Celisa Steele (00:00):

Out of what's on the frontiers of learntech, what holds the most promise for significant positive impact on your learners and your learning business in the near future? Ask that question now. And ask it again next month. And three months out, and six months, and a year from now. Regularly check in on the frontiers of learntech so you can use learning technology effectively to grow the reach, revenue, and impact of your learning business.

Jeff Cobb (00:32):

I'm Jeff Cobb.

Celisa Steele (00:33):

I'm Celisa Steele, and this is the Leading Learning Podcast. Welcome to episode 271 of the Leading Learning Podcast, the final installment in our seven-part series on the frontiers of learntech. Jeff and I set up the series in episode 265, talking about the big-picture frontiers of learning technology. I spoke with Donald Clark, author of *Artificial Intelligence for Learning*, in episode 266, and Jeff spoke with Sae Schatz, director of the ADL Initiative, for episode 267.

Jeff Cobb (01:10):

In episode 268, Celisa and I focused on the issues of equity and bias in the use of technology, drawing in part on the documentary *Coded Bias*, which we recommend if you haven't had a chance to watch it yet. Celisa spoke with Sam Sannandeji, CEO of Modest Tree, a simulation company that develops augmented reality and virtual reality training, in episode 269. In an episode 270, I talked to Ashish Rangnekar, CEO of BenchPrep, which offers a full-stack learning platform.

Celisa Steele (01:42):

Through the interviews with Ashish, Sam, Sae, and Donald and our conversations with each other, we've had the chance to touch on many different aspects of learntech. From specific types of learntech, like artificial intelligence and extended reality, to the growing importance of data, the increasing need for organizations to have an integrated learning ecosystem in place, the essential role of standards in making such an ecosystem work, and, at long last, truly delivering on the promise of personalized learning.

Jeff Cobb (02:18):

And we've gotten into more philosophical and ethical concerns as well: the accelerating pace of change, equity and access to learning technology, real and potential bias in the design of technologies and in the data used by those technologies. Now, in this final episode, we want to help you make sense of what these wide-ranging topics and areas might mean practically for the future of your learning business.

Celisa Steele (02:42):

There are incredible technologies being developed, and their promise for the future is huge—more effective learning, more efficient learning, learning that's more broadly and equitably distributed, learning that responds to a specific learners needs in a particular situation at a particular time. Making sure those promises pan out, that's the challenge. What can a learning business do now to make those promises come true? That's what we want to talk about today.

Jeff Cobb (03:14):

And a lot has to happen to get from here to the frontiers of learntech, where those promises of more equitable, accessible, effective, and personalized learning exist, where they're well-executed realities rather than just possibilities. Now, to help with the journey, we'll offer five suggested actions.

Celisa Steele (03:33):

And so here are our five suggested actions as a quick list. First, develop a data strategy. Second, grow a learning ecosystem. Third, conduct a feasibility study for XR. Fourth, build a governance structure. And, fifth, regularly reassess which learntech holds the most promise.

Jeff Cobb (03:56):

The suggested actions are numbered so we can tick off all five, but the order isn't important; these aren't sequential. You might not pursue all five actions or all five actions at once, but these are the kinds of actions that might make it into your roadmap for how to make the promise of the frontiers of learntech a reality for your learning business. So let's talk about each action more closely.

Celisa Steele (04:20):

One, develop a data strategy. This first suggested action is what we're going to dig into now. When we asked interviewees for their advice for learning businesses trying to figure out what to do with learntech, what to invest in, what to focus limited time and other resources on, data came up again and again.

Jeff Cobb (04:42):

When Donald and Sae answered that question, they mentioned data. As did both Celeste Martinell and Joe Miller, VP of customer success and VP of learning design and strategy at BenchPrep, respectively. Here's what Celeste had to say.

Celeste Martinell (04:55):

If you're just beginning your digital transformation, I would really focus on how the learning is structured and delivered in the learning platform and the richness of the data that you'll get from your learntech partner or partners. You'll want user behavior data from the platform and the tools you're using. And you also want insights into how your education content and program is performing. Where are your learners struggling? Where are they succeeding?

