

REE Transcript – Jim Plummer and Richard Newton

Introduction of the Speakers

Jim Plummer

He is Dean of Engineering at Stanford and an Electrical Engineering professor. He has worked in a variety of areas. The primary focus is his work is silicon process modeling. He is a member of the National Academy of Engineering and a member of IEEE. He also has a strong connection to industry. He has been involved in starting a couple of companies, one that went public and one that is a research company. He also serves on the board of Intel.

The engineering school is 225 faculty and 9 departments. It is half of the graduate students and 20% of the undergraduates. The budget is about 120M a year.

Rich Newton

He is Dean of the college of engineering at Berkeley and is an electrical engineering. He is a member of the National Academy of Engineering. He got his PhD at Berkeley. He founded a few companies and works with a few startups.

The engineering school is 215 faculty and 7 departments. About the same size of students. The budget is also 120M a year.

Q&A with Tom Byers

Why is entrepreneurship education an important part of your agenda?

Jim: Entrepreneurship is a mindset. A way of looking at the world that says that anything is possible. That I can tackle any problem. And I think that is essential for everyone of our graduates to have. And part of that is offering courses and seminars.

And our graduates go to a variety of places. Some are classic entrepreneurs while some go to big companies. And a big challenge of big companies is how to be entrepreneurial. And a number of our graduates that also go to Universities. And if there is an element of our society that should be entrepreneurial and looking at long-range, risky projects, it is the faculty at our Universities. So one of the benefits that I see is an opportunity to educate the next generation of leaders of our Universities.

Some quotes I've heard:

“We've always done it this way”

“Form a faculty committee to look at this.”

So one of the benefits is training PhD students who can then transform universities. So for me, it is a mindset and it is important that every student be exposed to it.

Rich: Well, I agree. Now, historically, places like Stanford and Berkeley have fallen into this. I had the pleasure of interviewing Andy Grove last week, one of our alums. So the first question I asked him was: “So tell me, was your time at Berkeley of any value to you, both academically and professionally.” And he said “well, I came to Berkeley because I knew it would prepare me academically. But when you approached me about the bioengineering project, it took me back to feeling that energy that pervades Berkeley.”

Over the years, we have lost a lot of the previous institutions that lead entrepreneurship – like the Bell labs. So a lot of that is falling to the University.

Because of the competition to innovate today, we now have to work at being centers of innovation, where used to, it was more natural. And our entrepreneurship programs are one way of doing that.

Tom: When I think of entrepreneurship education, I think about training to start companies. Some people though, think about technology transfer. How do you all connect the two?

Jim: I actually don't connect the two. We do have a large technology licensing group. And their mission is not to bring in money to the University, but rather to make sure that the technology gets out there and is commercialized. Overall, it is probably a small set of students and faculty involved in that. So I also feel that the entrepreneurship program is a broader program for training students, and is really independent of the technology transfer.

Rich: I agree with that. And the education part is the key. A mistake that a lot of people make is starting a business plan competition and then making that their entrepreneurship program.

When it comes to technology transfer, our goal is to maximize impact. And sometimes that means giving the research away. For instance, we gave away RISC, RAID, etc.

So I think the education is separate.

And in terms of the return, we often look for that to be done via later gifts from grateful students. Now you do have to license in some cases, such as biotech – otherwise no partner will invest. But otherwise, we don't try and maximize the return on the licensing.

Tom: This past spring, we had the engineering dean's conference. And we asked the question "does it matter to have an entrepreneurship group in your engineering school?" And they all raised their hands. Were they sincere and why?

Jim: Yeah, they were sincere. And if you look at the concerns with engineering education, there are a lot of concerns about technology outsourcing. And the number of CS majors are dropping. And the classic answer to this is that this country has to emphasize innovation and creativity. And if we do this, then the future is everybit as bright as the past. So we have to be innovative and we have to be creative. And entrepreneurship education is a way to do this.

Rich: I agree, but let me expand on that. When everyone raised their hand, they all had a different idea about what that meant.

That morning, we had had the CEO panel. And one of the CEO's said: "Why should I pay twice as much for your product as it would cost me to hire an IIT grad?" And I've been thinking about that a lot.

Tom: What else should I be thinking about as an educator? I'm glad you buy into my feel that entrepreneurship education is important. Is it globalization? How do we make sure that we are relevant?

Jim: The roots of these programs often go back to the IT industry. And there is nothing wrong with that. But, if you believe that the goal of these programs ought to be to change the mindsets of all of our students, then those students are interested in a variety of things. So I've been encouraging our entrepreneurship group to be connecting with other technology areas beyond IT.

Rich: I agree. There are a lot of other areas. But a real opportunity is to capture the passion that students already have and then amplify that. So one way to do that is to help grow student initiative and provide resources for them to grow. So we had students start a nano club a few years ago, and this year they had a nano conference with 300 attendants.

And one of the things that we ware finding is that we now have students really interested in starting initiatives that make a difference – perhaps more so than they care about the financial return.

Tom: Both of you had an opportunity to participate in a group focused on a curriculum for engineering education?

Rich: We formed a committee and met with a number of people. And the consensus that we reached was that it didn't make sense to come up with a single curriculum.

Open Q&A

As one of you mentioned, the large, national engineering laboratories are going away. How is that affecting universities and entrepreneurship?

Rich: We need to focus on fundamental research. That is what we are good at. If you are purely focus on use and not fundamental research, then we need to stay away from that. Now, I feel that the future direction of the modern research university is the combination of fundamental research and inspiring the use. Not necessarily doing the application ourselves, but inspiring others to do it. And sometimes that happens with partnerships with companies.

We have talked a lot about entrepreneurship within education. I wonder how different entrepreneurship education should be for different types of entrepreneurship education. And what is the connection with business schools?

Jim: You're correct. The classic business model used in the IT industry is very different from the ones that will come to be used in the energy sector. So lets rethink the business model. Lets bring in some smart people from business and law schools and rethink the business models. And we can be informed by our past in the IT industry.

Rich: Something we've also been thinking about is what level of familiarity and education should people have who are likely to interface with entrepreneurs.

And we feel a couple of things are important here. First, what ecosystem are you embedded in – silicon valley or Michigan? Second, what are your resources – engineering grad students or liberal arts undergrads? And three, what is your goal? And based on how you answer those questions, you are going to want different programs for entrepreneurship education.

Earlier, the remark was made that faculty are not very entrepreneurial. Is there a conflict here with Tenure?

Jim: I would say that they are rather in alignment. Getting tenure is about having a big impact. And you can't do that by just having a bunch of incremental innovations. And that is the same thing with entrepreneurship education.

Rich: I agree. When our group looked at this, we felt that it was best not to touch the faculty. They are good with what they do. Don't go out and hire faculty that want to start companies. That would be a mistake. Instead hire faculty that want to change the world.

So instead we should look at changing the students. And we are also looking to create an ecosystem that supports entrepreneurship education.

How do we balance this with accreditation?

Jim: Well, we're actually being visited by ABET. And the function they perform is important. And they provide a quality control check on all of this.

On the other hand, to the extent that they don't support creativity and innovation, it holds us back. And that is what they aimed to do in 2000. Frankly, my view is that these issues are so important that we just have to do them. And then we may just have to explain them.

Tina's comments