3 Takeaways Podcast Transcript
Lynn Thoman
(https://www.3takeaways.com/)

Ep 4: Founder of Khan Academy Sal Khan on Scaling to 1 Billion Students

00:00 INTRO male voice: Welcome to the 3 Takeaways podcast, which features short memorable conversations with the world's best thinkers, business leaders, writers, politicians, scientists, and other newsmakers. Each episode ends with the three key takeaways that person has learned over their lives and their careers. And now your host and board member of schools at Harvard, Princeton and Columbia, Lynn Thoman.

00:24 Lynn Thoman: Hi everybody, it's Lynn Thoman. Welcome to another episode. Today, I'm here with Sal Khan, founder of Khan Academy, the free remote learning platform. Khan Academy is unique. No one comes close to them in breadth or in scale. They offer lessons for all ages from pre-K through college. They also offer a wide range of classes, including math, English, history, science, computer science, and many others, and they have achieved scale with over 30 million students per month, and every month students spend about two billion minutes of learning time on Khan Academy. Today, we'll find out what Khan Academy is doing now and how Sal re-imagines education. Welcome Sal, and thank you so much for our conversation today.

01:11 SK: Great to be here, Lynn.

01:13 Lynn Thoman: Can you tell us how you came to start Khan Academy?

01:15 SK: Yeah, you know, it goes back to 2004. My original background was in computer science and in math, but in 2004, I was a year out of business school, post-business school. I found myself as an analyst at a hedge fund, and I had just gotten married, and my family from New Orleans was visiting me in Boston right after our wedding, and it just came out in conversation that my 12-year-old cousin Nadia was having trouble with math. I offered to tutor her. She agreed. So she goes back to New Orleans, and we did distance learning a while ago, and in the early days, I was just trying to de-program her lack of self-confidence, but then slowly, surely she started to get that confidence back. She started to learn unit conversion, which is where she had difficulty... That was what caused her to be placed into a slower math class... And then she got caught up and actually got a little ahead of her class.

02:03 SK: And at that point I became what I call a tiger cousin, and I called up her school, and I said, "I really think Nadia Rahman should be able to re-take that placement exam." They said, "Who are you?" I said, "I'm her cousin," and they let her take it. The same Nadia who was being placed into a remedial math class was then put into an advanced math class. So I was hooked. It was a cool way for me to stay connected with my young cousin. I enjoy teaching, tutoring, I enjoy the academic subjects, and so then I start working with her younger brothers. Then you fast forward about 12 months, 18 months, the little firm I was working for, it was just me and my portfolio manager at the time, his wife became a professor at Stanford, so we moved out to Northern California, but more relevant to your question, word spread in my family that free tutoring was going on, and so I found myself every day with 10, 15 cousins, family, friends from around the country doing kind of distance learning.

02:54 SK: And I saw a pattern that a lot of them just had gaps in their knowledge, that it wasn't the issue that they weren't bright, it wasn't the issue they didn't have great teachers, it's just that if you're in an algebra class, but if you had a gap from fifth grade dividing decimals, or a gap from sixth grade negative numbers, it's very hard to address that in an algebra class that's just trying to teach you the algebra, and so I started writing some software for them to practice and fill in all of their gaps in all of these different skills, and that was the first Khan Academy. It had nothing to do with videos, and I wrote a little database so that I could keep track of what they were doing.

03:27 SK: And I was showing... All my friends know that I had this crazy family project that I was writing software for them and tutoring them every night after work, and my friend Zuli said, "Well, why don't you... How are you scaling your lessons up?" And I said, "Well, it's hard, Zuli. Even with 10 or 15 cousins, I feel like I'm repeating the same thing over. It's hard to cater to their individual needs," and he said, "Well, why don't you record some of your lessons as videos and upload them onto YouTube for your family?" And I immediately thought that was a horrible idea. I said, "YouTube is for cats playing piano. It is not for serious mathematics."

