

The Rational Optimist Podcast

Stephen McBride // The Rational Optimist Society

Chrisman Frank // Synthesis

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Stephen McBride: So Chrisman, I recently saw a tweet by Austen Allred down in Austin and he talks about his six-year-old son begging him to teach him math and someone asked him, how the hell did you do that? And he says, I just gave him Synthesis Tutor. So if parents listening to this podcast have never heard of Synthesis, what is it?

Chrisman: Synthesis is a digital tutor or an AI tutor. It's a little different than anything else that's kind of branded an AI tutor. It's not just like a thin wrapper on ChatGPT or another AI model. It doesn't just solve the math problems through you or even walk you through them step by step.

It's meant to just totally take a kid from like knowing a little bit of how to count, all the way up through total mastery of, at least we started with elementary school math, so say like fifth grade, like intro to algebra, fractions, like all the kind of basics.

It's just meant to do that with no human intervention at all. You don't need to go to school in a math class. It supports existing math classes, it's like an Aristotle-like tutor where it just takes you where you're at and just gets you to a total level of mastery. And the reason I think Austen's kid felt that way about it, probably a couple of reasons.

One is there's the principle is that you're trying to make software that just acts like a human. And so it makes the decisions that an expert human would make in tutoring a child. And so one of those decisions that you would make, if you go sit down to tutor your eight-year-old or whatever, and you find they're not that great at their multiplication facts. Well, you just have them play some games on multiplication facts. So we integrate a lot of games for like the practice, just because if you think about, you were like a modern version of Aristotle, you would incorporate games in that.

The other thing that I think is really attractive to kids is there's kind of like back-and-forth Socratic dialogues. So if you look at other education software, there's two categories. There's one that's like, "we'll put lectures on the internet," right? And so you'll have—Khan Academy is a pretty good example of this where the idea was, well, if we just have like a video that can just talk at people, then they'll learn. And there's a bunch of research now, video is not the best way to learn. So you need to kind of check. You need to be able to check yourself.

So that's kind of like you take lecture, which is a bad educational device, and you put that on the internet...putting the lecture on the internet makes it a little bit better, but it's not ideal. Then the other one is kind of like worksheets on the internet. And those are the systems that will just give you—I think the problem is you just give you a bunch of practice problems, and if you just practice enough and bang your head against the wall, then eventually that will lead to understanding. Which, you know, I think can work for some people...but it's not ideal.

Again, it's like you take something that's kind of bad about standard education and put it on the internet. It's still not the best way to learn. The best way to learn is with a human tutor because of this, what a human tutor is doing is this kind of back-and-forth Socratic dialogue, finding what your misconceptions are, and then explaining and then asking you questions to check your understanding.

If you answer the question wrong, a human tutor doesn't go “ehh, wrong.” Here's a hint. They will dive in to be like, “why did you get that wrong? Let me explain the missing prerequisite.” And that's what our tutor does. So that's what it feels like interacting with a human. Kids love that. People love it, in general, when they're learning something new. And so, we've not included a lot of the game mechanics of a lot of other apps, because what we found is that kids really actually like learning.

If you're teaching them well, then they are feeling like they're learning a skill and becoming more powerful. And that's the most addictive thing, actually. When you feel like you're having success and you feel like you're learning—that's like built into people. And the reason other education software needs the points and badges and all that kind of stuff is because the kids aren't actually learning. They can feel they're not actually learning. And so you have the badges as a substitute.

But we like to say that the reward for learning is more learning. And I think this is one way where we're just a different philosophy than a lot of other companies. People actually like learning. They want to learn. When they're demotivated, it's because they feel like they're not able to learn. And so the solution to that is to make the learning happen. And you'll have happy customers.

Stephen: Knowing what you know about AI education and how powerful it is, the amazing results it can give kids, do you think you can send your kids to a normal school in good faith anymore?

