Interviews of the Margaret MacVicar Memorial AMITA Oral History Project, MC 356
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Raji Patel – class of 1977

Interviewed by Callie Kunz, class of 2023

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MIT Libraries

Margaret MacVicar Memorial AMITA Oral History Project

Raji Patel (SM Management, ’77) was interviewed on May 21, 2021 by undergraduate Callie Kunz (SB Computer Science ‘23) via a videoconferencing app. Given the ongoing COVID-19 pandemic, they were at their respective homes in Cambridge, Massachusetts.

Raji Patel was born in Uganda and grew up in Tanzania (then Tanganyika), where her father was a coffee grower. Sent to India for her primary education, she remained there to complete her undergraduate degree in physics at Baroda College in Vadodara, about 250 miles north of Mumbai. After graduating, while working as an accountant, Ms. Patel decided she wanted to go to the United States to study for a graduate degree in finance. She earned her master’s degree at MIT’s Sloan School of Management, which she chose to attend because of Sloan’s quantitative approach to the curriculum.

After her two years at MIT, Ms. Patel served as Associate Controller at Wellesley College, where she played a key role in managing the school’s endowment. She then worked for a private equity firm in Amsterdam. While visiting MIT to see her daughter, who was then an undergraduate at the Institute, she noticed a posting for Associate Director at MIT’s Space Grant Program, one of 52 Space Consortia established by NASA in 1987—the goal of which has been to further the development of space science and space engineering opportunities. Ms. Patel inquired, had an interview, and was hired on the spot. She has since overseen the program’s grants, managed its federal funding, designed curricula, and led annual student visits to Kennedy Space Center—and has been the program’s co-director for 20 years. (MIT now leads the Massachusetts Space Grant consortium.)

Raji Patel has contributed to life at MIT in numerous other ways. She acted as treasurer of the Association of MIT Alumnae (AMITA, the organization which funds this oral history project), assisted the Undergraduate Practice Opportunities Program (UPOP) and served as a board member of the MIT Enterprise Forum. She has also been active in the MIT Club of Boston.

More recently, Ms. Patel served on the board of the MIT South Asian Alumni Association. See that group’s oral history, which focuses on her East Asian heritage and her experiences as both a student and an administrator of South Asian heritage at MIT.

KUNZ: We're going to get started by talking about your childhood and your life before college. Do I understand correctly that you were raised in India?

Could you speak a bit about where you grew up and what your childhood was like?

PATEL: I would be delighted to do that.

Both my grandfathers emigrated from India to go to East Africa. One went directly from India. The other went to England. He became a barrister, and the he went to Kenya. So they went to different countries, one to Uganda and the other one to Kenya.

Often, I say that President Obama and I had one thing in common: both our fathers were born in Kenya. My father, Ranjit, was born in Kenya, and my mother, Shakuntala, was born in Uganda. When they got married, although my mother lived in Kenya, she wanted me to be born in Uganda. That's because of rules for citizenship. The rule was that if your mother was born in Uganda, then you could be a Ugandan citizen—and she very much wanted me to have Ugandan citizenship. So, she traveled to Uganda for my birth. My paternal grandfather, A.B. Patel, had a very interesting history in Kenya. He joined politics was the first colored minister in the British government in Kenya.

KUNZ: Oh, wow.

PATEL: Yes, so there is a lot of history of my grandfather's political involvement in Kenya. However, my father decided he wanted to grow coffee. Don't ask me why! [LAUGHS] He must have heard that Tanzanian mountains are great to grow coffee. So, he packed up his bags and off he went to-- It was called Tanganyika then, before the two countries of Tanganyika and Zanzibar joined together [in 1964]. This was way back in the late [19]'50s. He bought a place on the slopes of Mount Meru, and he involved his younger brother, who came and bought a place on the slopes of Ngorongoro, an extinct volcano. They started to grow coffee there.

That's how I grew up in Tanzania. And on clear days—because our farmhouse was elevated—you could see Mount Kilimanjaro. They didn't have any designated safari parks, as they have now, so the wildlife was everywhere. Wild buffalo would sometimes wander into our farm. My father would go with his gun and shoot in the air to scare off the buffalos.

