

David Senra, on Jensen Huang: Founder of Nvidia on Colossus Founders Podcast #376

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Based on his reading of The NVIDIA Way: Jensen Huang and the Making of a Tech Giant, and it was written by Tae Kim. The book is a company history of NVIDIA.

“Excellence is the capacity to take pain”

1) One of my favorite maxims in the history of entrepreneurship, and that is excellence is the capacity to take pain.

2) And so by day he's designing microchips at AMD and at night and on weekends—he's married and has two kids by the way. So he's got a young family, he's got a full-time job. And he decides he wants to go to Stanford. He wants to get a master's degree. It's going to take him eight years to finish his master's degree because he can only go on nights and weekends and spare time while he's working and then raising his very young family.

But again, he took away a very valuable lesson. He says, "I have a very long-term horizon. I can be impatient about certain things but infinitely patient about others. I plug away."

Desirable friction

3a) There's this great interview, I think it's called "Steve Jobs: The Lost Interview." I think it occurred right before he went back to Apple, so this is right around 1997.

So he tells a great metaphor. Steve, master storyteller, has a great metaphor for teams working on a product that they are passionate about.

3b) The next day we opened the can, we took out these amazingly beautiful polished rocks. The same common stones that had gone in, through rubbing up against each

other, creating a little friction, creating a little noise, had come out these beautiful polished rocks. It is through a group of incredibly talented people bumping up against each other, working together. They polish each other, they polish their ideas."

‘High-tech specificity’

4a) Their first product, right, is a flop and it's called the NV1. And so Jensen is actually doing like this postmortem, and he realized they made several critical mistakes with the NV1.

So I'm going to read a section from the book to you. Some of these critical mistakes with the NV1 start from positioning to product strategy. He says they had over-designed the card, stuffing it with features no one cared about. The market simply wanted the fastest graphics performance for the best games at a decent price and nothing else. The NV1 could simply not stack up against other cards that were more narrowly designed.

This is what Jensen said: "We learned it was better to do fewer things well than to do too many things. Nobody goes to the store to buy a Swiss Army knife. It is something that you get for Christmas."

4b) Says—this is what Dyson said: "People do not want all-purpose. They want high-tech specificity."

‘Against the Odds’ book

5) So my number one recommendation for all—out of every single book that I've read—is still James Dyson's first autobiography. It's called "Against the Odds" because the entire book is just 14 years of struggle. It's James making every single mistake possible that a young entrepreneur can make. It's him persevering and enduring through 5,127 failed prototypes.

Positioning

6) What's very weird about product positioning is everybody comes up with their own definition of it. I think David Ogilvy's definition that he wrote in like 1965 has not been improved upon. I still think it's the best simple way to think about how to position your product. And so David Ogilvy's definition of product positioning is simple: it's what the product does and who it's for.

7) There's a great line that the author Tae Kim wrote in this section that I think is beautiful. It says, "Seduction requires a simple message."

The best leaders are great teachers

So I want to start here because the very first sentence in the book is, "In another life, Jensen might have been a teacher." That, of course, is going to mean a lot to you and I, because a common trait of founders is the fact that they spend a lot of their time teaching their organization. So I actually went and talked with Sage about this or prompted Sage about this. And there's a great—a lot of great examples.

Many of the great founders saw themselves primarily as teachers. People like Sol Price, Henry Singleton, Warren Buffett, Bill Walsh, Steve Jobs. In fact, Jim Sinegal, the founder of Costco, who was a mentee of Sol Price, has the best quote on this. He says, "If you're not, as a leader of the company, if you're not spending 90% of your time teaching, you're not doing your job."

And so one of the ideas that Sage reminded me of that I forgot, is that they cynical learned that from Sol Price. Sol Price had this idea of what? Like, why are you teaching? What are you actually doing? And he says you actually—the best leaders create alter egos through teaching. The end result of the leader teaching all their employees to become alter egos. Now you have somebody that can understand and perform their jobs as well as, or better than, the owner or the leader of the company would.

This is why I think distilling things down to a list of principles or a handful of maxims is so common and so important, because essentially what the leader of the company is doing, what Jensen's doing, is you're continuously teaching and reinforcing your company philosophy and the values over time, perhaps by repeating the principles and the maxims. The great founders essentially become evangelists who relentlessly teach about the company's mission and their values.