Chrisman: School is like such a bundle of things. So I homeschooled my kids through elementary, and now my oldest has just started middle school. And why did he want to go to middle school? For the social life. He hates the homework. He thinks that a lot of it is just busy work. He realized a lot of what they're telling him isn't even true. But there's other kids there, right? And there's recess and there's school field trips and stuff like that. And there's a community.

So I think it would be crazy to send your kids to school and just kind of hope that they get a good education that way. I think. We have a business because either schools are adopting the

product or it's parents who are...generally, we have a lot of homeschool students, but I think the vast majority are people who send their kids to their regular schools and they're just aware that, you know, that's not sufficient in the modern world that the schools have kind of...it's a combination of things.

The schools have decided to focus on other things other than what we consider education, like basic skills, for quite a long time. And the technology just keeps improving. So I still think there's good reasons to send your kid to a school. Schools do other things, but I think for like the... If you're trying to acquire knowledge, think reading books is probably a really, really much better, more efficient way to do that. And we aim to be even more efficient than books. So it helps you just learn more in less time, retain more so that your time is well spent, so that you can do things that are more aligned with your interests.

Stephen: Since 1984, Benjamin Bloom's two sigma study, I guess we've known the best way to educate kids. I guess maybe we knew that in the 1800s with aristocratic tutoring. What was the key innovations or technical unlocks that have made it possible for Synthesis and others like you?

Chrisman: We actually got the idea from a DARPA project in... 2012 is when the paper's written. You can Google this. There's a paper, it's on the Less Wrong blog, [Less Wrong DARPA digital tutor](#). And it'll bring that up. So this was in 2012, like before modern AI. And the key insight that they developed...DARPA gave this company like a hundred million dollars over a series of funding milestones to create a digital, superhuman tutor for the Navy in the field of IT. And no one had been able...

DARPA didn't know about Bloom's two sigma problem. The idea that it had proven so far impossible to create software that was as good as a human tutor—like the two sigma, so 50th to 98th percentile kind of results that you would get with a human tutor—had not been replicated in software. So DARPA didn't know that. And so they took this like a kind technological moonshot for the Navy. And the company that they gave money to overshot by quite a bit. They got compared to a classroom group.

Students trained in IT on their digital tutor were not two standard deviations, but eight standard deviations above the typical classroom train group. And they were four standard deviations above the 10-year veterans who had just done that job for 10 years in the Navy. So just completely overshot. And they did this all without modern AI. And the secret was the guy who—through this weird confluence of events—the guy who got in charge of the product was a teacher, which is very uncommon for software projects. It's always like someone engineering-minded, engineering-brained in charge.

They got a teacher-brained guy in charge. And he just kept telling the engineers like, “No, it can't work like that because that's like not what a human, that's not what I would do if I was sitting in front of a kid. You know, I'm not so algorithmic. Like everything a student says or does means something to me, and we need to try to mimic that.”

And the tradeoff when you know the, leaving aside like how, you these are like trade secrets and like how we actually do that. But it's incredibly labor-intensive. It's incredibly resource-intensive to create software that operates like this. The AI is not really giving us a lot of progress except you can now speak to students in a voice that is not robotic, and it is engaging.

It really, really helps actually having the tutor speak and get the intonation and the emotions right. And also the students can speak back, and a tutor can understand what they're saying and parse the language. That is extraordinarily helpful. That's what allows us to make this like a consumer product.

But the core learning ideas were developed on the DARPA project more than 10 years ago. And I think it's so difficult to do this way that, you know, it just never occur to any, anyone else and hasn't occurred to anybody else. And so we feel like we've kind of got this, the unique way of looking at it and, you know, it's uniquely valuable.

Stephen: Your co-founder Josh started a school at SpaceX for Elon Musk's kids and another SpaceX engineer's kids. Talk me through how the SpaceX school actually works and then what lessons you've borrowed from that and integrated into Synthesis.

