Season Six: Episode One
AI & Education: Investing in the Future of Learning
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[Sounds from Duolingo: Lily and Strangers]

[MUSIC]

Hillary Ribaudo: Maybe you've met Lily. She's a character inside Duolingo, the world's most popular language-learning app. Powered by AI, Lily helps millions of people practice languages every single day.

[Sounds from Duolingo: Lily and Strangers]

Maureen Lamb: Generative AI is not the scary boogeyman in the closet that people are scared of students using, but rather we can use it ethically and responsibly.

Hillary: And that's Maureen, a language teacher at Miss Porter's School in Connecticut. She spends her days teaching young women how to write, speak, and think in another language. And she even gave us the Latin translation for "investments beyond their returns."

[Latin]

[MUSIC]

Hillary: Education is one of the world's largest markets. It's expected to surpass $400 billion in edtech spending by 2025. And at the same time, AI is transforming how people learn, from personalized apps reaching millions across the globe to schools that are grappling with what instant answers mean for deeper thinking and human connection. But education isn't just a market opportunity, it's the foundation for economic mobility and social progress.

Maureen: With any technology, if you are a complete enthusiast, that's great, but you have to know what's also the darker side. What's the shadow side to this?

Hillary: In a hyper-connected world, where AI answers are always at our fingertips, how do we ensure the next generation still knows how to question, reason, and connect?

This is Unseen Upside by Cambridge Associates, where we explore investments beyond their returns. I'm Hillary Ribaudo.

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Luis von Ahn: I was very fortunate that my mother really saw the value of education, from a very early age. She started teaching me English, which helped a lot.

Hillary: Luis von Ahn is the CEO and co-founder of Duolingo, the free, gamified learning platform that offers more than 100 courses across 40+ languages — as well as math, music, and even chess. Born and raised in Guatemala, he's now the leader behind the world's most downloaded language learning app.

Luis: We were middle class, but it was just me and my mother. She was a state employed doctor. And by the way, in Guatemala, doctors are not millionaires. And, she used basically all of her money for my education.

Hillary: Luis attended private school in Guatemala City, where he got access to resources other kids didn't have.

Luis: I knew about computers early on. Nobody else that was a kid in my neighborhood knew about computers or anything like that.

Hillary: These opportunities made all the difference. They opened the door for him to study mathematics at Duke University and later earn a Ph.D. in computer science.

Luis: All I wanted to do since age 13 was become a professor, which is a little weird. And after getting a Ph.D., I did become a professor of computer science at Carnegie Mellon University for about seven years.

Hillary: Around that time, Luis co-invented reCAPTCHA, a technology that most of us have clicked through at some point.

Luis: It's very annoying if you've used it over the internet. It used to be these distorted characters that you have to read, but then it morphed into having to click on like traffic lights and stuff like that.

Hillary: Innovation in the tech world is nothing new. In an industry that experiences constant evolution, incremental changes can eventually lead to big breakthroughs.

Henry Ellenbogen: Every once in a while, you end up with technological change that actually changes a lot of the basic assumptions of how either industries or societies function.

Hillary: Henry Ellenbogen is the Chief Investment Officer at Durable Capital Partners. He studied the history of technology at Harvard, and he's had a front-row seat to some of the biggest shifts of our time, backing companies like Google and Amazon early on, and watching the internet, cloud, and mobile change the world.

Henry: I may be a little bit older than many people on the podcast, but growing up the most popular TV shows, you could only watch on Thursday nights because that was where you could make the most money.

So the "Cosby Show" or "Friends" were always on Thursday night, and obviously that's foreign to my kids today, right, where everything is streamed. And that's one example how an open system like broadband actually created the platforms for things like Google and Amazon.

But it could only be driven by the technology of broadband and the internet together.

[MUSIC]

Hillary: The same way broadband plus Internet unlocked whole new industries, today's wave of AI is reshaping everything from how we work to how we learn —and yes, even how we make this show!

For Luis, that journey began with reCAPTCHA, a small piece of tech that grew into his first company and was later picked up by Google. And not long after, while still teaching, he met the perfect partner to kick off his next big venture.

Luis: I had a Ph.D. student named Severn.