E-Staff

9) He says, "Ultimately, my E-staff, which is his direct reports, which we'll talk about later, is something that I have to know how to work with. The company's organization is like a race car. It has to be a machine that the CEO knows how to drive."

11) Jensen's famous, or infamous, for the fact that he has 60 direct reports and he refuses to do one-on-ones.

So Jensen, I think, one of the main reasons he designed a flat organization is a flat structure fights against the danger of slow decision-making.

Whiteboarding

10) Some people like Bezos wants a six-page memo. Jobs wants a demo. Jensen wants the whiteboard. So the whiteboard represents both possibility and ephemerality. I can't pronounce that word, I'm sorry. The belief that a successful idea, no matter how brilliant, must eventually be erased and a new one must take its place.

One of the reasons Jensen likes to use the whiteboard as the primary form of communication in meetings is everybody must demonstrate their thought process in real time in front of an audience. With the whiteboard, there is no hiding. I lost count how many times in the book they're talking about how central, like, how important whiteboarding is to running NVIDIA.

And actually, one of the things that Tay Kim was gracious to send me, he sent me this Wall Street Journal write-up, a review of the book written by this guy named Ben Cohen. Ben has some great writing here in terms of like what he learned from reading the book and the importance of the Whiteboard.

It says, "Instead of cloistering himself in a private office, Jensen prefers to work from conference rooms. He does his best thinking at the whiteboard, which he uses so frequently that he has a favorite brand of marker that is only sold in Taiwan." And so even when he's traveling, they have to travel with this specific brand of marker, and they have to travel with whiteboards.

Public criticism

12a) Jensen does not believe there's this maxim like "praise publicly, criticize privately." No, he does not. He criticizes publicly so that the entire organization can learn from a single person's mistake.

12b) This is what he says: "Feedback is learning. For what reason are you the only person who should learn from this? We should all learn from that opportunity." He says that Jensen displays his trademark directness and impatience in all settings. He does this all the time in small meetings, too. He just can't let go. He has to make it punitive a little bit.

13) Tortured into greatness, this habit of self-criticism. So Jensen is not just publicly criticizing other people. He does this to himself. He has a great line about this where he

talks about, "I want to torture people into greatness," which you realize is he's tortured himself into greatness as well.

Speed of Light

14a) So he wants all of the work done in NVIDIA to be contained by only one thing, and that's the law of physics. So the speed of light means that you have to take every single project inside your company, you break it down into its component tasks, and then each task must have a target time to completion. That assumes no delays, no queues, or no downtime. Why, of course you're going to have some kind of unexpected things pop up. Because he wants to set the theoretical maximum, which he calls the speed of light.

He wants to know what is the physical, like the fastest this could be done? And you know, it's the fastest it could be done because it's physically impossible to exceed that time. And then he says, "We're not going to judge ourselves on what we used to do. We're not going to judge ourselves on what other companies do. I don't give a shit what other companies are doing. We are going to judge ourselves against the speed of light."

14b) So I'm going to give you an example of Jensen's speed of light idea. I already gave you a little hint earlier. This is about the Riva 128. To save time, Jensen decreed that NVIDIA would have to develop their driver software for the Riva 128 before the prototype chip was completed. This was a reversal of the customary process. This would shave nearly a year off the production timeline.

You have to shave a year off a production timeline because if you remember, he's running, he's got nine months of cash now. He just bought that machine. So he's got six months of cash. There is no time. So it says this was shaved nearly a year off the production timeline. But it would require the company to find a way to bypass the step of testing the software on physical chips. That's why NVIDIA invested a million dollars in that ICOS emulator. Even though every dollar was precious, it would allow them to approach the speed of light.

Three Teams, Two Seasons

15) And so Jensen, this is before the AI boom. NVIDIA is just a PC graphics company in the PC graphics industry. He's trying to figure out, "Okay, at the top of this industry, there's a lot of turnover. I've gotten to the top. I want to stay here. How do I do that?" And one way he does this is by being unapologetically extreme.

So he asks, "If you look at the PC graphics industry, why is it that one company can never hold a lead for more than two years?" Now that NVIDIA was the market leader, Jensen became obsessed with this problem. He realized the whole industry moved according to the rhythms of the computer manufacturers who refresh their product launches twice a Year.