Jeff Cobb (05:19):

And here's Joe's perspective.

Joe Miller (05:21):

The very first step, in the advice I give an organization, is having vision. What is it that you want your learning programs and—really as importantly—that you want your learners to accomplish? What's that end goal? So you start there. And be aspirational, be thinking about, "Wow, in an ideal, forget about money, forget about how, but what is it that I absolutely dream of and envision?" So that aspiration part.

Joe Miller (05:52):

So you start there. Once you have that North Star, then you assess, "Okay, where am I at now? What are my programs doing today? Do I have data that can inform how I'm doing and who's using it and what I've got?" And so I've got the North Star, and I've got what I'm doing now. Now you can do your gap analysis.

Joe Miller (06:14):

That's, "Okay, what do I need to start to plug in? And can I build out from my base, or do I need to scrap everything and just start from scratch?" So, after the gap assessment, I think what you try to do is think about, how do I... first of all, back up, I have my vision and my vision in terms of time.

Joe Miller (06:36):

What do I want to do a year from now, two years, three years? Because that's going to form your roadmap, and having a idea of—and again, back to iterations, that I don't want to spend three years and then release, I want to try to get something out in the market and improve upon it. So understand where your roadmap is. Then I think the other part that a lot of organizations maybe don't do enough of is an honest assessment of their capabilities.

Celisa Steele (07:02):

Celeste talks about the richness of the data, which I take as an indication that it's not just a quantity question. *Richness* suggests a value or quality aspect as well. What can you do with your data? What insights does your data allow?

Jeff Cobb (07:19):

And Joe fits data into part of an overall approach. In moving from vision to roadmap, data is important. It's critical in that honest assessment of where your learning business is and where the gaps are and where its strengths are. And you want to rely on data in making those calls because so much rides on those decisions. Avoiding pure conjecture, and marrying aspiration and vision with real data is important to making sound decisions.

Celisa Steele (07:46):

And both Celeste and Joe get at some of the areas and key questions you'll want your data strategy to address. You'll want to look at what data you have, and you'll want to look at what insights that data can yield.

Jeff Cobb (08:00):

A good data strategy will account for all four of the levels of data use that Donald Clark describes in *Artificial Intelligence for Learning*: describe, analyze, predict, prescribe. The levels move up in terms of difficulty. Using data to describe, the first level, is easier than using data to prescribe. You want your data strategy to be driving your learning business's use of data to higher levels over time.

Jeff Cobb (08:27):

You need those lower levels in place to reach the higher levels, but know that your goal is to move to more sophisticated uses of data so you get beyond just historical data about who completed which course and when and move to a future-facing—and *future-shaping*—use of data that can prescribe what should happen. Because that's what will get your learning business into tailored recommendations and true personalized learning.

Celisa Steele (08:55):

A good data strategy will basically mirror those four levels of data use. That is, the strategy should describe what data you have from what sources, but it should also get into the higher levels. You have to analyze that data and then be clear about what you're trying to use the data to predict and prescribe because the *strategy* part of a data strategy is about using data to help your learning business meet its goals.

Jeff Cobb (09:23):

And part of using the data to meet your goals will be about formulating the questions you want your data to help you answer. Depending on your learning business's goals and needs, you might ask a question like, "What products and services do our learners need now?" or "What skills and knowledge will our audience need to be and remain successful?" so you know what offerings to develop.

Celisa Steele (09:45):

And/or your questions may be like some of the ones that Celeste mentioned: "Where are your learners struggling? Where are they succeeding?" Questions like that will help you understand how your current offerings are performing.

Jeff Cobb (09:59):

Or you might ask questions about how you can better recommend content and activities for workflow learning and to maximize learners' use of your catalog. Those are examples, but the point is your data strategy should address the questions you're trying to answer, based on what's strategically important for your learning business.

Celisa Steele (10:18):

Another aspect of a data strategy that we'll mention is, as you document your data sources, think throughout your organization, not just your learntech data. For a fuller picture of your learners, you'll want to marry up data from your learning management system with data from your association management system or customer relationship database. You might have data from an online community or a Webinar platform as well. Or information about past publications that individuals bought.