Hillary: That's Severin Hacker, a Swiss-American computer scientist who now serves as Duolingo's CTO and a member of its board.

Luis: So me and Severin wanted to work on a project together. We knew that we wanted to work on something related to education.

In a lot of countries, this is even true in the US, if you're wealthy, you can get access to much better educations than if you're not. And if you're in a poor country like Guatemala, if you don't have a lot of money, you barely learn how to read and write.

Hillary: So their vision was simple: they wanted to build something that would make education accessible to everyone.

Luis: We were computer scientists, so for us that meant can we have a computer teach everyone. We started thinking about what we should teach, and eventually we realized that the first thing that we should get started with is teaching languages. And in particular, it's because of teaching English. In most countries in the world, knowledge of English can significantly increase your income potential.

If you are a waiter, for example, and you learn English, then you can become a waiter at a hotel which pays more money. So it's just this very direct thing. So we're like, okay, let's do a thing that teaches English and if we're gonna teach English, may as well teach other languages, and let's make it free.

Hillary: Duolingo launched in 2011, and even then the developers had it powered by Machine Learning and AI.

Luis: If you're gonna teach with an app, almost by definition, you're gonna need some form of kind of intelligence to teach.

Luis: So early on, things like what exercise to give you next was chosen with AI. So whenever you do a lesson on Duolingo, we actually take into account everything you've done before on Duolingo, and we know every exercise you've done, which exercises you got right, which exercise you got wrong.

And based on that, we build a lesson just for you. And that uses a form of AI. It's not large language models, which is what people now think of AI, but it's a form of AI to try to give you a lesson that is tailored to you.

The other thing that we always did is we always used some form of automation to help create our content. We need a lot of teaching content. That has always been done in a combination of people and computers. And some of that used AI, but we always needed people to either look it over or come up with parts of it and then computers would help them do it.

[MUSIC]

Hillary: Luis mentioned large language models—or LLMs. These are AI systems trained on massive amounts of text, built to recognize patterns in language and predict what comes next—and they've further expanded what Duolingo can do.

You've probably heard of OpenAI's GPT series, Google's Gemini, Meta's Llama… among many others. But what makes them different is how flexible they are: give them a prompt, some context, and they don't just spit out answers, they can follow instructions, carry on a conversation, and even play the role of a tutor.

And the pace has been staggering. In 2020, GPT-3 showed the world that AI could generate high-quality text at scale. Soon after, the technology started to feel truly conversational. By 2023, models went multimodal, handling not only reading and writing, but also images and audio.

Dean Dimizas: Over the last, you know, three, four years, AI definitely has become front and center as a topic of interest and focus for many of our managers across sectors and geographies.

Hillary: Dean Dimizas is a Partner & Managing Director at Cambridge Associates.

Dean: Everybody has seen that this is the biggest technological wave. You know, we saw the rise of the internet initially, you know, 25 ish years ago, the rise of mobile computing, then cloud was the biggest thing. Then SaaS computing was a hot investment theme for a long time.

I think the rollout of ChatGPT was definitely a groundbreaking moment. The same way the internet infiltrated everything around us. I think the same way AI is gonna infiltrate everything around us and change how we consume content, how we entertain ourselves, how we think about healthcare, financial services, education, and all these other things.

Hillary: For Luis and Duolingo, this rapid shift unlocked entirely new possibilities.

Luis: We're able to create a lot more content than we were before because a lot of parts can be automated. Not everything in the generation of our content can be automated, but a lot of it can. The other thing that has changed is, we're able to offer conversational practice.

There are many aspects of learning a language. You have to learn the vocabulary, the pronunciation, et cetera. But one of the things you gotta learn is having a spontaneous conversation. Before large language models, there was just no way to do that other than having our users be paired with another human.

Hillary: But there was a problem.

Luis: Even though almost every person will tell you that they want to do that, the reality is that most people don't want that. We had these pretty amazing, user testing sessions where we would say to people, "What do you think is the most important thing that is missing from Duolingo?".

