TOPcast Episode #158:
AI-Assistance Built-In: Less Obvious/More Useful

Narrator: When you know what you want for the future, you need the present to line up with your goals. UCF Online offers more than 100 fully online programs in healthcare, engineering, criminal justice and more, so you can get to your future and beyond.

(*Intro Music*)

Tom: From the University of Central Florida's Center for Distributed Learning…

Kelvin: And the University of Louisville's Delphi Center for Teaching and Learning…

Tom: I am Tom Cavanagh.

Kelvin: And I am Kelvin Thompson.

Tom: And you are listening to TOPcast, the Teaching Online Podcast, the world's greatest podcast.

Kelvin: Oh, now see, now you're pushing the envelope a little bit.

Tom: I thought I'd just throw that one in. It's been a while since I did the unjustified hyperbole. But, why not? Feeling spicy.

Kelvin: Why not? We've done world renowned, which I think is justifiable. [Chuckles] World's best is a whole ‘nother level. That's like that “Elf” movie? What is it? Is that where that is? It says, “World's best coffee.”

Tom: World's best coffee.

Kelvin: And then he goes, "Good job. Congratulations.” [Laughter]

Tom: "Congratulations. You did it." [Laughter] So, maybe that's the kind of same kind of accolade that we're giving ourselves is like world's greatest cup of coffee. We've got the world's greatest podcast for online learning from UCF and Louisville.

Kelvin: With a cup of coffee involved.

Tom: That's right, yes.

Kelvin: Or something.

Tom: Something. Yes, maybe that's what it is because I've started the coffee, and I think the caffeine is starting to hit me, and so maybe that's where my enthusiasm is coming from.

Kelvin: Enthusiasm in a cup. Speaking of podcast listener surveys, just a reminder [Laughter] – that was what we call a jump cut.

Tom: Smooth, smooth.

Kelvin: [Chuckles] Just a reminder, if you haven't already completed the 2024 TOPcast Listener Survey, we sure would appreciate it. It's a one question survey in length. If you want to tell us more of that than you can, but it's at the URL shortening service Bitly, bit.ly/topcastsurvey2024. Bitly, B-I-T-dot-L-Y/topcastsurvey2024, all lowercase, no spaces. We'd love it. It'll help us make Season 10 be even better than world's best, possibly galaxy's best.

Tom: Wow, we are aging like a fine wine.

Kelvin: We're raging. [Chuckles]

Tom: Yes, world's greatest. All right, so speaking of beverages, how about that one?

Kelvin: Were we speaking of beverages? Sure. [Laughter]

Tom: Fine wine, anyway.

Kelvin: That's right.

Tom: I see you sipping. I'm sipping. And Kelvin, what is in your thermos today?

Kelvin: What's in yours?

Tom: Mine? Mine is Tim Horton, fully caffeinated, medium roast. Not bad.

Kelvin: Not bad. That's what a lot of people look for in a cup of coffee. Not bad. [Sips coffee]

Tom: Perfect adequacy.

Kelvin: Perfect adequacy is like an oxymoron. [Chuckles] I generally try to aim a little higher than that, but, okay. So, Tom, in the thermos, in the cup here, let me just preface this by saying, our lives are subject to all manner of automated recommendations, whether it's a recommended movie on a streaming service, or a better, faster route home in the car, or something else. But my coffee today is based upon an actual human recommendation from a trusted friend and colleague. In fact, UCF’s Tim Reid, aka Producer Tim, who normally is joining us in these

recordings. He's not here today, in the background. Lurking in the background today is Producer Christine. But Tim Reid recommended this coffee. In fact, he liked the coffee so much, he bought a bag and shipped it to me.

This coffee is an organic French roast blend from Alakef Coffee Roasters in Duluth, Minnesota that Tim enjoyed just about every day at the Blue Heron Coffee House on a recent visit to Winona, Minnesota. Tim said that in addition to the taste, he was impressed by the aspiration of the roasters to find not mere adequacy, Dr. Cavanagh, but, in fact, "the perfect cup." Alakef is actually a Hebrew slang term referring to “the best” in a way that “hits the spot.” So, my coffee is quite tasty. Thank you, Producer Tim. But can you find a connection between my coffee and today's topic?

Tom: I'm thinking something to do with the recommendation, Tim's recommendation. I think that is related to the discussions, today.

Kelvin: And trying to notch things up a lot, trying to make things a little better beyond the merely adequate. [Guffaws]

Tom: That's true. I don't want to disparage Tim Hortons. It's very good.

