private island sounds great, but, if it's just you on the island, you might begin to feel like a castaway, right? You want some friends and family to share that private island with you.

Celisa Steele (19:38):

Absolutely. And so personalization and getting personalization right with adaptive AI and with social learning aspects so you're not stranded alone, but you're in community, I think that is all on the frontiers of learntech.

Jeff Cobb (19:54):

Now, the second concept we want to mention here is speed. We talk a lot about learning effectiveness, and it's undeniably important, but learning efficiency is also relevant. If we can get learners the skills and the knowledge they need more efficiently, more quickly, then that has benefits.

Celisa Steele (20:11):

Celeste Martinell is vice president of customer success at BenchPrep, and I asked her what trends in the learntech space she sees having the most potential for significant positive impact in the near future. Here's what she had to say.

Celeste Martinell (20:27):

I see a few key trends having a really positive impact in the learning space. One trend—and maybe the biggest trend in the market right now—is speed. The pandemic has eliminated the luxury of time. So learning organizations have to produce engaging and effective learning programs quickly to keep up with the pace of changing skills and knowledge needs in the market. Learntech needs to enable that speed. The best learntech solutions will make it easier and faster for learning organizations to produce, deliver, and monetize engaging and effective education programs.

Jeff Cobb (21:03):

Speed and efficiency underlie so much of learntech. A big part of the appeal of AI, for example, is that it's faster than relying solely on human intelligence. It makes me think of the chatbot that I heard was used not too long ago in the Master's in Computer Science, an online program, at Georgia Tech. The students in that program really loved an AI-powered teaching assistant that they had, Jill Watson, because she always responded. She always got right back to them.

Celisa Steele (21:32):

Yeah, and they didn't even know that she was a bot. They didn't know that she was AI and not human until after the class was over and until after they'd actually tried to nominate her for a teaching award.

Jeff Cobb (21:43):

That's great.

Jeff Cobb (21:45):

Speed is a big benefit of XR as well. A pilot in training can get much more experience logged much more quickly in a flight simulator than if all those flights had to happen in a real plane alongside a human instructor.

Celisa Steele (21:59):

So we wanted to make sure to call out these two concepts, personalization and speed, as they describe the frontiers of learntech as much as the more technology-focused areas of AI, XR, data, and learning ecosystems.

Jeff Cobb (22:20):

Because we know that no matter what the future of learntech brings it won't change the important role of reflection and learning, we want to invite you to reflect on a couple of questions.

Jeff Cobb (22:31):

First, when you think of the frontiers of learntech, what comes to mind?

Celisa Steele (22:36):

Second, out of what comes to mind when you think of the frontiers of learntech, what holds the most promise for significant positive impact on your learners and your learning business in the near future?

Jeff Cobb (22:50):

These are questions we've touched on in this episode, and they'll recur throughout the series as we invite interviewees to reflect and share.

Jeff Cobb (22:57):

Take time now to think about these questions—and then revisit them as you hear what others say, and perhaps refine your thinking.

Celisa Steele (23:05):

You can find show notes at leadinglearning.com/episode265, along with a transcript and a variety of resources.

Jeff Cobb (23:13):

At leadinglearning.com/episode265, you'll also see options for subscribing to the podcast. To make sure you don't miss the remaining episodes in this series, we encourage you to subscribe. Subscribing also helps us get some data—so important both to learning and podcasting—on the impact of the podcast. And remember again how important we think data is.

Celisa Steele (23:35):

We'd be grateful if you would take a minute to rate us on Apple Podcasts. Jeff and I personally appreciate it, and reviews and ratings help the podcast show up when people search for content on leading a learning business. Go to leadinglearning.com/apple to leave a review and rating.

Jeff Cobb (23:52):

Lastly, please spread the word about Leading Learning. In the show notes at leadinglearning.com/episode265, you'll find links to us on Twitter, LinkedIn, and Facebook.

Celisa Steele (24:03):

Thanks again, and see you next time on the Leading Learning Podcast.

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