So, it was quite an interesting childhood. [LAUGHS]. But the problem was that Arusha was the nearest town where I went to school. On rainy days, the mud roads from the farm would wash off. That meant I didn't have to go to school, and I could just wander around the farm happily. As a result, my parents were worried about my education. They started to look for a boarding school. In those days, if families with an Indian heritage lived in a remote area where children couldn't go to school, the boys would be sent to England and the girls would be sent to India. They felt India was safer for women. I don't know the logic of that.

Anyhow, I went to India. That's probably why you thought that I grew up there, because I went to a boarding school, and then I went to college in India before I came to MIT. I went to school in Jaipur. The school was built by the Maharani [Queen] of Jaipur. In those days, the Rajput [a royal caste] women had to wear face covers. However, the queen came from another state, which did not have this tradition. She came from Cooch Bihar, where women were educated. In fact, they learned martial arts, rode horses and went into war with their men. It's funny, Callie, how war, if women get involved, equalizes the sexes. She came from that tradition. When she married the King of Jaipur, she asked, "why are women not being educated? why are they not going to school? why do they live behind these big pieces of cloth? "Feeling that she needed to change this, she built a school for girls, and that's the school I went to.

KUNZ: Was it an all-girls school at the time, or was it co-ed?

PATEL: It was an all-girls school. Rajput [a caste in North India] princesses were not allowed to mingle with boys! [LAUGHS] It was called Maharani Gayatri Devi Girls' Public School. Public school in those days in India were like the British public schools. They're called public schools like in England, but they are private. Many of my schoolmates were princesses.

KUNZ: That must have been a unique school experience!

PATEL: Yes, it was quite an interesting experience. And the fun part of it, Callie, was that whenever there were short vacations, like around the Hindu holidays, most of the girls went home. But as my parents were in East Africa, I had to remain at school. We had a Scottish principal, and she would call up the palace and say, “I've got a few girls who cannot go home.”

And the Jaipur palace office—because all the small princely states were related to each other—would call the other states (Bikaner, Jodhpur, Udaipur) [and ask], “Hey, do you have a place for three girls to spend the holiday?” And they would say, “Oh, yeah, sure.” So, a royal car would show up and we went to one of the palaces. Now, a lot of these palaces have been turned into hotels. If you look up beautiful hotels in India, there are a lot of them in Rajasthan, like the palace of Udaipur, or, the palace of Jaipur. Amazing, I have stayed in all of these. [LAUGHS] When you are that young, you don't realize [what it all means]. But when I look back, I think, “Oh, my goodness, the palace of Udaipur, right in the middle of a lake, I have stayed there!”

KUNZ: How old were you when you went to this school? What's the age comparison between the age of a student at American middle schools and high schools and your age when you were at this boarding school?

PATEL: I was 9 years old. Most schools in India don't break it up it up into elementary school, middle school, and high school. All the grades, 1-12, are in one school.

At a lot of the private schools, in the 12th year you had to give an exam that was set at the University of Cambridge, following the British tradition. India was a British colony for 350 years, so the system of schooling, both in East Africa and in India, was similar, patterned after the British system. In 12th grade, you took an exam which was called Senior Cambridge. The exams and results came from the University of Cambridge in England.

KUNZ: I understand that you were a physics major in college. Did you have exposure to STEM subjects, or any hard sciences, in high school?

PATEL: Yes, in grade nine, you started to study your chosen subjects. You could choose three, either in science; options were biology, chemistry, physics, and math, or you could choose three subjects in the humanities. Unfortunately, you could not study both science and humanities. I picked, for instance, physics, chemistry and math. Everybody had to study English and a foreign language.

KUNZ: So, you had a good grounding in physics in high school. And then, as an undergraduate in college, at Baroda University?

PATEL: Yes, I went to Baroda University [in Gujarat, north of Mumbai, now called the Maharaja Sayajirao University of Baroda] and I studied physics there. After a bachelor's, I thought I would get a master's degree.

There were only two girls in a class of 50 who graduated with physics. The entire undergraduate curriculum had three subjects. Physics was your major, and then you got to study two minor subjects. You did not study anything else as an undergraduate. There were no humanities, or any other course offerings.