And, invariably they would say conversational practice. Say, okay, good. So, you're telling me that if we put a way for you to practice conversation on Duolingo, you would use it? Yes. Yes, I would. Would you pay for it? And then they say, yeah, yeah, of course this is really important. And then immediately we would say, okay, do you wanna do it right now? And invariably the answer is not right now. It just turns out that I don't know what fraction of the people, but call it 90% or 95% of the human population is just not extroverted enough to have a conversation with a stranger in a language that they're not very good at.

Hillary: Luis says large language models now let people practice conversations with AI, and because there's no fear of judgment, we're more willing to participate. And it's going beyond the apps; AI is also making its way into real classrooms, reshaping how teachers teach and how students learn.

Maureen: Students have access to images, they have access to videos, they have access to information that they might not have had access to previously, which is very exciting.

Hillary: Maureen Lamb is a Latin teacher and the Language Department Chair at Miss Porter's School, a private school for girls from grades 9-12 located in Farmington, Connecticut.

Maureen: Chatbots and media creation is what I've been focusing on in my classroom with AI.

Hillary: Maureen guides her students in using AI to enhance their creative ideas. Last year, her Latin students created their own video storybooks using the graphic design tool Canva. These storybooks were complete with AI-generated character voices and captions.

Maureen: In one case, someone was pretending to be a ghost, and they made it a very like gnarly voice, and it was really fun for them. And they had the captions in Latin, so it was so accessible for students to read afterwards.

Hillary: Since GPT launched three years ago, some schools have banned AI use entirely, while others have chosen to embrace advances in technology. At Miss Porter's School, Maureen leads an AI Task Force that's working to set clear guidelines, aiming to reduce risks while also exploring how the technology might enrich learning.

Maureen: Even though it might seem a little strange for a Latin teacher to be heading up an AI task force, I see them as actually wonderful ways that communication is growing and changing, and so for me, it's a very natural segue.

Hillary: Maureen's passion for using technology to help people communicate and connect started well before she became a teacher.

Maureen: Actually, my first job ever was coding websites for a newspaper company that was making different websites for the state of Massachusetts' towns. And it's really interesting because a lot of my experience with technology has actually led me to doing more with AI.

[MUSIC]

Hillary: Now in her nineteenth year as an educator, Maureen still embraces technology, but with a careful eye. She's learned that not every new tool deserves a place in the classroom, and that sets the stage for the bigger question: how do we make sure AI supports real learning instead of encouraging easy shortcuts?

Maureen: I will say that as a younger teacher, I was guilty of trying to use all the tech, ooh, all the shiny tools. I think that I've calmed down a lot with that, and I've tried to find a few tools that work really well with my students and tools that are only used to further their learning.

Hillary: When it comes to research for example, Maureen is especially considerate of the accuracy of AI-generated information. And she draws from personal experience to teach her students how to use discernment and critical thinking skills when engaging with AI.

Maureen: I was researching Joan of Arc because I thought it would be a really interesting topic to talk about with my students. And so, I was looking for books to help me with my research, and ChatGPT gave me a list of 10 books by prominent historians, and only three of them ended up being real books. The rest were ChatGPT trying to create books that sounded like they would be amazing and attributing them to real historians, and if I hadn't looked them up, I might've erroneously assumed, oh, I just can't find them. But no, these books don't exist.

Hillary: This is an example of something called an AI hallucination, and this happens when the system generates information that sounds right but just isn't real. It's not trying to lie; it's just filling in the blanks with patterns that look convincing, even if the facts themselves don't exist.

According to the paper "Why Language Models Hallucinate," published by OpenAI, many models are trained and evaluated in ways that reward guesses rather than admitting uncertainty. In response, researchers are proposing new scoring systems that actually penalize hallucinations instead of rewarding confident —but false— answers.

Henry: What we have to be careful of is to actually understand critical thinking.

Hillary: Durable Capital's, Henry Ellenbogen

Henry: Just because, you know, a very, very smart LLM and some people say LLMs today have 120 IQ. And over time it's gonna go up. Just because something that, you know, has a perceived high IQ, sums up information for you, doesn't mean it's right.

Hillary: Another issue: as these tools become easier to access and more widespread, the concern grows around how to protect young people's data and how to make sure they're using AI safely.

Maureen: As we are learning more about generative AI, we're learning more about protecting student privacy and really making that an ethical use of AI at the center of what we're doing as a school.