Chrisman: Yeah, yeah. The big one was Elon's famous for being the first principles thinker. And so when he started a school, and this is a guy like, he wasn't like Elon, Elon at the time, but he was, you know, a billionaire and, you know, lived in LA, had his own rocket company and could send his kids to any school. And he couldn't find one suitable school in Los Angeles County where he felt like it was gonna give his kids a decent education.

So he started the SpaceX school. The core you know, first principle idea was that the kids should learn how to solve problems that school, felt like the goal of school was just like doing more school and it was disconnected from everything. And he wanted his kids to actually be able to solve problems. So this is something I think it would appeal to the rational optimist, right?

It's like this core idea should be, "Hey, you're, you're a human being and a thinker and a problem solver. You can solve problems and improve civilization. Like you can contribute and you have to learn how to do that because people figured out a lot of things before you." So let's build a school that actually prepares kids to solve problems that companies like Tesla like SpaceX that are that are gonna make the world better.

So all the kind of curriculum fell out from that so they did a lot of things at the school that you know were sort of resource-intensive, right? Like they had one-on-one tutors from Caltech teach the kids math and science. And so, you know, as you know, like the one-on-one tutoring, you know, the aristocratic tutoring model is extremely effective. The kids, by the time they were 12, they're doing like graduate-level mathematics and graduate-level science.

So Elon kind of was like, "okay, you've sort of saturated like those hard skills. What's next?" And so, yeah, my co-founder Josh would get to watch Elon operate his companies. He'd meet

with Elon at his house on Sundays and watch Elon do a bunch of calls and meetings from his house and just listen how he solved problems across the organization.

So he came up with this project, took a couple iterations, but it was a class called Synthesis where the kids... He'd make these bespoke games and they're pretty complex and like pretty you know, somewhat like data-intensive games. And you put the kids on teams and they had to kind of figure out how to solve this problem faster and better than the other teams. So it's like turn, turn like problem solving into like this team sport.

And the kids loved it. It's super complex because the games themselves are complex. And then of course you're competing against the other teams, and you don't really know what they're going to do. So you have to think through what they're going to do. You have to communicate with your own team. It was like this way of building like the core, like team problem-solving skills that the kids would need if they were gonna go on to work at companies like SpaceX or launch their own startups.

It was just like this missing piece of modern education where there's this big focus on the academic skills, but the soft skills can be just as important or more important when you're actually solving problems. And kids get no practice with that. You can say they get team sports, but when you do team sports, you're not making decisions, right? Generally the coach is just telling you what to do and you have to execute physically, but you're not debating with your teammates on how you should handle this problem. That's like all delegated to the coach.

So the kids don't really get any practice doing that. And so that was the first product that we launched. You know, it's just based on that class called...that we call that Synthesis teams now. Still runs, it's quite popular. My kids still do it with kids from all over the world and like 50 different countries taking part in this. The idea is just give kids the core skills, give them that practice so that they can go launch their own startups, build companies solve problems for humanity.

Stephen: You've since moved on to helping kids master math. Just walk me through how Synthesis tutor works. I'm a parent, I signed my six-year-old daughter up today. What can I expect? Why should I do it? What does it help her achieve that she can't do in school?

Chrisman: If she's six, I mean, I think one thing people probably don't understand because if you have a six-year-old daughter now, then you're 30s or 40s, school was like wildly different when we were your kids. And that focus on core skills, understanding the numbers and place value system, being able to multiply and add and divide fluently. The focus on arithmetic is like not there anymore. And so our test scores are, have gone down pretty dramatically.

Now, even in that world where when I went to school, a lot of it was just, we practice memorizing our times tables, but we didn't get the conceptual understanding. So I was fortunate enough, my dad would teach me math just like around the kitchen table, or I would see him use math to solve problems. And so it gave me this idea that you could understand

these things conceptually and then apply them to novel problems. So it just never occurred to me in school at all.

And I think the reason is, it's very difficult to teach conceptual understanding in a classroom because the nature of it is you're constantly just probing. "Did that go in the students brain? Did they actually understand what I'm saying? I need to ask follow up questions to figure out if they understood." And it's just incredibly time and resource-intensive. And it's the reason that works and that's why human tutoring works. But doing it at a classroom scale is impossible.