04:00 SK: But I went home, got over the idea that it was not my idea, and I gave it a shot, and I just started making videos on stuff that I was getting a lot of questions on. And I started telling my cousins, "Look, watch this at your own time and pace, and that way when we get on the phone, we can go a little bit deeper," and after about a month of that, I asked them for feedback, and they somewhat famously gave me the backhanded compliment that they liked me better on YouTube than in person. And I took that as positive feedback, and at first it's counter-intuitive, like, "Why would they like this video version of their cousin versus their cousin?"

04:31 SK: And they were saying... Well, they weren't saying that they didn't appreciate me calling them and having the live human help. That was essential. But what they were saying is it was really valuable to kind of have a tutor on demand, have an infinitely patient tutor, to be able to access the explanations in the middle of the night, to be able to access an explanation, maybe they're a ninth grader but they need an explanation for something from fourth grade, they don't have to feel embarrassed about it anymore, and it also liberated our phone calls to go even deeper. I was able to focus more on motivation, I was able to focus more on un-blocking them, and trying to understand their life circumstances versus just explaining the academics.

05:09 SK: So I kept going, and soon it became clear that people who were not my cousins were watching, and by 2009, there was about 50,000-100,000 folks using it, and so that's when I quit my day job, set it up as a not-for-profit with a mission of free world class education for anyone, anywhere, and tried to fundraise for it, and that first year was a tough year. We were living off of savings, our first son had just been born, but by the fall of 2010, about a year into this quitting my day job to do it, we got some of our first real philanthropic support to become a real organization. And over the last 10 years, we got to what we were just talking about, it's over 100 million registered users now and tens of millions of folks around the world, but I still feel like we have a long way to go.

05:49 LT: What you've done is extraordinary. When you talk about starting this in 2004, most people don't realize that the iPhone hadn't even been created yet. The iPhone came out in 2007, and yet you were scaling to 100,000 users, you just said, by 2009, so it's incredible what you've built. So, congratulations.

06:08 SK: I appreciate that. And there's so many things that have fallen Khan Academy's way and my way, frankly, to help this become what it is, but I tell a lot of folks, I did a thought experiment. I wrote a letter to 2010 Sal last year, just kind of a 10-year anniversary of when Khan Academy became like a real organization, and I think 2010 Sal would look at 2020 Sal or 2020 Khan Academy and say, "Oh my God! We've grown beyond our dreams." But the reality is the mission of free world class education for anyone, anywhere, it still hasn't been achieved, and I think Khan Academy from 2010 to now, we've kind of proven that we can do something highly efficacious, highly cost-effective, high social return, and do it at scale, at the scale of tens of millions, but I think the next phase of Khan Academy is actually going to be even more interesting. Can we scale a billion? Can we actually deliver over the next few decades of literally almost everyone or everyone has access to a free world class education?

07:03 LT: For someone who's listening now and isn't that familiar with Khan Academy, can you explain a little bit about how it works, and what makes Khan Academy unique?

07:15 SK: Yeah, so its current incarnation of Khan Academy... You can imagine there's many ways to try to provide a free world class education for anyone, anywhere, and I wouldn't claim that we've solved it, as I just said, it's a journey... A lot of our early users and still a lot of those 30 million that are coming every month are folks who need help with a topic. So they might do a web search. A lot of them now know about Khan Academy, so they might go directly to Khan Academy and look up the topics they need.

07:37 SK: It's practice, and the practice we provide on Khan Academy isn't just four questions, and once you do them, you're kind of done, whether you got them right or wrong. For every skill... And this is true in math. We have math from pre-K all the way through the core of college. We have science, all the sciences at the high school level. We're hoping to build at the middle school, elementary school level. We have humanities at the high school level. We're the official practice for the SAT. But the practice component of Khan Academy allows for personalization and mastery. So for every skill, there's actually from a student's point of view a functionally infinite set of questions. Usually there's about 30 questions per skill, but a student might do five or six at a time, but students get as many shots as goal to establish mastery, and mastery isn't just by getting four or five questions right of a specific skill. They have to do that, then they have to do it in a context switching mode, then they can do it on unit tests and course challenges.