Hillary: Latin teacher and AI Task Force Chair Maureen Lamb.

Maureen: A lot of schools are looking at this in a way that's not incredibly helpful. A lot of schools are banning AI or just kind of sweeping it under the rug. And I think that we can't ban something like this.

Maureen: Even if they can't access it through school email, they'll walk down the Starbucks or Dunkin or something and use their email and access AI. So, I think that if you build it, they will come. The question is, how are we gonna model how generative AI is used and how can we help them to use it in a way that's responsible?

[MUSIC]

Hillary: A national survey released this summer found that over 70% of teens in the US have used AI companions, and new research from the Center for Countering Digital Hate shows that chatbots can actually be prompted to generate dangerous advice. But there are ways to prevent young people from engaging in harmful conversations in an educational setting.

Maureen: You can create custom GPTs through ChatGPT that are closed. I was actually working with the Stanford Accelerator Project, and they were doing code free chatbots. And so this is a closed system where nothing goes into the algorithm, but you're using a chatbot that you have created the parameters for that you can then see what students did. I've also used Mizou, which is a closed educational chatbot, where you can put in your own prompt, and then you can see all the students' results. And I can go in and see exactly what they're doing, so they can't be going off base. I also have picked chatbots where they will shut it down if the students start to share personal information. I had one student who took it as their personal mission to shut down the chatbot after they finished their exam, so they went in and started telling the chatbot, "I love you", and then shut it down right away and wouldn't let her type anything else, which I thought was fantastic.

Hillary: Maureen believes in empowering her students with the critical thinking skills necessary to use technology responsibly.

Maureen: One of the things that I've been working on a lot is creating protocols for prompting. I think that AI prompting is going to be a huge deal for our students going forward, and it's a great skill for them to have too. And so I've created the CLEAR prompt protocol to think through every time I'm creating a prompt in AI. So I think about the Clarity, what exactly I want AI to show me. I think about the Layout. What format do I want this to be in? Do I want it to be a list? Do I want it to be a paragraph? Do I want this to be academic? Do I want this to be informal? What do I want AI generating for me?

I think about E, Examples. What examples do I have of things that are similar to what I want AI to produce? Now I think about my Aim. What are my goals with whatever I am creating in AI? Making sure that's part of the prompt.

And finally, the Relevance. Who is this for? Is this for other teachers? Is this for students? Is this for a ninth-grade Latin class? Is this for tenth grade humanities class? What is the relevance for that? And so if I think through the clear protocol, every time I'm creating a prompt, I usually get a very good result.

Hillary: Learning to prompt AI effectively opens up a whole different way of using these tools, less like searching for information and more like having a collaborative thinking session, where the AI helps carry some of the mental load.

Maureen: Can generative AI produce things? Absolutely. But is it creative? No, it's not creative. That creativity comes from human beings. Now, if you're using your creativity to create an awesome prompt, you can actually co-create something wonderful with AI. However, if you put in things that are not great, you're not going to get great results because it depends on the human input, and I think that that's a huge lesson.

Hillary: In her classroom, Maureen models a careful, intentional approach to using AI. Before she introduces it to her students—or even uses it herself—she runs through a set of guiding questions.

Maureen: Why on Earth am I using AI? Is this the right tool for me? Is this what I'm supposed to be using? Am I using this as a thought partner or am I using it for cognitive offloading? And I'll give some examples. Like a cognitive offload for me might be, okay, I have no idea what to make for dinner tonight.

So I'm gonna go home and I'm gonna put all the things I have in my fridge into generative AI and say, "Make me something for dinner." I can cognitively offload that. However, if I'm creating an assessment, if I'm creating a lesson plan, if I'm doing something like that, I wanna make sure that my voice and my creativity goes into that prompt.

Hillary: Maureen says that AI should not think for you: the goal is to stay true to your own ideas and your own voice.

Maureen: Your perfect finished product is not going to be generated by AI. And if we're using AI, we are really using it as an AI brainstorming partner in the beginning of a product. It shouldn't be your end product. But you have to make sure you're citing it and using it ethically. And I think especially at a girl's school, but at any school, we don't want them using any tools that are going to speak for them. At the heart of everything should be your voice and your creativity.