Kelvin: [Using Canadian accent] I'm sure it's wonderful. I'm sure it's wonderful, eh? I've been to Tim Hortons before.

Tom: All right, so shall I make the connection explicit then?

Kelvin: Please do.

Tom: Kelvin. You recently interviewed Nicolaas Matthijs, the Chief Product Officer for Anthology. He has over 20 years of experience with educational technology and comes from a family of educators. Notably Nicolaas was co-founder of Fronteer, the original developers of the tool, later known as Blackboard Ally. You may have heard of it. Nicolaas holds a graduate degree in Artificial Intelligence and Natural Language Processing from the University of Cambridge. Not too shabby. More than adequate.

Kelvin: Way beyond adequate, yes. [Laughter]

Tom: Absolutely. Anything you want to say about the interview before we go to it?

Kelvin: No, I think it stands on its own. It was really good hearing from Nicolaas. I think everybody will enjoy it.

Tom: Great. So, through the magic of podcast time travel, here is your interview with Nicolaas.

(*Transition Music*)

Kelvin: Hi, Nicolaas. So good to have you on TOPcast today.

Nicolaas Matthijs: Hi, Kelvin. Thanks so much for having me.

Kelvin: You're quite welcome. This is a conversation I've really been looking forward to because I find myself, when I'm speaking with a wide range of people, I find myself speculating about things that I think we're going to talk about, and I can't wait to see what we find out together in this conversation. [Laughter]

Nicolaas: I am very much looking forward to it as well, and it is hard for artificial intelligence to not be part of every conversation that we're having. So, looking forward to it.

Kelvin: That's right. And as far as I know, let's just get the disclaimers out. As far as I know, I acknowledge that you appear to be an authentic human being, naturally intelligent and not artificially.

Nicolaas: Although these days even video isn't really to be trusted anymore. So, who knows?

Kelvin: Who can say? Who can say? And, for me, it's all… Somebody told me the other day, I did a really good imitation of an audio animatronic figure, and I wasn't quite sure how to take that.

Nicolaas: [Chuckles] Cuts both ways.

Kelvin: I think so. We spoke before hitting record about just some broad areas. We're going to zoom in and talk – spoiler alert – about AI assistance built into tools and platforms designed for other purposes. The example I give all the time is like PowerPoint has a designer assistant. "Hey, would you like to make your slide look a little bit better?" That kind of a thing. But before we do that, I think it's probably helpful to contrast that with the artificial intelligence and especially generative artificial intelligence "in the wild", as it were, because that's getting all the attention. How would you characterize the ChatGPTs and DALL-Es and whatever's of the world? How would you contrast that with built-in assistance into platforms?

Nicolaas: It's a very broad question, and I actually want to step back a little bit because obviously the AI in the broad sense of the word is obviously not new, and it's been around for decades, and I think my background is in AI as well. And what's interesting to understand is that a lot of the traditional artificial intelligence techniques and the way in which artificial intelligence is done traditionally, they rely on some characteristics that are uncommon in education. So typically, traditional ways of doing artificial intelligence would rely on having lots and lots

of users interacting with a very limited set of things that they can interact with. So, you've got a large set of data essentially that you can train your AI on, and you can have it make decisions based on.

So, we saw AI show up in a lot of our day-to-day consumer technologies. I think one example that I love to use is what Netflix or what Amazon, for example, very subtly do. And I mean there's a few things that, for example, Netflix does on a day-to-day basis where they make recommendations to you based on what people that they classify as being similar to you are doing on a day-to-day basis because they can look at how you're interacting with their titles, and they go beyond that. They will intelligently pre-buffer some of the content based on when they expect demand to exist. And they'll go as far as actually having different thumbnails for different series or different movies, and they will give you the one that they think you are most likely to click based on your prior behavior. And so, we've got lots of these examples out there that really have been part of our day-to-day for a decade if not longer.

And I think what's interesting is that, as I said before, they rely on lots of information, lots of users or lots of people interacting with a relatively limited set of very structured things. And so that's why from an educational perspective, we haven't really seen AI make as big an impact from a tool and solution perspective as we have seen in some of the day-to-day tools that we've used, or that we tend to use, because really education, we like to think that we're different. In this case, we actually are different in that we don't have a lot of very structured data. [Laughter] We have a very large number of people that are interacting with an extremely long tail of different things. And every course, every person almost has a different unique journey, and therefore, some of the traditional AI techniques haven't really worked all that well with education, and so, we haven't really seen that impact.