08:24 SK: And then to support that practice, there's solutions for everything, there's hints, there's videos. Those early videos I was making for my cousins were really in support of the practice, and they still are. And we're hoping to add as many supports as possible, including one of our strongest supports today is tools for teachers. They should be able to be empowered with the same data that I was empowered with when I was tutoring my cousins, to know who's progressing, who's not, how much time are they spending, who's engaged, who's not, and what are actionable insights so that they can know who to intervene with different students. So our goal, anyone can go, it's all free, it's all not commercial. We have a Khan Academy Kids app that's actually reading, writing and social-emotional learning for the ages three to seven crowd, and then we have the older Khan Academy for elementary, middle and high school, and early college age students, where they can get as much practice and feedback as they need.

09:12 SK: And the vision, the hope is that we can keep doing this to cover all core academic subjects, do it in a personalized, highly engaging way, and eventually, actually, do some form of

credentialing. Why are we unique? I think there's two layers of it. I think one is maybe the ambition of the mission. I think there aren't a lot of organizations that are actually striving to do what we're doing of actually trying to provide all core academic subjects across so many subjects and grades, and practice, and do it in a mastery learning framework that's engaging.

09:42 SK: But I think if you get to the core of even how all of this started and why maybe some of that original content that I was making for my cousins resonated and hopefully continues to resonate, I think it was fortunate that this started as a family project, and I think people can sense that there is a... I mean, I don't want to sound cheesy... But there's a love, there's a love in it. I don't know if that was grammatically correct. There's a love... There's love in it but... [chuckle]

10:05 LT: That came across.

10:08 SK: That first content I was making for my family, even the videos, it was very comfortable, very conversational. It really felt like we were sitting at the kitchen table together. I would crack jokes because I really didn't think anyone was listening, and I think that eccentricity, that comfort... I am someone, my wife will tell you, most of my friends will tell you, that I get excited very easily, especially when I'm learning. And so people I think can hear that, and hopefully there's other people who also make content now, but I tell everyone on our team, you should not do what you're doing unless you're excited about it, because whoever is the consumer of what you're doing is going to be able to sense.

10:39 SK: And obviously that's obvious in a video, but I actually think that's true whether you're writing software, or whether you're writing a text, or even managing. I think it's really important that you care and that you have passion for what you're doing, because that translates into all of the output. But I actually do think that is one of our secret sauces. I can't tell you how many billion dollar publishing houses will put an army of very smart people on something, but the end product seems very sterile, kind of stripped of all passion, it sounds like your GPS: "The next step of photosynthesis is where... " It's just like you're... As human beings, we check out on things like that.

11:10 LT: What are the other parts of your magic, your secret sauce?

11:15 SK: I think it's that. I think it's the comprehensiveness we cover across subjects and grades. It's strange for me to say this, but when you think about the education space and you think about the notion of a brand, there's a lot of companies that you can list that have been in education for many years. You can list the publishing houses, but when people say, "Are there brands in education?" Where if you say that entity is producing something, to you it evokes something, hopefully something positive. I think that's where we didn't set out to build a brand, but I think if you were to ask a lot of students, "What does Khan Academy mean?" they'll say, "Oh, that's like the this is the tutor my family could not afford. Khan Academy helped me learn entire subjects at a rigorous world class level that my class wasn't offering." Teachers will say, "It feels like my teacher's assistant." Hopefully, they say, "I feel like I know Sal. I feel like I know the people who work at Khan Academy. They've got my back." Khan Academy's about wonder, it's about curiosity. And I think that that hopefully carries through in our content.

12:15 LT: It has been said that data is the new oil. You have millions of monthly users and hundreds of millions, I guess billions, as you said, of minutes of learning views, and 15 or so years worth of data. You have the most data on education of anyone. What have you learned from all that data?

12:37 SK: We've been able to use data to understand which content is more engaging, understanding which learning mechanics are more likely to keep someone engaged or not, which ones are more likely to drive learning outcomes, and I think we're just scratching the surface. I think as we go 5, 10 years in the future, I'm hoping that Khan Academy can actually help push forward some of the learning science, because it is a platform where we could very easily run experiments and with very, very large data sets to understand what can really help students better learn.

13:09 LT: Who does Khan Academy work best for?