Apart from Synthesis and the DARPA project, there's no software that can do it either. Like the best software that we have is just like... You have software that can teach you, that can let you practice multiplication facts, but there's nothing that's doing this kind of conceptual probing and understanding which we think is what leads you to be able to take these ideas that humans have worked out over centuries and apply them to solving novel problems that are not in the context of school or a test.

There's nothing else there's no other software that does what our tutor does and the best way to see that is just sign up and use it and have it teach you something, have it teach your kids something. I think it's very readily apparent once you do that that this is like a totally different way of learning. And our idea is not just we don't teach to the test, we're teaching you for that understanding, right?

We want you to have the understanding that you're gonna take with you throughout your life. Because if you have that understanding, that click of understanding, then you don't forget about it once the test is over. You take that with you. And I think there's even... I can't prove this, but I think I've seen enough people go from like not being thinkers to being thinkers through two main ways are like they learned a code or they go to law school. I've seen both of those work where they learn how to like break down problems and solve problems that makes them globally like a better problem solver.

So I think when you learn this way, you learn this meta lesson that the world is explainable to some extent, and you can figure it out, and you can actually understand what's going on. I think that's really valuable because otherwise you kind of go through life. Imagine just going through doing all this math, not understanding. It's just like a handful of disconnected rules and you're like, "why is it this way? Why am I learning this? Like, why do I like carry the one here?"

Actually having an understanding of it teaches you this meta lesson, which is that like things can be understood and they can be understood by you. And I think that's really important to give your kids as young as possible.

Stephen: What are you hearing from, you know, some feedback from kids and their parents?

Chrisman: I think probably the best one is that “my kid was just struggling with math and they hated it. And this just completely changed their attitude.” Like they started to enjoy math, which is something that we expected. I didn't expect to see it dramatically and so early.

I hear stories of parents, like their kid was bottom 20 % and then they spent just like 10 hours on our tutor and then they're in the top 10 % by the end of this year.

There's an attitude change. It's shoring up the fundamentals. I think we're helped out by like...regular classroom learning is just so extraordinarily inefficient that I think like 10 hours on Synthesis tutor and you can learn an entire, you can make more progress than you might make an entire year in the classroom.

So I think we're helped out in being compared to the classroom in that way. Then here on the other side of the spectrum, I'm quite proud there's a guy who's a senior staff engineer on Tesla AI, you know, reporting directly to Elon. He's got six-year-old, seven-year-old daughter. And she loves the product, and it's helping her like race far ahead of her grade level and just keeping her stimulated and, just, it's not a kid that was ever going to have problems in math necessarily, but it's helping her like, you know, look at it a new way.

And that's an important concept to us is that education shouldn't put limits on kids. If there's a kid who wants to really race ahead and learn more, well, let them learn more. And you know, it's a nice thing about technology is everyone can kind of go at the pace that's right for them and everybody can get to a level of mastery that is attained by a very few people now.

Everybody can get there regardless of your like intellectual hardware. It might take you more time than somebody else, but that's okay. The important thing is that you can get these ideas, and you can learn how to apply them in your own life.

Stephen: You have Synthesis tutor today that focuses on math. What have you learned from building that product that will allow you to go and do all STEM subjects or every subject in the world? Is there core fundamental understanding that you could apply to everything?

Chrisman: Absolutely. Yeah, there's a lot of tooling that we've built to create these lessons faster and more reliably and make them better. There's also just a lot of...there's learning about learning that happens. I would say there's a couple fundamentals. One is like, “who is holding the pen?” This is something I will tutor my own kids in order to do research for the tutor.

What I find is they will just be totally disengaged unless they're holding the pen. So if I'm drawing stuff out for them, it's like they just have no ability to pay attention to that. But when I give them the pen and ask them to draw something, then way more engaging. So it's important we build the tutor in that way, that we're always just asking you to do something and not talking at you, which is the failure mode. That's a really big one.