Jeff Cobb (10:50):

And you also want to think *outside* your organization. There are likely data sources that you don't own but that can give you insight into learners and prospective learners. In the United States, for example, the government makes a lot of data available. Think, for example, of the Bureau of Labor Statistics and the Bureau of the Census. And there are also a lot of thinktanks, nonprofits, and entities housed at academic institutions that conduct original research and make it freely available.

Jeff Cobb (11:19):

Georgetown University's Center on Education and the Workforce and the Pew Research Center would be examples. And there are also likely data resources specific to the industry, the profession, or field you serve. So take time to do the legwork to figure out what's available out there and how you might be able to layer that broader data with your internal data for an even deeper understanding of the market that you serve.

Celisa Steele (11:45):

I think that's such an important point. Think broadly about your data sources, both inside and outside your organization. The more data points you have, the more accurate, the more complete your understanding of your learners and your market. Jeff, I know you're fond of pointing to marketing as a bellwether for learning, and I think marketing is definitely strong in this area of mining various data sources and using that to drive conversion.

Jeff Cobb (12:14):

Yeah, marketing is traditionally very good at that. One final point about developing a data strategy: Include standards in that data strategy. Which standards are you following now? Which standards should you use? The more consistent and uniform the data, the easier it's going to be to analyze and interpret. And the importance of data standards was a key takeaway from my conversation with Sae Schatz.

Celisa Steele (12:39):

And competencies and frameworks can also be important here too, as thinking about standards. If you have data and can tag and track it against a competency framework, that's likely to also help with what you can do to interpret data about what your learners need, what they're accessing, where they're struggling.

Jeff Cobb (13:02):

And if you're looking for a learntech partner to play a meaningful role in your data strategy, checkout BenchPrep, our sponsor for this series.

Ashish Rangnekar (13:11):

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

Ashish Rangnekar (13:36):

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. More than 6 million learners have used BenchPrep's platform to attain academic and professional success. BenchPrep publishes regular content sharing the latest in the e-learning trends. To download our latest e-books, case studies, white papers, and more, please go to www.benchprep.com/resources.

Jeff Cobb (14:18):

Our second suggested action is grow a learning ecosystem. Learning ecosystems came up in my conversation with Sae, as well as standards and competencies. Sae co-edited ADL's e-book

Modernizing Learning, and, in the first chapter, a definition of learning ecosystem is used. I'll read a bit from that freely available e-book, which we also encourage you to check out.

Jeff Cobb (14:43):

"We use the phrase 'future learning ecosystem' to describe this new tapestry of learning. At the highest level, the future learning ecosystem reflects a transformation—away from disconnected, episodic experiences and towards a curated continuum of lifelong learning, tailored to individuals, and delivered across diverse locations, media, and periods of time.

Jeff Cobb (15:08):

"Improved measures and analyses help optimize this system-of-systems and drive continuous adaptation and optimization across it. Its technological foundation is an 'internet for learning' that not only allows ubiquitous access to learning, it also provides pathways for optimizing individual and workforce development at an unprecedented pace."

Celisa Steele (15:31):

So, in short, a learning ecosystem is aligned with the fact that learning is a process, not an event. Learning is, to use the terms from the ADL e-book, not "disconnected, episodic experiences" but a "curated continuum of lifelong learning, tailored to individuals, and delivered across diverse locations, media, and periods of time."

Jeff Cobb (15:54):

And I'd like to think that it's not just a move away from disconnection but a move towards connection. In nature, an ecosystem is a community. An ecosystem is living beings interacting with each other and their environment. And, when it's healthy, an ecosystem is balanced. No single part of the system is more important than another, and changes in one part of the ecosystem may impact other parts of the ecosystem.

Celisa Steele (16:21):

Yes, and learning is fundamentally about interactions among human beings and between human beings and their environment. And learning businesses have the ability to shape and influence a learning ecosystem through the decisions that they make about the people involved (the learners, the facilitators, the designers), the content they offer (the courses, the publications, the community discussions), and, important here to our conversation about learntech, the technologies used to support and connect the people and the content.