13:12 SK: Well, it depends what the use case is. I think if you compare Khan Academy as kind of a standalone resource and then you compare it to what the students had before, like a textbook, I think for almost all students, Khan Academy is going to be more engaging than their textbook, and Khan Academy is going to provide more practice with more feedback and more supports than their textbook. There, it's a very clear benefit for all students. If you say, "What are the category of students that could just kind of run with Khan Academy on its own?" and we see that, we see millions of these kids, but they're not the norm, but there are millions of kids. There's a young girl in Afghanistan who, after the Taliban kept her from going to school, Khan Academy became her school, and she just went super fast forward on it, starting it when she was age 12.

13:56 SK: By age 17-18, she had learned calculus, physics, chemistry, biology, economics. She wants to go to school in the US. She lies to her parents, goes to Pakistan to take the SAT because it's not offered in Afghanistan. She does amazingly well. She's trying to get to the US to learn theoretical physics. Nicholas Kristof writes a story about her, Meet Sultana, the Taliban's Worst Fear, and that's what got her political asylum. Last I heard she was doing quantum computing research at Cal Tech.

14:21 SK: So there are people like that, and for them, I do think Khan Academy is something like of a lifeline, and it gives me incredible joy that we can play a part in unlocking people like that. It makes you wonder how many other people are like that, if we can just get to them. But I think there's a spectrum. There's Sultana at one end, and then there's at the other end, there's kids that need significant other supports, and that's why we've always emphasized that Khan Academy is best used when it's used with a really incredible teacher in a classroom, in a social context, because then you can get the best of both worlds.

14:50 SK: Kids can learn at their own time and pace on Khan Academy, and as we said, Khan Academy is far better than paper worksheets or a textbook in terms of supports and feedback and gamification, but it also provides data to the teacher, and far better data than the textbook or the worksheets would have provided. And then the teacher can see, "Okay, who's progressing?" Maybe they have some Sultanas in the room, but who needs some more supports? And they can take those kids aside and do a more focused intervention. It could be an intervention academically, or it could be like figuring out what's going on in their head. They might have something going on at home. And so that allows a teacher to get more leverage, more scale, and really unblock the kids who need it most.

15:25 LT: What are some of your recommendations? Building habits, or anything else. You see students succeed. You see students struggle. You see students persevere.

15:36 SK: Yeah, well, I'm a big believer in habit generally. For any parents and students watching, whatever you think you or your child are capable of, I guarantee you, if you just pick a direction and dedicate even 20 minutes a day to that direction, but that 20 minutes can't just be revisiting or redoing what you already know and what you feel comfortable with, if you're willing to engage in things that are essentially at your learning edge, that 20 minutes every day, you'd be shocked how much it can build even in a month or two to completely changing your capabilities in that space and your perception of yourself in that space.

16:12 SK: And we see letters all the time from folks who dropped out of high school, who thought they weren't good at math or science or some other topic, and then maybe as an 18-year-old, they want to go back to college, or as a 20-year-old, they want to go back to college, and they say, "Yeah, I spent the summer, I just spent 30 minutes a day, an hour a day on Khan Academy. I started at one plus one equals two, and I just re-learned everything, or filled in all my gaps." And these letters, these people are both happy and thankful, but they're also angry. They're like, "Why couldn't I have done this before? Now math is intuitive for me. There's nothing... It's not rocket science." Even rocket science isn't rocket science, if you learn all of the fundamentals and learn it intuitively and get a chance to get practice and feedback. So that's why my biggest advice is pick a direction, build a habit, be willing to step out of your comfort zone, and Khan Academy is a great tool for doing that, especially in an academic context.

17:00 LT: Tell us about Khan Academy and COVID. What are you doing now?

17:04 SK: Yeah, you can imagine when schools started close... When we even thought that they might close back in early March, it was one of those moments where you look left and you look right and you say, "I guess this is us." We could have never imagined this scenario, but people would need something that is accessible, that could work even on a cellphone, at home, that also has kind of a teacher-school lens, that covers across many subjects and grades, that is hopefully free, that is trusted, and if you put those constraints on it, it's kind of Khan Academy, and even in theory, available in multiple languages, where there's 46 translation projects of Khan Academy around the world.