The other one is what you find is you're always unintentionally throwing too much cognitive complexity at the students. And so figuring out how to break it down so that you're really

giving them like one little nugget of an idea at a time so they can focus on it, that's how you get them to the frontier of learning, of their ability. And it makes the learning feel easy.

So if you really do this right, the students feel like "this isn't such a big deal, like this is just easy, anybody could learn this." And they had the same problem at DARPA where the students just, they literally didn't believe they were learning a useful skill, and they were mad at the course designers because they were like, this isn't gonna help, this is too easy, like there's no way this is job training for a job that an industry pays six figures a year. They're like, you lied to us because they just couldn't believe it because it was too easy.

But when you compare them to the classroom group, it's like, no, it's not that this stuff is easy. It's just that you got taught and trained in a different way that makes it feel easy. And so this is another, I think, point of departure from a lot of what I see people talking about in learning is that there's some feeling like it has to be like a grind, and it has to be hard. And I just think that's like totally untrue.

There's no need for pain in the learning process. And I think if you're really doing it well, if you're teaching well, then you know, it should be more or less painless. Like it's going to be, you know, kind of, you do have to think, right? You can't do it in a passive way. You can't learn in a passive way. But there's no rule of the universe that says like it's gotta be painless and it's got to be a grind. Like I just completely disagree with that.

Stephen: Based on your interactions, I feel like the AI tutoring movement and what you guys are doing, it's like a secret, it's like Fight Club almost. It's like a few of us know about this, the rest of the world doesn't. Why is everyone not doing this?

Because this is incredibly powerful. I think we all believe that educating our kids is the most important thing that we'll do. Why is everyone not doing this? Isn't it an awareness thing? Is it that you can't yet take, you know, it's not yet available for every subject in every country? What is it? The limiting factor.

Chrisman: I think it will be, I think it will take off for everybody. I think there's, you know, just these things take a while to build awareness, especially how we're going about it, which I think is the way you have to go about it. You sort of need to like build the holistic solution where it's like, if you put a kid on this, they will learn and you don't need like the classroom or the other software or teacher like all the other things people are doing. You can just replace all of that in math at least and I think with other hard subjects as well.

There's a whole system in place to teach those subjects. That system is inefficient, and it doesn't really work, but it's not gonna go away overnight because there's jobs and those sort of things. There's bureaucracies built up around the old way of doing things. But I do think in the long run, it's the same as any other technology. You've got the early adopters, the people who work at Tesla or SpaceX, and they're like, they can see the problem. They're able to think independently.

You've got small schools that are innovative that are already adopting it, and I think it just takes a little bit of time. I think that the thing that's coming up for us this year is I think we will have our own version of the two sigma test. Like we'll be able to demonstrate like this is actually the software is better than any human tutor on the planet. So even if you had Elon money, and you could just hire the best human tutor, if our tutor teaches it it's better to just let our tutor do it because you know we're putting just so much more resources into teaching any given concept that there's there's no way an individual human could know all that or be able to teach it as effectively.

And DARPA actually did that. They were just far beyond what a human tutor could do. And I think, you know, interesting that once you get that proof, then I think it accelerates quite a bit. But for now, it's like some people can just see it they just use it and they're like, "I get it. Like this is obviously the future." And then for everyone else is gonna need proof and that's fine. That's just the technology adoption curve. That's the way it ought to be.

Stephen: If I appointed you head of the Department of Education tomorrow, what does the ideal school day look like?

Chrisman: I mean, I would shut down the Department of Education and I would let local people figure that out. I think I would just get the federal government out of education. I think what we're doing is a small part of education, right? And it's gonna be a smaller part, interestingly, right?

I think the academic learning, because it takes a lot of time to do it in classroom style, but when you do an AI tutor, I used to think like two hours a day and now I think maybe probably more like one hour a day. I think when you're really thinking hard—and our tutors assign this way, like there's no easy question. If you answer a question, it's easy. We're always trying to dive a little bit deeper. So we're always kind of keeping you, you you're really thinking hard.