[MUSIC]

Hillary: A lot of the talk around AI centers around this idea of machines taking jobs. And sure, in some fields, that is happening. But when it comes to education…

Luis: I do not believe that AI can teach better than human teachers. Certainly not today, and I don't know if that'll ever happen, but I do not believe that is the case.

Hillary: Duolingo's founder and CEO Luis von Ahn

Luis: Human teachers do a lot of things really well. Certainly, they put things into context in a much better way than computers do.

The other thing that teachers do that is amazing is a lot of times students are inspired by a teacher, and they want to emulate them. It's very hard to be inspired by a computer. Teachers can be really inspiring, and teachers can point out specifically your mistakes, et cetera.

So, the things that computers can help with are for one, especially in a classroom, a teacher may not be able to give individualized attention to everyone, depending on the size of the classroom, of course.

That's something that a computer can help with at least, because the computer can adapt to each of the students.

Hillary: A 2024 UNESCO global report on teachers warns that the world will need 44 million more primary and secondary teachers by the year 2030. Today, hundreds of millions of children still lack consistent access to effective instruction. So Luis points out that yet another way computers and AI can help in education is through scalability.

Luis: We believe that Duolingo plus a teacher is better than just Duolingo. But if you have no access to a teacher, we wanna be as good as we can so that you can actually learn.

Hillary: Today, Duolingo reaches more learners than most schools could ever dream of. But reach isn't the same as fluency. That's why Luis and his team have worked to build ways to measure whether people are truly learning.

Luis: The best way to figure this out is just to test users. We run the exact same study many times. We take a group of people, come into the app. We know that they are beginners, we may even give 'em a test, but basically they don't know the language. And then we let them use Duolingo for a while, and we ask them if they're using anything else.

And the ones that tell us that they're not using anything else. So, these are people that are purely learning on Duolingo. After enough time passes or after they reach a certain spot on Duolingo, we give 'em a standardized test, and we figure out how much of the language they know. And it turns out people on Duolingo learn really well. The one

caveat is that it takes a while to learn a language. And this is not just Duolingo. It is just the case that to learn a language really well, you need to upload into your brain, more than 10,000 words. You need to know how to conjugate verbs.

You need to know how to use all the different grammatical aspects of it. You need to know how to pronounce them, et cetera. It just takes a long time to do that. To get to a point where you can get a knowledge job in that language. You become a software engineer in English, for example, depending on your native language, but it takes about 500 hours to learn a language that well.

Hillary: Luis says that at Duolingo, they put a lot of effort into making sure they teach well.

Luis: And that of course involves making sure we don't just give you the answer or anything like that. We really try to make sure that people are actually learning. To actually learn, sometimes you need to get things that may be frustrating.

Now, by the way, that is a big difference between a classroom and Duolingo. In a classroom, the kids are there because they kind of have to be, so I think there's a higher level of frustration that is possible in a classroom than in an app.

Because in an app, most of our users, they're one click away from TikTok, so sometimes we have to do things a little differently than in a classroom because we don't wanna frustrate you.

But we definitely spend a lot of effort making sure that time that you're spending on Duolingo is time spent well. So actually a metric that we have internally in the company, we call it "time spent learning well," and we're trying to improve that for our user base.

Hillary: Luis says that from a professor's point of view, AI can sometimes get in the way of learning. If students just use a computer to solve their homework, they're probably not learning the material very well.

Luis: It turns out homework cheating by apps is a big business. We have expressly stated we're not going to do one of those apps that does, like, it solves the math problem for you.

Hillary: Instead, the team uses lessons from social media and psychology to keep users engaged.

Luis: What keeps people engaged, it's just making a very delightful and gamified experience. When you do a Duolingo lesson, for example, there's a lot of animations and explosions and things like that.

[Duolingo Sounds]

Luis: It makes you feel good. It gives you dopamine.

[Duolingo Sounds]

Hillary: And if you've ever used the app before, you know that it tracks something called a "streak," or in other words, how many days in a row you've practiced.

Luis: A streak builds the habit. So think about things like brushing your teeth. Our goal with Duolingo is that the habit is so strong that you feel weird if you didn't do it that day. That is what we're trying to do to get you to come back.