Jeff Cobb (16:56):

So, in short, a learning ecosystem is comprised of five parts: people, content, technology, and then the processes and strategies that unite them. But the whole of a learning ecosystem is greater than the sum of those five parts. Learning culture emerges from a learning ecosystem while simultaneously influencing and impacting that ecosystem. And, just as culture is dynamic and evolving, the ecosystem too is dynamic and evolving. And the two concepts really are inseparable from each other, two sides of the same coin, or, to borrow from William Butler Yeats, as hard to distinguish as the dancer and the dance.

Celisa Steele (17:37):

Oh, you're always going to get me with a reference to poetry. "O body swayed to music, O brightening glance, / How can we know the dancer from the dance?" Those are the exact lines from Yeats that you just referenced, Jeff. And it's a good point. Arbitrary or overly simple lines

of distinction may do more harm than good. Too much emphasis on any one factor—a delivery method or an approach to learning or a particular piece of learntech—may negatively impact the whole.

Jeff Cobb (18:09):

That reminds me of something Ashish said when I spoke with him. When I asked him about his advice for learning businesses when it comes to choosing learntech, he offered three considerations. First, he suggested learning leaders think about their goal. What are they trying to do? Is the learning business looking for transformation or just optimization?

Jeff Cobb (18:30):

And, second, what are the changes, the triggers that are driving the goal? What's happening beyond a learning business, out in the marketplace? And then, third and finally, what's the solution? What is the learntech that's going to help you with your goal, given what's happening in the marketplace and given what's driving change? So, he's making sure the tools and technologies don't get overemphasized.

Celisa Steele (18:54):

Right. Learntech is just one part of a learning ecosystem. When I spoke with them, Sam and Joe also emphasize the importance of having the goal in mind when picking and using learntech. They too want to make sure that organizations don't give technology too much weight at the expense of the other aspects of the ecosystem.

Jeff Cobb (19:16):

Now the third suggested action: Conduct a feasibility study for XR. This is a little narrower in focus than the first two actions we've mentioned so, again, keep in mind that all five suggested actions aren't necessarily for every organization—or for every organization to pursue right now. But we feel that, given the potential for extended reality—whether that's augmented or virtual or mixed—given its potential to make a training or learning environment more closely match the real world context in which learners need to apply knowledge and skills, it's really worth learning businesses getting clearer on what would actually be involved.

Celisa Steele (19:58):

So we're not suggesting you go out and build XR, not even an XR prototype. This would be a pre-prototype phase where you look into what would be involved, where you do a cost-benefit analysis and look at the return on investment, the potential features needed or desired, which type of XR might fit best, and what tools and technology investments would be needed.

Jeff Cobb (20:23):

And that's in keeping with Sam's advice on AR and VR, right? I mean, he made a point of saying a side-project, a skunk-works prototype often doesn't give an organization a good entrée into XR. Often it's more helpful to go in, eyes open, with a goal in mind for the use of XR and a feasibility study backing up really trying out XR.

Celisa Steele (20:47):

Or a feasibility study that shows that XR doesn't make sense, at least at this point. And even if that's the result, the work done to put together the assumptions about costs and value and dev time and uses, that can likely be updated and revisited. So you could plug in some new numbers and periodically reassess the validity of XR, VR, or AR for your learning business.

Jeff Cobb (21:10):

And the feasibility study route would also help organizations avoid getting sidetracked by the flashy, latest shiny object, which I know Sam also warned against.

Celisa Steele (21:20):

It would be helpful if organizations keep SAMR in mind. Sae brought up the SAMR Model.

Jeff Cobb (21:26):

Right. And so the SAMR Model is a framework created by Dr. Ruben Puentedura that categorizes four different degrees of technology integration in learning experiences with the goal of resulting in higher levels of achievement or better outcomes for the learners. The letters S-A-M-R stand for substitution, augmentation, modification, and redefinition. At the lowest level, the first degree, one technology tool is simply substituted for another.

Celisa Steele (21:58):

And Sae gave an example—a PDF is a technology that replaces a paper book. A PDF was substituted for a physical textbook.