Even like an hour a day, you're just gonna learn so much more and so much faster and so much more efficiently. So then it creates a new downstream problem. I think the Rational Optimists will appreciate this is a solution to a problem, but it will create new and more challenging but more interesting problems.

It's like, "what do with the kids for the rest of the day?" My answer to that is like, I think education should be way shorter. It should take way fewer hours of the day, like formal education. I think, you know, kids... My son is 11 years old. I know he's probably like ready to get an apprenticeship or like go to work in some shape or form. Like he's capable. He's smart. I have him help me out with like chores around the house, like yard work and that kind of thing. It's like, he can carry stuff now. Like he can, he can use a shovel. Like he's, he's like, can actually be useful.

By the default, he will just be trapped in school for another 11 years, not really building any skills, just kind of like socializing, goofing off. And you know, some of that is probably good for youth, but I think people in general are like way to remove from society for too long

through this, you know, tyranny of education. So I would shut down the Department of Education. I would, you know, tell local people to figure it out.

If I had to make a prediction, I would say we probably hit peak education, you know, about 10 years ago. And I think from here, there's just going to be a decline of formal education and the amount of money that parents have to spend on college. The amount of time that is spent on formal education, I would expect a decline for the vast majority of people in the future.

Stephen: Well, you certainly get my vote, definitely. Which countries or states really get this—are at the forefront of understanding how AI is transforming education?

Chrisman: I think El Salvador is a leader we've been working with the government down there and piloting the AI tutor with their students. They have a lot of challenges, like a lot of their schools are just—the president has tweeted about this—but they're made out of like corrugated tin and have chickens running around through the classroom.

So they have a lot of kind of like upstream problems, but I expect them to do great. They're going to solve the problems, and they're gonna have...they understand they do not have the capability to put a great teacher, an expert teacher in every classroom. And so they're going to rely heavily on AI. So I expect them to be a leader.

I expect a lot of the Arab countries have reached out to us as well. UAE, Saudi Arabia, I think places like the US are a little more complacent, but other places in the world recognize AI tutors can help them leapfrog the education systems in the West. And so I expect places that are more desperate to be able to leapfrog the US.

In the US, I think it's just the typical anyone who is you know... I think it's more of like the smaller states and the more you know more right-wing right? Because the AI is weirdly a power of the people kind of technology right? Like I've seen people make this argument on Twitter that you can't audit or you can't like trust the AI to talk to your kids, but it's actually much more auditable. Like our product is much more auditable than a teacher, right. Aside from like putting cameras in the classroom and recording what teachers are saying to the kids.

Our tutor, any parent can go through it and act like a student and see what it says and see what it does. And so it's a lot more auditable and therefore I think the people are more likely to get what they want. It's also just like it's a lot cheaper. You don't need to build up a big bureaucracy like with teachers, you know, these big bureaucracies get built.

You have training programs and they get kind of ideologically captured. Whereas like, you know, we're a handful of people and we can build the AI tutor that can teach, you know, millions and millions of kids math and then, you know, people can either adopt that or not. And so it's like, I think an incredibly empowering technology.

Stephen: I've seen you say we'd rather crank out, we'd rather nurture agency than crank out cogs. Agency might be the most important skill over the next 20 or 30 years to teach our kids. How do you do that through Synthesis and just more generally as a father?

Chrisman: In Synthesis teams, there's this kind of culture of... It's always funny, the kids show up from traditional education backgrounds and they're like, they want to raise their hand and be like, "tell me what to do." And so the big kind of cultural shock is like, "no, no, no, you're gonna figure it out. We're just here in case you guys start, if conversation devolves into shouting or name-calling or something, then we have adults there to keep the peace a little bit." But very light guide rails, everything is, in general, on you to figure out.