17:40 SK: And so we started essentially creating kind of a war room within the organization. We're like, "What will the world need if schools get closed?" This was before we knew that they were going to get closed. We said, "Okay, we're going to have to run webinars for teachers and parents to understand how to do this, we're going to have to create schedules and learning plans for students so that teachers and parents know how to structure days. Where does Khan Academy fit in? But how can you use other things, Zoom, video conferencing, to have a decent distance learning experience for students to make sure that they don't atrophy?"

18:08 SK: And then as soon as the schools closed, we saw our traffic... And we were talking about the numbers earlier... On a normal day during the school year, we were seeing about 30 million learning minutes a day. We saw that hit 90 million learning minutes a day. I suspect when we go back to school this year, it's going to go even higher. And we just kept saying, "What else does the world need? Okay, the world's going to need better ways to fill in kids' gaps, because a lot of kids, if they didn't stay engaged during COVID, they're going to have even larger gap when they return to school, whatever return means."

18:35 SK: And so we created... We've gotten ready for grade level courses. These are courses that

have all the prerequisites up to and including the grade level that students are able to enter. They can take a course challenge. If they get a 80% or 90% on the course challenge, then the teacher or the student or the parent can feel confident that they're ready for grade level. If they don't, they can keep working, fill in those gaps. They can do that in parallel while they work on their own time and pace at the grade level course.

18:57 SK: So we're just trying to do a full core press right now, and we're entering into a school year that is very likely to be distanced, and people I know in the know on the vaccines and the therapies, they think this is going to be a year. There's a 75% chance that this time next year, COVID is essentially under control, either because we have therapies that make it less scary, or maybe the vaccine has been broadly been available and it's effective, but they're telling me there's a 25% chance that this is a... Next school year might be affected as well. And so we're trying to have that mindset, "What do we need to build that's going to be useful for COVID?" And frankly beyond. And we're also trying to advocate that many people think in that way, because right now, I think in most of the education system, they've been thinking at this more as a rolling one-month or two-month crisis, and if you think of it that way, you're never going to come up with really strong solutions.

19:45 LT: Where would you like to see Khan Academy in five years or so?

19:50 SK: Well, I think we want to cover all the subjects and grades in core academic from pre-K through the core of college. I hope that our... And this including English and language arts and history and things that we don't have as filled out yet, I hope that our software is only that much more engaging that it can really... We've really tweaked it so that kids get addicted to it in a good way, we see evidence that that's already happening for certain kids, but hopefully that's happening for more kids, and I hope that there's actually pathways for folks work on Khan Academy to be translated into opportunity, so that like, "Hey, you learned X, Y and Z on Khan Academy, that's enough to get you this apprenticeship, that's enough to get you this job, that's enough to get you into higher education," and we have helped teachers really feel empowered, really re-imagine their classrooms, really get to this utopian state, or closer to a utopian state of where a teacher in a classroom of 30 is able to cater to the individual needs of all 30 students, make sure that no kids are left behind, so to speak.

20:45 LT: In a world where anything is possible, your Isaac Asimov kind of world, the future, and education is re-imagined. What would education look like?

20:56 SK: It's a fun question. I would say it's a competency-based world, that if you know the material, and it could be academic material, you know calculus, or it could be like if you're a really good public speaker, or you have deep empathy, there's a way for you to prove it, and if you prove it, it's recognized anywhere around the world, and it can immediately be translated into opportunity. Then there's many paths to get there, and different paths are going to work well for different folks. I would hope that Khan Academy is a significant part. For some folks, Khan Academy might be the path, the Sultanas of the world, for others, it might be part of their path, maybe it's Khan Academy plus their community college in conjunction, are able to get them to the competencies that they care about that can immediately be translated into opportunity.