Jeff Cobb (22:07):

Right, and sometimes that's sufficient. Sometimes substitution on its own delivers value. With a PDF version, now you don't have the time and cost of mailing someone the physical book.

Celisa Steele (22:18):

The substitution and augmentation phases are described as being enhancements. Augmentation is where technology acts as a direct tool substitute but with functional improvement. Think of an embedded video in the PDF or being able to search and find every instance of a word or phrase—both of those are things you can do in a PDF, but you can't do in a physical book.

Celisa Steele (22:42):

There the technology isn't simply replacing one tool for another, but it's adding a little additional improvement. Substitution and augmentation can facilitate better learning outcomes. But the last two steps, modification and redefinition, are where transformation can happen.

Jeff Cobb (23:01):

Dr. Puentedura describes modification as technology that allows for significant task redesign, and redefinition is when tech allows for the creation of new, "previously inconceivable" tasks. Experiencing losing a wing while flying a plane, for example, that's something virtual reality can provide for, but something that was inconceivable before VR because of the danger.

Celisa Steele (23:24):

It seems likely, though not necessarily always true, that to justify the time and cost of an XR solution for a training problem or a learning situation, you're going to want to get into the transformation phases of SAMR. You're likely going to want to be considering modification or redefinition in your XR feasibility study, so that it's not just a cut and paste from how you are doing things currently, but it's an exploration of what you might be able to help learners with that you can't currently.

Jeff Cobb (24:03):

Our fourth suggested action is to build a governance structure. Your learning business needs somebodies to be thinking about learntech, not only from a technical standpoint, but also with the goal of understanding the implications and dangers and opportunities inherent in the technologies.

Celisa Steele (24:21):

Those implications will run the gamut from budgetary considerations (What will building and maintaining a learntech stack cost?). It will also include ethical and philosophical decisions around learners' privacy and rights when it comes to what personal data is collected and how it's used. And it might also include issues of potential bias in the use of artificial intelligence and other automated technologies.

Jeff Cobb (24:46):

The governance structure could be charged with determining when interpretability and when explainability is needed around your learning business's use of AI and machine learning and other tech automation. We credit Christopher Penn of Marketing Over Coffee for the explainability versus interpretability trade-off, which we talked about in episode 268. But, as a reminder, interpretability is the decompilation of the technology into its source code. To use an analogy, interpretability is looking over the recipe and verifying the ingredients

Celisa Steele (25:22):

while explainability is like tasting the cake rather than looking over the cake recipe. You're going to know how it tastes. You can probably figure out most of the ingredients. Tasting is a faster, easier, less expensive way to verify the results. But it's not as rigorous or as complete as interpretability.

Celisa Steele (25:41):

So there's usually a trade-off, depending on what's at stake. When stakes are low, explainability (just tasting the cake) is often adequate. When stakes are higher, interpretability (reviewing the recipe and ingredients) may be needed. The time and expense may be justified in that case.

Jeff Cobb (26:00):

The idea is that, if you have a governance structure in place, you have a group who can debate the trade-offs and ultimately make decisions about things like when interpretability is needed versus just explainability.

Celisa Steele (26:13):

No matter their political leanings or their opinion on whether Trump's ban from Facebook should stand, I've heard many commentators and observers note that Trump's use of Facebook in publicizing the January 6th gathering near the Capitol shouldn't have surprised Mark Zuckerberg and Facebook. They should have seen it coming. They should have had people and a structure in place to be grappling with decisions like, "Hey, should a head of state have the same Facebook account that you and I have, Jeff?"

Jeff Cobb (26:43):

Hopefully the average learning business won't be getting into those sorts of murky and deep waters, but your point is spot on. Be thinking in advance about the implications of your learntech so you're better equipped to deal with any issues that arise—and some are inevitably going to arise. I'll also add that a governance structure could also be involved in considering

which standards for data and technology a learning business should adopt and use and what the implications for that might be.