Hillary: And it's not just streaks that keep people coming back. Duolingo has built a whole cast of characters to guide the experience. You've got Lily, the deadpan goth teenager with her dry humor and those signature eye-rolls — and then Duo, the green owl mascot. Playful and persistent, he's famous for those bossy notifications, and he's taken on a life of his own.

Luis: The icon of our app it's just a blown up face of our owl. What that does is it makes it so that all the notifications that you get on the app when you using Duolingo, always show the icon.

So it really reads like it is the owl telling you what's in the notification. So when people get a notification from Duolingo, they don't feel like they're getting a notification from an app. They feel like the owl saying something to you.

If we don't use Duolingo on a given day, we send you a notification and then if you don't use it, we send you another notification the next day, et cetera.

If you haven't come back to Duolingo after five days, we just stop because we don't wanna spam you forever. It occurred to me that if we're stopping to send you notifications, we should let you know. So this was actually not supposed to be manipulative in any kind of way, but it was just like, we should send you a notification that says, "these reminders don't seem to be working. I'm going to stop sending them for now." It turns out this is extremely effective at getting people to come back because they felt like the owl was giving up on them. and we're like, oh, wow. This kind of guilt works. So our notifications started using different emotions to try to get you to come back.

And at some point, the internet started catching up on this, and memes started about how the owl will go through great lengths to get you to come back. You know, the owl had kidnapped your family for you to do a language, et cetera.

Hillary: The app has become so engaging that it's even made its way into unexpected places. On reality shows where contestants aren't allowed phones, one of the top requests has been ten minutes a day just to keep their Duolingo streak going. The

obsession went so far that Duo, the owl, even showed up as a guest on CBS's "Love Island".

[Audio from "Love Island"]

Luis: I think the goal for us is just that screen time is better used. We're hoping that, when you use Duolingo that was not wasted time, that was actually something that made you smarter or a better human being in one way or another. We're not there yet, but that is our goal.

[MUSIC]

Henry: You know, the best businesses are ones that actually solve a real problem and actually have a real mission.

Hillary: Durable's CIO, Henry Ellenbogen, says they could clearly see the fundamentals at play when they were considering investing in Duolingo. The uniqueness of their business stood out right away.

Henry: Many other education companies that I looked at in my career were really product marketing companies. They were not content companies, so you know, they would spend a lot of money advertising to the consumer to convince them that the product could help them learn. Duolingo was different and actually doesn't spend a lot of money on marketing. Really, the product is the marketing.

Hillary: Durable has been a private investor in Duolingo since 2020.

Henry: You know, at the time the business was growing very quickly, but frankly, the negative from a consumer perspective was actually "is this the best way to learn?" And, you know, the more work we did on that, we were convinced that if you were smart about spending your time, this was just the most efficient way to learn a language.

Hillary: And, Duolingo is not only a language learning app. You can also learn math, music, and chess.

Luis: We're looking for things that we think are good for the world. We're also looking for things that take a long time to learn. And then, we're looking for things that literally hundreds of millions of people are interested in learning.

There's hundreds of millions of people that are actually actively learning math, possibly billions. Same with music. I should tell you, chess was an interesting one 'cause people are like, "wow, okay, but that's a game. Like, what are you doing?" It turns out that people who do chess kind of as an after-school program or whatever, it's one of the best indicators for them doing well in school. So there's really a lot to learn from chess.

It really helps you learn how to think. If you just get good at chess, it really exercises your brain quite a bit.

Henry: You know, my seven and 12-year-old currently are using it to learn chess.

Hillary: Durable's Henry Ellenbogen, again.

Henry: It feels to them a little bit like a game. And you know why it is so successful is they understand the way people are motivated, and they basically personalize motivation to the person.

Dean: Half an hour ago, I stepped away from a client meeting to tell him we had to do this podcast for Duolingo and the CIO of a very large university in New York laughed.

He said, you know, my kids got addicted to Duolingo chess over the summer. He has two teenage twins. I think they were never really interested in chess. And now with Duolingo, they had to buy a chess when they were traveling all over the US and, uh, they've joined a chess club, and they're playing chess every day.