KUNZ: None of the General Education requirements that you would have at a place like MIT?

PATEL: No general education—nothing. Those were the three subjects that you had to study, and that was it. At the end of it, I thought I'd get a master's degree, so I went and spoke to the dean of the college. He said, "we've got only one place for the master's, and we are not going to waste it." These were his exact words, I remember, "waste it" [on a woman].

KUNZ: Wow.

PATEL: Yes, it was so blatant and sexist. This was 1967. It was a privilege to get an undergraduate education because most women-- From my high school, I would say about 50% of the girls did not go to college. Their families immediately arranged for their marriages. The dean's attitude was, "Hey, you got an undergraduate education. Be happy with it. Now, go away and don't waste my time." So, I thought, "OK, now what should I do with myself? "I'm not getting married." Thankfully, my family was in East Africa, and they let me do what I please, which was a blessing.

KUNZ: Was it rare at that time for families to let their daughters do as they liked?

PATEL: Oh gosh, yes. Oh, absolutely. Despite being relatively progressive, my grandmother would continuously tell my mother she was not being a good mother letting me do what I pleased, and not arranging for me to be married.

KUNZ: Figuring it out on your own.

PATEL: Yes. It was good that my mother was way ahead of her time. She had managed to go to college herself, so she realized these were opportunities given to women. She would nod her head, and she'd say, “Yeah, shortly,” and she let me do my thing.

I talked around and tried to find out [what I might be able to do], and I started to work in a chartered accountant's office. It is like a CPA here. They let me work there because-- They said, “Oh, because you've done physics, you'll be good at math.” That's how I started to work in accounting and finance. I worked there for about four years and I became a CPA. Then I said, “OK, what do I do now?” And I said, “The only way to not get into the grips of this arranged marriage business is to flee.”

KUNZ: [LAUGHS] So that was a motivator for you to move?

PATEL: That is right. I knew there was a study done by the United Nations [concluding] that the financial industry in India needed financial management, not accountants—something like that. And I said, “Ah-ha. I need to get a finance degree.” I looked at top finance courses or institutions, and there were three that I picked: London Business School, MIT and Cornell. I applied and was admitted to all three. I chose MIT because they taught management in a quantitative way, so I thought, “Maybe that might be the place for me.” That's how I came to MIT.

KUNZ: Had you been to the U.S. at all prior to that?

PATEL: No, I had no idea. I came in September. I'd never seen snow!

KUNZ: That would be a fun surprise!

PATEL: No, that was not fun. I came in September, I didn’t have enough warm clothes, et cetera. So, now I make it a point, through the MIT Women's League, to donate winter wear for the international students, because I remember coming here and constantly feeling cold. I'd been to Denmark as an exchange student, but that was from the period of March through October. But going through that first winter [in Cambridge], oh, my goodness, it was hard.

KUNZ: I can relate. My roommate is from California, whereas I'm from Minnesota. For me, the Boston winters are easy. It was so funny to see all my friends from California and Texas not at all prepared for what it meant to wear a hat outside. They didn't understand when it came time to having to wear hats, gloves, and big jackets.

PATEL: That's right.

KUNZ: It's a ‘fun freshman winter adjustment’ for some people.

PATEL: Right. The first semester at MIT, I took a whole bunch of courses, and I didn't realize how difficult it would be. In great enthusiasm, I took five courses. Then I started to feel that I couldn't cope. It was almost three weeks past the drop date, so I realized “It's either getting an F in one of the courses or summoning up the courage to go to the dean.”

I remember it well. Dean Pounds [William F. Pounds, MIT Sloan School of Management Professor Emeritus], had to be approached. I walked into his office very gingerly, and I said, “Dean Pounds, I have come with a request that I would like to drop a course.” And he looked at me and he said, “Isn't it past the date?” I said, “Yes, I thought if I worked really hard, I could get through this. I'm beginning to feel I cannot. And, if I get an F, then I might have trouble with the Indian government regarding the funds [I received from home].” In those days, they used to have exchange controls in India. Though it was private money coming from my father, I thought it may be problematic. I said, “I don't want to take a chance with that.” He looked at me and he said, “You're from India, right?” I said, “Yes.” He said, “You know, I think we've never had an Indian woman at Sloan before, so I think we can make an exception for you.”