21:40 SK: I hope that Khan Academy... I have a project right now called schoolhouse world, which is outside of Khan Academy, but I'm hoping to bring it in one day, if it proves itself that it works,

which is matching human beings with each other to tutor each other and help each other and even evaluate each other and credential each other, I hope that in 5 or 10 years or a dream state that you've allowed me to answer, that that exists too, that not only are you learning, but you're able to connect with people around the world, and that adds a whole other dimension, not only that would help engage people and help them learn the content and they can get credentials and get evaluated, it'll create a true global community. I'll create true empathy, not to get hokey, but you can imagine a student in Israel being tutored by a student in Iran or student in Pakistan, learning from a student in India. When you do that kind of stuff, not only would they be helping each other as individuals, but that kind of thing could build a lot of global empathy.

22:33 LT: That is a wonderful vision. Before I ask you for your three takeaways, the three key insights you'd like to leave our audience with today, is there anything else you'd like to discuss that you haven't already touched upon?

22:47 SK: You can probably tell, I tend to sometimes have my head in the clouds, but then I very quickly want to make it happen, but this situation with COVID, I think we need to underline that if we don't get this thing right, it's going to be a catastrophe, and getting it right, it's like we have to have a point of view of what decent distance learning looks like, how do we support folks, especially some of the most vulnerable students out there, and I'm afraid right now because we're trying to do what we can, we're trying to work with as many districts as we can, we're trying to be a stop gap if kids and families don't have anything else, ideally, where you're able to be used by the districts, by the teachers, so that we get the best of both worlds. But I actually think this might be a bigger deal than the pandemic. The pandemic's a big deal, I don't want to make light of that, but if historians 10 years or 50 years in the future, if we have a year to two of 30%, 40%, 50% of the kids not being able to really develop themselves, I think that's going to have cascades into society that we're going to notice in 10 or 15 or 20 years. I would like to see more people acting with more urgency on this dimension of the crisis right now, which might turn into a catastrophe.

23:52 LT: And what are the 3 key takeaways that you'd like to leave our audience with today?

23:58 SK: Well, what I just said is a little pessimistic, but I think we can fix it. The takeaways are, I generally believe almost anyone can learn almost anything, and that sounds very bold. But I see it time and time again, at Khan Academy. I get letters probably while we're talking, I probably got a few letters from folks essentially talking about their own narrative, saying, I didn't think I could learn it, now I can... So that's one. I think the second thing is, there's some institutions or ways of doing things in our life that are so ingrained in us because they've always existed, they just seem like they were just delivered with... That God came down and said, Thou shalt do it this way, and you do it this way. But I think education is one of those systems where the education system we know was essentially developed about 150, 200 years ago. It really took its modern form in 1890. And I think there's a really interesting opportunity so that we can take it to the next level, so not only will people learn more, but all of the people involved, the teachers, the students, family, actually enjoy it more and get more from it and have more energy for it, so that's the second one.

25:00 SK: And I think the third one is, if we are able to do this, if we're able to allow people to tap into their potential to global scale, I do think, this is my science fiction hat on, it would be like a birth of a new humanity. Another book I enjoy is Arthur C. Clarke's Childhood's End, and it ends with the Earth kind of disappearing and stuff. So I don't want to say that's what I want to happen, but it talks about humanity elevating to another level, and obviously, we've done that many times

over our past, the advent of fire, the advent of writing, the advent of agriculture. I think if we truly have global world class education for anyone anywhere, and if it was truly connected to opportunity and people were really able to connect with each other, we're going to get 10 times the number of cures for diseases, 10 times figuring out ways to travel the cosmos, 10 times ways to avoid wars and famines and figure out ways to feed ourselves and provide, solve issues like climate change, so... Yeah, that's what gets me excited.

25:54 LT: That's a very nice and optimistic way for us to end our discussion today. Thank you so much, Sal, for your comments today.

26:03 SK: Thank you so much, Lynn.

26:05 OUTRO male voice: If you enjoyed today's episode, you can listen or subscribe for free on Apple Podcasts or wherever you listen. If you would like to receive information on upcoming episodes, be sure to sign up for our newsletter at 3takeaways.com, (https://www.3takeaways.com/) or follow us on Twitter, Instagram, Facebook, and LinkedIn. Note that 3takeaways.com is with a number 3, three is not spelled out. For all social media and podcast links go to 3takeaways.com (https://www.3takeaways.com/)