Generative AI, so going back to October of 2022, with generative AI coming onto the scene has changed that entirely because generative AI, so text generation, text interpretation, image generation, video generation is specifically designed to work well with unstructured information, which we have lots of as an educational industry as well as to be able to work well with natural language. Which again, we have lots of as educational institution. So, my belief is that generative AI specifically is especially relevant to education. And so, the picture is almost flipped in this case where we're coming from a place where AI really didn't apply all that well within our landscape into a place where education is one of the prime candidates, I think, for generative AI to have a huge impact.

So, I think that context is relevant. Now when we look at some of the generative AI tools that are out there, as you are saying, we've have the ChatGPTs, the DALL-Es that are out there, and they're actually really interesting to look at from a user experience, kind of a UX design perspective, because they provide us a very simple user interface where they really, and that simple user interface is very

misleading in a way because it provides a very low bar to get started because you can just enter what you want, but also an extremely high bar to use it very well.

In order to get really proficient with prompting and interacting with generative AI tools is extremely difficult and getting really, really expert at that requires a very high degree of skill and a very high degree of tweaking. So, while I think those tools have got their uses for brainstorming purposes or other purposes, I personally think that really, I mean generative AI is not a goal in itself. It really is a tool to help solve real problems. And so, what I think we will see over the next months and years especially is we will start to see generative AI technology leveraged within the tools that we use on a day-to-day basis, really to help you save some of the problems, or help you solve some of the problems, or fulfill some of the needs that you're trying to accomplish through those tools.

But it'll recede a little bit more into the background I think, and it'll just become a tool that's leveraged on a day-to-day basis, but not necessarily through the traditional chat interface that's really been the main area of focus over the last year, but it'll really just become part of the background, and we'll start helping you start making suggestions almost in a much more invisible way, I think. But in a way that's actually more helpful because it ties into your day-to-day. So, we'll see how it plays out. But I think the way in which we're seeing it today, and the way in which it's kind of playing out today through ChatGPT and DALL-E, I think that will flip around almost.

Kelvin: That's fascinating. I like that. I had not considered the continuum of structured to unstructured in terms of an audience, or a user group, or population sector way. Or, I was also, as you were talking, I was thinking about there's a slider or sliders in there somewhere between what are the constants and what are the variables, right? And even in that more, as you said, the low bar interface, it allows whatever you want to go in there. But then what's lacking in structure for giving input is required in structure of “the how” of how you do your prompting well. The more structured the interface is, maybe the less is required on the user to carry out the specific prompting, or queuing up a function. Which probably leads us right back into that question of AI assistance woven into, integrated into, tools and platforms that have a different function other than generative AI, right? You got my PowerPoint example, and what was the time period? You said you think you were going to see more of this over what period of time?

Nicolaas: Well, I think in the next several months, but especially the next several years, I think, will make that transition from it being a tool and a goal in itself to it really being part of how systems and products are designed.

Kelvin: I think you're right about that. I really do. That's what I've been feeling like that that's where we're going. I think more, I wonder, I mean, you deal in the technology space, intersecting with education broadly and higher education specifically. What kinds of tools and technologies, and what kinds of examples of

AI assistance should we be attuning ourselves to, and how much of that is us looking for it, and how much of that is us shaping it in some way?

Nicolaas: Absolutely. And I do generally believe that the world is our oyster at this point, and there's infinite opportunities on how this can be leveraged in a positive and responsible way. And I think your PowerPoint example is a great example of something that you don't necessarily realize that you're using AI. It's built in there, it's useful, it helps you save a little bit of time. And I think we can pull that through to, for example, the instructor side of things. And I think one useful angle to kind of approach this with is, where are the different people that are involved here? Instructors, students, where are they spending a lot of their time, and can we actually help them in those actions? Can we help them save some time? Can we help them do some of those actions better? And so, one area that comes to mind is obviously instructors spend a lot of time from a course design perspective very similar to the example in PowerPoint.

So, to me that is a really rich area where if we kind of pair the instructor with someone with tools and technologies that can help them ideate, that can help them think through things that can help them work through things a little bit more efficiently, or give them new ideas, or give them different ways of approaching things, I think that's a really rich area. It's an area where we are doing a lot of research and a lot of development at the moment as well. But I think that's an area where we can use these technologies to improve the quality of the courses that we're creating. We can use these technologies to help instructors be better instructors or do some of those things more quickly. So, that's a huge area of opportunity for me.