Chip makers, NVIDIA included, took 18 months to design and launch a new chip and typically only worked on one chip at a time, which means chips were functionally obsolete long before chip makers could come out with a new product. Jensen figured out how to keep NVIDIA ahead of its competition. He said, "We were going to fundamentally restructure the engineering department to line up with the refresh cycles." NVIDIA would split the design team into three groups. The first would design a new chip architecture, while the other two worked in parallel to develop faster derivatives based on the new chip. This allows the company to release a new chip every six months while their competitors are releasing a chip every 18 months.

He has a line for this. He says, "This was called three teams, two seasons." Now the company would have three times as many chips on the market. Even if a competitor offered a slightly better product, PC makers would have no motivation to switch away from NVIDIA, knowing that a faster part would arrive within six months.

T5T

16) I want to read from that Wall Street Journal article written by Ben Cohen that Tae Kim sent me. He says employees have been sending notes known as T5T - Top 5 Things they're working on, thinking about, or noticing in the corners of the business. And for decades, Jensen has been reading them, all of them. "If you send it," Jensen says, "I'll read it."

T5T emails have become his preferred method of flattening hierarchy. "Strategy isn't what I say, it's what they do," Jensen said. "So it's really important that I understand what everybody is doing." He does that by reading T5T emails. He doesn't want information that has already made its way through layers of management. "What I want is information from the edge," that's a direct quote from Jensen.

He is looking for the next \$0 billion market, a frontier that has not been explored because it barely exists, but one day could be a thing. One of the weak signals that he intercepted years ago was a wonky but exciting development in machine learning that kept popping up in T5T emails. Jensen decided that NVIDIA needed to invest more in tools for accelerating workloads on its GPUs. This is why they're a \$3 trillion company today.

Listen, Understand, Answer or LUA

17) So if you start rambling, Jensen will just say "LUA." Okay, this is a maxim and it's shorthand—it's an acronym. It means Listen to the question, Understand the question, Answer the question. So if he says LUA, he wants you to stop and just do those three things in order.

"Strategy is not words. Strategy is action"

18) Jensen says, "Strategy is not words. Strategy is action." Strategy is not words. Strategy is action. Jensen said, "We don't do periodic planning. The reason for that is because the world is a living, breathing thing. We just plan continuously. There is no five-year plan."

Okay, so again, I'm gonna read that paragraph and I'm gonna filter that paragraph through every other thing that I've read for this podcast and every other thing that you and I have talked about. That line—"Strategy is not words. Strategy is action"—it's one of my favorite lines in the book. And immediately I think of Henry Singleton. So Henry Singleton had a very distinct philosophy around planning. I did a, I think one or two episodes on him years ago. I gotta redo this. He's too important. And I didn't know how to podcast back then, so I gotta do another episode on Him.

But Charlie Munger, for example, said Henry Singleton was the smartest person he ever met. Okay. Buffett says that it is a crime that business schools don't study Singleton. And I think he said you could take the top 100 business school graduates and combine their record and still wouldn't compare to Singleton's record.

Excellence is a habit

19) So what Steve says is, "I think if you do something and it turns out pretty good, then you should go do something else that's wonderful and not dwell on it for too long. Just figure out what's Next."

The reason I think this is important is that it also fits into Steve Jobs' overall philosophy. If you go back, Steve was asked one time what his favorite quote was, and it was actually a quote by Aristotle where he says, "We are what we repeatedly do. Excellence, then, is not an act, but a habit." And so I think Steve would tell you the key is to keep pushing forward, stay hungry, and continue to create really wonderful things rather than dwelling on past achievements.

Throughout this book, this theme just reoccurs over and over again that complacency kills. I went back and searched all my notes and highlights, and you just

see this over and over again. Andy Grove, he had this mantra: "Success breeds complacency. Complacency breeds failure. Only the paranoid survive."

‘Ship the whole cow’

20) One of Jensen's favorite books is the Innovator's Dilemma. One of the main takeaways he took from reading the book is that the threat is actually going to come from the low end of the market. And I absolutely love what he did here.

So, number one, the threat comes from the low end of the market. Number two, ship the whole cow. And this is going to be fascinating. So this is Jensen talking about how to avoid the Innovator's Dilemma, that innovation is a necessity, it's not an option for them. At NVIDIA, he says, "We build Ferraris. All of our chips were designed for the high end—the best performance, the best triangle rate, the best polygons. I don't want to let someone come in and be the price leaders and lock me out of the bottom and climb their way to the top."