So think putting kids in high-agency environments, trying to construct those environments, even if they're digital, I think people get a little bit of a taste of that, like, I'm the problem solver. It's up to me. I'm not always gonna be able to just...I don't need to wait for an adult to tell me what to do. So I think that's important.

The big one for me is I just think less school. I just think it's really hard to run a school. Run a classroom where you have few adults, and when you really wanna make kids get through this curriculum that they kinda don't wanna get through, and you've got to spend eight hours a day doing that. I think it's very difficult.

So my opinion is just less school and get kids mixed in with the real world more. I homeschooled my kids, and I still homeschool two of them. And think that's, you know, a lot of homeschool is just like you're bored and you got to figure out what to do, right? Cause we don't have time to sit there and create a schedule that fills up all day, every day. So you've got a little bit of a schedule to do your core work.

And then it's like, figure out how do you want to spend your time? What skills do you want to build? So I think school...the worst thing about it, in my opinion, is it kind of kills that muscle. You put students in a low-agency environment. That's a lot like prison and a lot of schools, at least it was for me. And I think it takes a while to regain your sense of agency in the world. I think some people survive with it intact. But a lot of people, it just kind of dulls that spark that they have, because you're put in an environment where you're kind of helpless for years and years and years. It's got to have some impact on your psyche.

Stephen: I don't think I've ever told a story publicly, but I got paid to go to high school, and I didn't miss a day. I didn't miss a single day going to high school. My question is what do you think are some right and wrong motivators to basically help kids achieve good grades? All those type of things. How do you think about that?

Chrisman: I'm not against paying people. If you think about it, if you were dictator of America, let's say, it would be nice to preside over society where everybody has some level of reading ability and reading comprehension and math ability, maybe economics ability, something like that. Just to have the knowledge of kind of how things work. And people get paid.

Money is a good motive. Most people, they're working because they get paid for it. They have some economic need to work. In the economy, you get money because you're providing value to somebody else. I think that can kind of go wrong in education, it's like if you are the dictator, am I actually learning something economically valuable, or is this just make work?

But in principle, I'm not opposed to doing that. I haven't had to pay my kids to learn yet because I think if you can, there's sort of a magic about learning to read and learning to read more and more challenging books. That just feels good. It feels like you're getting more powerful. I think the same is true for math. If it's presented the right way, I don't think students need a lot more motivation.

I think you need that external motivation when the material has not been well thought out, not well adapted to the student. So I think the money can be kind of like a crutch there. But in general, I'm not against it. I think there are sort of fundamentals that you want every kid to spend a little time learning. If you think human civilization has been advancing for 2000 years or so. Like we figured some things out that we want to pass down and we want to make sure get passed down accurately.

So I think it's certainly—any kind of suitable education system will have that focus on the fundamentals. But I think that's like, again, it's like an hour a day in my estimation. It's probably not an hour a day for like 20 years even. I think once you get to that level of fundamentals, hopefully you've gotten a broad survey of the world. And then you have to go find your thing, whatever is interesting to you that you want to learn about.

So I'd love to see just like more projects, more students being weird and having interests that are driven by their own personalities and their own curiosity. I think that as our civilization kind of expands, there's just like more niches, infinite niches. And more new ones get created every day as technology advances and culture advances. And so that's the world.

You want to live in a creative world, right? Not one where you can prescribe what everybody's going to be doing, but one where the fundamental prescription is like, go find what you are good at and where you can deliver value. And that's quite a hard thing. Right, young people, that's quite a hard thing to figure out. I think old people, like, oh, just kill, you tell young people, like, I'll just kill it to be 22 again, right?

I remember being 22, and it's this sort of like anxiety that you have about like, oh, I gotta figure out what I'm gonna do, and the world is so big, and you kind of don't understand it. You don't know where you fit in yet, and that is a very difficult problem for young people to solve. I think keeping them locked up in these fake school environments that pretend to give you skills and then don't...it's like one of the most evil things we could do.