Another area that I would call out, and this is where the importance of the responsible use of AI is, it really, really starts to become important. If we think about another area where instructors spend a lot of their time is areas like grading, providing feedback to their students. I think there's huge opportunities to not only allow instructors to get through that workload of grading and feedback tasks a little bit more quickly, or provide richer feedback to their students, but there's also a huge risk of going too far there because we don't want to end up in a place where a tool is making decisions itself on how to grade or how to evaluate a student. It's there to support you, but I don't think we can take that human ownership, or that human in the middle, out of that loop ever really, because that takes the ownership away and the responsibility away.

And then when we think about from a student perspective, for example, I'm a very strong believer that educational institutions have an obligation to expose their students to generative AI because those students will be expected to leverage these tools in the workplace. And so, we have an obligation to expose them to these tools, allow them to gain experience with them, but at the same time be able to experience them, and be able to reflect on or better understand what the strengths and the weaknesses of these technologies really are. And this is another

area where we could very easily get it wrong. And we actually see that a lot of the attention right now is going towards the fully automated one-to-one AI tutors where, as a student, you're basically, because there's opportunity there, this AI tool can actually, it can process your course content, it can process things in a very effective way. And so, the idea of having a fully automated one-to-one AI tutor conceptually makes a lot of sense, and I think that's why there's a lot of attention to it.

But I'm very worried about that as a direction because it takes that instructor out of that loop, and knowing some of the risks that come with generative AI, such as the risk for hallucinations, for incorrect information to be generated, for bias to be surfaced through the tools, that starts to become really problematic because if that instructor is not in the loop, and the student is engaging with the AI tutor on a regular basis, what do you do when the student is provided incorrect information? What do you do when the student is provided with offensive information, for example? When they get to the final exam, does that mean they get a pass on the incorrect information that they've been provided, or who's responsible at that point?

So that, I think, are some very difficult topics that we really need to think through carefully before we go too far in enabling some of this technology. And we see some real examples of the downsides of this technology surface already. So, there's, for example, Georgia Tech is a good example where they've been working on an AI tutor, and they've been having huge difficulties with hallucinations and they're now building additional technology to try to stop it from hallucinating. And there's other examples out there like Khanmigo, for example, again, where that's more K-12 focused, but it is impossible to stop it from at some point providing incorrect information to the student, and then there's no one there to really take ownership of that mistake. And so, that's an area where I think we should be very careful.

Other examples are some of the AI detection technologies that we've seen, for example, where we are trying to detect where students are using these technologies to then use that from an academic integrity perspective. Those are all really dangerous areas, I think, where we have to understand the strengths and the weaknesses of these technologies, and really think carefully about what's an appropriate use of this technology, and what's an inappropriate use. But the opportunities are truly infinite, I think.

Kelvin: I think we'll have to leave it there today, Nicolaas, but I can tell, we should have you back. We should follow this through a little bit in the months ahead, and see how this trajectory is developing with AI assistance built into tools and platforms for a specific education related purpose, and see what we can do to lean into shaping our future more positively. It's coming one way or the other, but I am with you. I appreciate that framing of “humans in the loop” rather than sort of mindless adoption. I think that's great. Really appreciate your expert contribution

on this topic today. So, on behalf of myself, and on behalf of Tom, who will join us in the wraparound, I just want to say thanks for giving me your time.

Nicolaas: Absolutely, anytime. I would be happy to come back. Absolutely.

(*Transition Music*)

Tom: So, Kelvin, that was your interview with Nicolaas Matthijs, all things AI.

Kelvin: Well, maybe not all things, but a fair number of them.

Tom: Some things, but yes, some good things. I enjoyed the conversation. There was one thing that he said that just really struck me. I've heard this before, we've all said it or heard it, the comparison to Netflix and the recommendation engine. You always hear about Amazon and other kinds of things. But the thing that was just a little bit of a light bulb for me was the recommendation engine is not just things that are similar in these movies. So, you like comedy, romantic comedies, I'm going to show you romantic comedies. It was more like your personal data profile likes this kind of movie, which means you might like that kind of movie, too, even if it's not the same kind of movie. And I thought, okay, so how could that be applied to education? How could we look at student profiles and serve them the learning in the best way that was going to help them be successful? I thought that conversation was just really interesting and got my creative juices flowing.

Kelvin: I agree with that. And I mean just on that thread, recommendations are one things, but I wasn't quite aware, different thumbnails?

Tom: I didn't either. I didn't know that either. That's brilliant.