He said that theme reappears throughout history. Obviously, Clayton Christensen talks a lot about that in The Innovator's Dilemma. Jensen saw that NVIDIA could stop throwing away parts that failed quality tests. This is fascinating. "Ship the whole cow" is his idea here. We're building Ferraris. Our chips are the best of the best, best performance, really high prices, fat margins. So what if I wanted to attack myself? What would I do? And then I'll just go do that before somebody else does it to me.

So Jensen saw that NVIDIA could stop throwing away parts that failed quality tests. They failed quality tests if you're building a Ferrari, but not if you're building a Ford Fusion. True, these parts were not suitable for the company's Ferrari-grade chips, but if they were otherwise functional at lower speeds, NVIDIA could repackage them into a less capable and therefore cheaper version of the company's mainline products. This looked like a clear opportunity to make something out of nothing. Rejected parts were generating no revenue for NVIDIA—they were thrown out.

Think about how many different products, byproducts that Rockefeller made from materials that were waste materials from the refining of kerosene that he went turning into products and these massive profitable product lines that again, he was just throwing in the garbage. Now he's like, "Oh, we need to find uses for our waste materials, package them up and sell our byproducts." Exact same thing that Jensen is doing here. NVIDIA could create a whole new derivative product line that could turn a profit without the expense and time-consuming process of research and Development.

This line would serve as a defense against competitors for whom the low-cost chip was their main product. NVIDIA could easily afford to price its chip down so much that its competitors would be forced to sell at a loss. This strategy was dubbed "Ship the

whole cow," a reference to how butchers find ways to use almost every part of the carcass, not just the prime cuts.

Going to school

21) An academic conference where all the machine learning and neuroscience experts present their latest findings. And so there's an actual NVIDIA employee who's there and he runs into Jensen unexpectedly.

He's like, "Well, Jensen, what are you doing here? You're not scheduled to speak. What are you doing at the conference?" And Jensen told him, "I'm here to learn." And what he noticed was that Jensen was sitting towards the front row. And it's not like he hired somebody to take notes—he's sitting there taking notes, showing up himself and trying to observe, absorb all the recent developments in artificial intelligence.

Because, again, it goes back to Jensen wanting to be involved in every aspect of NVIDIA. He's not trying to outsource things. He's trying to be in the details. Jensen also talks about the fact that at conferences like this, he meets a lot of smart people and winds up recruiting them, and they become employees and assets of NVIDIA. So this, again, I think, is a reoccurring theme—the importance of going to school on everybody. There is this guy named Mitch Rales, co-founder of this company called Danaher. Mitch Rales goes schooling everybody.

Danaher is like a \$170 billion company today. And a friend of mine was just at this small, intimate conference with Mitch recently, and he was blown away by how focused Mitch was. And the entire time, Mitch was sitting towards the front, listening to speakers, and he was taking pages and pages of notes. And my friend had this thought where he's like, "I don't get this, Mitch, you're more successful than anybody else here. Why are you taking notes?"

And when my friend told me this story, I go, "No, wrong answer." So there's a great line in Bill Walsh's book, "The Score Takes Care of Itself." And he says, champions behave like champions before they're champions. I guarantee you, Mitch Rales did not build a \$170 billion company and then start taking notes. He was going to school on everybody and taking notes and learning from every single experience, way before he built a \$170 billion company, way before he is, quote-unquote, the most successful person in the room.

Because this goes back to the Max and David Ogilvy said, the good ones know more. There's another example of Jensen being one of the good ones that know more. Jensen shows up to this party at NVIDIA. It's a party for new hires, introduced to this guy named Peter Young. Jensen already knew who he was. He says, "You're Peter Young. You've been here for a year from Sony PlayStation, and then you worked at

3dfx." Prior to that, Jensen had similar recall of all the biographical details of the other 50 attendees of that party.

Create markets

22) Create markets. Don't do anything someone else can do. "Don't do anything someone else can do" is the motto of Edwin Land. But what Jensen was setting out to do, he really believed he was building a company that was unlike any other company. And he knew he didn't want to build an undifferentiated commodity product. He wanted some kind of pricing power.

And so it says NVIDIA doesn't believe in building commodity products because commodities are subject to downward pricing pressure as competition increases. Jensen has always said that we should be doing things that other people cannot. That is exactly what Edwin Land said. We need to bring unique value to the marketplace. And you do that by doing work that's cutting edge, that's revolutionary work that no one else can do. We do not—this is really the punchline—we don't have a culture of going after market share. We would rather create the market.