I think you want to throw people into the world as soon as possible so they can start that process of figuring out where they fit in because it's quite a challenge, there's just no way around it. It's quite a challenge, and you want to give people the time to figure it out while they're young so that they don't feel like they're running out of time too soon.

Stephen: Someone listening to this might think AI tutoring great, I'm just gonna go on, I'm gonna go on to chat GPT-5, and I'm gonna homeschool my kid using that. Why is that a bad strategy? How much can you actually accomplish with just a basic generic AI model?

Chrisman: Yeah, I'm not super optimistic about that. I think the reason is these tools are statistical in nature, and so they tend to break down the sort of... If you imagine a dialogue that you're having with a person as being kind of a tree. And so you'll go down a certain path and then branch from that path and keep, you know, continue branching. Sometimes come back up the stack to an earlier branch and then branch out again from there.

The longer you talk to these things, the longer you're in conversation, the more kind of dependencies that you create, the more kind of context it's created, the harder it is for them to understand what's going on. And so I think they're really useful. If you have a particular question that you want to ask, then I think they're great. But we've had search engines for a long time before that were pretty good as well.

So AI models are like they're a little bit better than search engines in a lot of ways. But still they're not going to be able to take a broad prompt like "okay teach me the fundamentals of civilization that I need to know. Teach me just the core fundamentals of like western civilization so I can, you know, go on and find my own path in life." I think that's a little bit too hard of a problem. Even like, "I'm in third grade, teach me all of math." It's like they just are not going to be able to do that.

You can actually imagine a world where maybe they could, if there was enough one-on-one tutoring data. If there was enough one-on-one data of conversations and what's written on the pen and paper between a human tutor and a student, if you get millions of those, then maybe, but as it stands right now, they just kind of read the internet. And so you'll get the average of what's on the internet, which is not going to get you, the amazing, remarkable results that that we aim for at least. So great tools in a lot of ways.

And think it's kind of up to creative people to figure out how to use them. But I used to get this question a lot from investors, like, what about GPT-5 when that comes out? That's going to be.... They'll just be able to do it then. And that's kind of died away. Now I think people are starting to get the sense of what these things can do and what the limitations are. And, you know, been obvious to us for a while, but it's nice to see the rest of the world kind of catching up. I think they're remarkable tools, not maybe quite as capable as we've been led to believe.

Stephen: Well, Chrisman, I know we're coming up on time here. I'm going to read a quote from you and I want you to give us a leave us with a dose of optimism. So you said the 20th century industrial education complex is the single biggest anchor on human ingenuity and freedom in the West. What's possible when we pull millions of kids out of this complex and put them into this brave new world of AI tutoring?

Chrisman: I don't think it's just AI tutoring. I do think AI tutoring will... We will have to drop the facade that schooling is the super important thing, right? Because you're gonna have kids doing AI tutoring for an hour a day and just completely blowing away the results of the

traditional education system by their own metrics, right? Like the existing system has this standardized test, and I think you're gonna see students go on Synthesis and just completely blow away those tests in very little time. And it's gonna make people ask the question, like, what do we do now? What do we do with the rest of the time?

And I think you're starting to see this in upper-class communities already where the education is more about creativity. It's more about exploring what interests you and kind of like bringing students alive. So I hope that we see much more creativity, and I think that the industrial education system crushes creativity. It makes you feel like there's this one narrow path. It completely dominates the time of young people, and that's why I originally tweeted that quote that you have there. I think the results will be unpredictable flourishing of human creativity. Unpredictable I think in the best possible way.

Stephen: For parents listening to this, how can they find out about what Synthesis is doing? Keep up to date with all the stuff.

Chrisman: Yeah, we're at I mostly post on Twitter on X now [@chrisman](#). I'll post updates about the company there and then you can also just try it out for yourself at [synthesis.com](#).

Stephen: Chrisman, thank you so much for your time. I think you're doing an amazing service, and I can't wait to see what the world looks like in 20 years when you succeed. You succeed before then, but you're gonna change the world.

Chrisman: Thank you. Thank you. Thank you. Thanks for having me.