Kelvin: Pre-buffering of things that you might be more, so you have a smoother ready-to-play.

Tom: They know what you want before you know what you want.

Kelvin: That took it to another level really, right?

Tom: I have heard some news sites have different headlines for different people, which, what are you more likely to click on?

Kelvin: But I love speaking to someone with expert knowledge who is able to pull out key clarification big principles, like the fact that, okay, so there's that. And so, you've got this large number of users with highly structured data, but uncommon in education, he said. Education is more long tailed, with unstructured data, until the advent of this big, bright spotlight of generative AI, and then that opens up the door for education applications more than it has been in the past. I mean, that was such a lovely like, "Okay, thank you. Okay."

Tom: And something two talked about that I thought was probably true, right? Which is that where this will become really ubiquitous and useful is as these AI tools become embedded in the things that we're already using as opposed to this novelty off on the side. Literally, before I signed into Zoom for us to record this, we were facilitating a demo of something that the awesome Techrangers team here built to do what we call Intelligent Course Search within our LMS using an LLM and APIs that they were able to leverage so that you could search the course, and find whatever you want, but it's walled within the course, and it's even searching video transcripts that it creates itself and giving you the timestamp of where this thing references. It's really cool. And so, we were just showing it to the Faculty Advisory Board, getting their input. Not every school has Techrangers that can build this stuff, right? So, what's going to have to happen is these tools have to be baked into the products themselves as time goes on in order for them to become ubiquitous.

Kelvin: That's exactly right. This part is what I find fascinating, just like you said, the AI assistance built in, and I liked Nicolaas's wording there. But I heard it, he didn't say this explicitly, but I heard it with a cautionary tone. AI will recede into the background, he said, right? Front and center will be the thing that you're trying to do through the purpose of the tool or platform, but the AI part will be in the background, but then if we're going to be critical, right, about the way that we use things, we have to be attentive to the fact that there's AI assistance going on. And again, that human in the loop thing, so important.

Tom: And maybe the last thing is just a nod of the head to his AI policy framework. This principle centered framework, because a lot of what we're doing is by the seat of the pants right now. [Chuckles] It's like, I hope this is okay, or we'll have to develop a policy to incorporate this thing that we've already done. Even this thing that we were just looking at. The pilot that they've built, it's self-contained to the course, but it's not self-contained to the cloud. So, the data in the course that could potentially be like student information, or whatever it gets pulled is feeding the model that may not be cool, right? So, that's a policy issue, and we're working on it. They've got plans to contain it to just the institution. But how do you push the envelope, yet maintain some grounding in some rules and regulations that you're not going to get yourself in trouble?

Kelvin: I agree. We'll put a link in the show notes to that AI policy framework, and also Nicolaas and his colleagues have this white paper on Academic Integrity and Authentic Assessment with AI, and that'll go in there as well. I don't know if you agree. I like the idea of Nicolaas coming back downstream a little bit and telling us more.

Tom: I mean, I was thinking the same thing. AI is changing so fast. We said the same thing when we had Rohan on the podcast, so let's keep our antenna up on how AI continues to evolve, and maybe bring some of these experts back to comment on it.

Kelvin: I think that's good. Meanwhile, should I, since we're just about done with our coffee and with the sands in the hourglass, so are the days of our lives, shall I try to get the plane on the runway?

Tom: Let's mix all the metaphors. Yes.

Kelvin: [Chuckles] We might be done with our coffee, but we're not done with AI intersecting the work of digital teaching and learning. We're barely getting started here. Even as AI begins to decrease in obvious prominence, we must stay attuned to guiding the wise use of AI integration into the platforms we use and promote. How's that?

Tom: Sounds good. Totally agree. Thanks to you and to Nicolaas for joining us and for that really interesting conversation. Before we wrap it up, I do want to ask those who might be listening or watching, if you like what you're watching or hearing, we would appreciate a little one click rating or maybe a one sentence endorsement, or review, or whatever on whatever platform you happen to be consuming this. So, we're on all of them. Apple Podcast, Spotify, YouTube, take your pick. Find us, give a little review. It's not so much for our ego, but it's more for helping the algorithm have this be brought to people who are interested in this kind of content. Just exactly like Netflix. So, help your brother out or your sister out who's looking for an online podcast that the more engagement, the more likely they'll find it.

(*Outro Music*)

Kelvin: That's right.

Tom: Cool. All right. So, thanks, Kelvin. Until next time, from TOPcast, I'm Tom.

Kelvin: I'm Kelvin.

Tom: See ya.