Hillary: CA's Dean Dimizas

Dean: I think that's a prime example of how AI and meeting people where they are can create outcomes that were not achievable before.

Hillary: Miss Porter's School's language teacher, Maureen Lamb.

Maureen: Tools like Duolingo are great for students to be able to practice the language in their own time. I do assign it to my students. And we also had school-wide challenges for students getting points on Duolingo, which was super fun.

Hillary: For Henry, what's most exciting about AI in education is the sheer potential to open access on a global scale.

Henry: The ability to unlock human understanding and skills and really lift up the opportunity for people across the globe is, you know, really exciting. And I think from a societal standpoint, as we unlock education, we not only create opportunity for more people, we also unlock economic advancement. And that has huge positive implications.

Hillary: And the efficiency unlocked by AI has only strengthened the case for investment.

Henry: The product that my boys enjoy so much, chess, is something that he was able to develop with a couple people in six to nine months, which is just extraordinary. But it shows you that the way that the LLMs can basically increase the quality of content that we can all learn, and then they can also render it much more engaging, right? So you

now have the ability to interact with a personalized tutor. If you want to, you can actually have a conversation with Lily, a character who learns from you and basically can interact, and obviously, this is something that would not have been possible 3 years ago.

Hillary: Henry says the real advantage of investing early is seeing both the company and its leaders evolve. And with Duolingo, that meant tenfold growth in just five years, powered in part by AI. What began as a mission to make education accessible is now a public company. And today, they're navigating the balance between that mission and the demands of its shareholders.

Luis: On the one side you have investors who, rightly so, would like a return on their investment, as high as possible. And on the other side, we have users and our mission, we're trying to reach as many people as possible, teach them, et cetera. I am a wholehearted believer that in the long term, us being true to our mission is actually what will maximize shareholder value as well. We're trying to run a long-term company, so what we're trying to tell investors is, you should invest in us if you believe in the long term vision. If you're trying to make a quick buck, go somewhere else. We have about 130 million active users, if we get to a point where we had a billion active users in there honest to God learning things. I think that's just a very valuable company. It will take us years to get there, but I think we'll get there.

Dean: You know, I have two young kids that their education over the next 10 and 15 years is gonna be very different than the education I had or you had when AI was not a big thing around us.

And I think we're only in the very early innings of how AI will transform education for everybody, including older people like us.

Hillary: Inside the classroom, teachers like Maureen are already experiencing the shift firsthand. AI is opening space for students to move beyond drills and engage in different kinds of learning.

Maureen: I think that in some ways it's going to speed up the transition from more traditional rote memorization learning to more project-based problem-solving learning.

That speed is going to be encouraged because rote memorization can be so easily answered by generative AI. Things that are busy work can be answered easily by generative AI.

If we can think mindfully as teachers about what we want our students to do, we're going to be able to get ahead of this. And honestly, when we're thinking about student learning and we're thinking about neuroscience, things like problem solving and projects are things that have students more accurately demonstrate their knowledge.

And so rather than just kids who are really good at memorizing, we're gonna have the problem solvers who are doing really well, we're gonna have the creative types who are really good at projects and demonstrating learning that way doing really well.

Dean: AI is gonna be the next biggest technological revolution and the biggest technological shift of our generation.

Hillary: Dean Dimizas.

Dean: Our managers are very much focused on this across public and private companies that have a role to play.

Hillary: Maureen says generative AI can boost both access and quality in education. And tailored feedback and smoother communication are already beginning to improve learning in many classrooms.

Maureen: Students are more likely to acquire and keep knowledge if they have those personalized connections and that community with their teacher and their colleagues. But second best, even having access to information is really, really important.

Maureen: I'm an AI enthusiast, but thinking of it as something that is all about access and inclusion as well, was really powerful for me. And so it kind of spun the way I was thinking about it. It made me think, wow, look at the possibilities. Look at the potential for being even better.

Luis: My biggest hope is that with AI we can actually teach people better and also teach more people. I really have a true belief that the right thing to do to get best learning outcomes is to combine teachers with AI.

[CREDITS]

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Hillary: If you want to learn more, please visit us at cambridgeassociates.com/unseenupside or check out the show notes. If you like what you're hearing, leave us a review and tell your friends and colleagues.

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