Celisa Steele (27:11):

This brings us to our fifth and final suggested action: Regularly reassess which learntech holds the most promise. Out of what's on the frontiers of learntech, what holds the most promise for significant positive impact on your learners and your learning business in the near future? Ask that question now. And ask it again next month. And three months out, and six months, and a year from now. Regularly check in on the frontiers of learntech so you can use learning technology effectively to grow the reach, revenue, and impact of your learning business.

Jeff Cobb (27:52):

That's the question we asked in the first episode of this series, and hopefully you thought about it when we asked about it in the first episode. Take time to answer it again now. Maybe something you've heard in episodes since has changed or refined your thinking, and, as Celisa said, keep asking that question about what learntech holds the most promise for significant positive impact on your learners and your learning business in the future. Keep asking that periodically.

Celisa Steele (28:20):

When you spoke with him, Ashish said that we're in the second inning of a nine-inning ballgame. So, there's lots more to come, plenty of time for more developments and innovations, which means we need to regularly check in on our understanding of what's coming.

Jeff Cobb (28:36):

When you talked with Joe, he recommended looking at how other industries are using technology to see the potential for learntech.

Joe Miller (28:43):

Continuously look outside. Be inspired by what other folks are doing. It'll sound a bit funny, but I'm an avid Pokémon Go player, and part of the reason I got into it—and it's why my wife would say I'm obsessive—but I'm avid because they are continuously reinventing themselves, and the game itself changes. And I think about us, as delivering education and learning, it's important that we continue to look inside, to continue to think about how do we disrupt and reinvent and do that, and a lot of times that happens when you are inspired and you're seeing what other industries, markets, people are doing.

Jeff Cobb (29:29):

So keep an eye on fintech, retail tech, or, my go-to, martech. Look for inspiration outside the learning space.

Celisa Steele (29:37):

As you look at what others are doing with tech and as you engage and re-engage with the question of what holds the most promise for your learners and your learning business, your answer will likely suggest additional actions for you to take, beyond the five we've suggested. And, as you're doing the things that we suggested, you will, over time, establish a good foundation to refer to when checking back in on this question. The data you collect and analyze will help. The feasibility studies you conduct will help. Having governance in place will help, as will having a learning culture and growing a learning ecosystem.

Jeff Cobb (30:16):

Those are our five suggested actions. One, develop a data strategy. Two, grow a learning ecosystem. Three, conduct a feasibility study for XR. Four, build a governance structure. And, five, regularly reassess which learntech holds the most promise.

Celisa Steele (30:36):

Mileage may vary with those suggested actions. All may not apply to your learning business, and/or you might not undertake all five actions at once. Instead, you might prioritize one or two actions you can start now to help you make the promise of the frontiers of learntech a reality for your learning business.

Jeff Cobb (30:56):

This is the last episode in the seven-part series on the frontiers of learntech. We hope you've enjoyed the series, and we'd love to hear your feedback and suggestions for the future. You can leave a comment at leadinglearning.com/episode271, or you can e-mail us at leadinglearning@tagoras.com.

Celisa Steele (31:16):

We'll resume releasing episodes of the Leading Learning Podcast with a new series starting in July 2021. But the archive of past episodes is always available on the Leading Learning site, and, at leadinglearning.com/episode271, you'll find show notes, a transcript, other resources related to this series, and options for subscribing to the podcast. To make sure you don't miss the new episodes, we encourage you to subscribe. And subscribing also helps us get some data on the impact of the podcast.

Jeff Cobb (31:49):

And we'll remind you that personal recommendations are really critical in today's noisy world. Please take a minute to rate the Leading Learning Podcast on Apple Podcast. Celisa and I really appreciate that, personally, and those reviews and ratings help the podcast show up when people search for content on leading a learning business. Just go to leadinglearning.com/apple to leave a review and rating.

Celisa Steele (32:13):

We encourage you to learn more about this series sponsor at benchprep.com/resources.

Jeff Cobb (32:20):

Lastly, please spread the word about Leading Learning. In the show notes at leadinglearning.com/episode271, you'll find links to us on Twitter, LinkedIn, and Facebook.

Celisa Steele (32:30):

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

[music for this episode by DanoSongs, www.danosongs.com]