KUNZ: Wow. Oh, my goodness.

PATEL: Yes. He let me drop the course.

KUNZ: Were there many other women students at Sloan then?

PATEL: There were not too many. We're talking 1975. I believe there were only about 10 women or so in a class of 110. Although I haven't confirmed it with Sloan, I might just have the distinction of being the first woman from India at the Sloan School! After graduating from Sloan and I went to Wellesley College as Associated Comptroller and Treasurer. I worked there for a while.

Then I went to Amsterdam, where I worked in private equity. Somewhere in between, I married a student I had met at MIT and later got divorced. That's why I went to Amsterdam, to start life over. I did well in Amsterdam, so I was thinking, “OK, I can retire now.” [LAUGHS]

At that time, my daughter was at MIT. She is also an alumna [Shereen Shakuntala Katrak, SB Biology/Life Sciences 2004]. In 2002 I was visiting her, and as I was walking through Building 37, I saw a notice outside an office. They were looking for somebody to manage the [MIT] Space Grant Program, and asked applicants to make an appointment with so-and-so. I thought, “Well, I don't have time to make an appointment, but this is the office, right here. The Space Grant Program was set up by Congress in late nineties to further space education and research. Each state was asked to from a consortium of colleges and universities with one lead institution. For Massachusetts, MIT was the lead institution, and the program is housed in the department of Aeronautics and Astronautics.

I knocked and walked into the office, having no idea who I was going to be speaking to. A tall guy was sitting in there. That was Jeffrey Hoffman [Jeffrey A. Hoffman, co-director of the Massachusetts Space Grant Consortium, MIT Professor of Aeronautics and Astronautics (space operations and design); former NASA astronaut who made five Space Shuttle flights, including the first mission to repair the Hubble Space Telescope in 1993; astrophysicist]. He said, “May I help you?” I said, “Yes, maybe. There's a notice outside, and I just came to respond to that.” He said, “Well, sit down. Where are you from?" I told him, “Currently, I am in Amsterdam, but my daughter's here at MIT. In fact, in about half an hour I'm going to be seeing her for lunch. I've got a little time to kill, so I was wandering around MIT. I saw this notice, and I thought it was interesting. I thought I'd come and chat with you about it. And he said, “OK, tell me about yourself.” I told him about my experience and education. And he said, “physics and finance. OK, I think we can do this.” Just like that.

KUNZ: On the spot.

PATEL: Yes, on the spot. “We can do this.” So, I said, “Oh, OK. But do you want to think about it? Because I'm going back to Amsterdam this evening, and you can let me know. I'll leave you my--” But he said, “No, no, we'll just walk up to Human Resources, and you can sign the papers there.”

KUNZ: Wow.

PATEL: [LAUGHS] I laugh about it with him, and I say, “Jeff, you did not check my background. I walked into your office, and you said, Fine, let's go sign the papers.” And here I am. So, Callie, my intention then was that I would spend three or four years here at MIT. One big advantage was MIT would pay half of my daughter's tuition, which was significant, and that I would be close to her. The tuition was OK, MIT paid half, but I hardly saw my daughter! She was doing her thing at Bexley. [Bexley Hall, a former MIT dormitory on Massachusetts Avenue] And later she spent a year at Oxford University.

KUNZ: Where did you live when you were doing your master’s program at Sloan?

PATEL: At Tang. I walked all the way in that cold—it was so cold along the river—all the way from Tang Hall [a dormitory on Memorial Drive].

KUNZ: I believe it's the farthest part of our campus.

PATEL: That is right. It's the western-most point. Then, at the eastern-most point--

KUNZ: Was Sloan. Oh, gosh!

PATEL: Yes, It was a hike.

KUNZ: I lived in Baker [Hall] for my freshman year, and I was basically as close as you can be nowadays to central campus.

PATEL: Yes, my daughter was at Bexley [across the street from MIT’s main entrance]. I didn't see her very much, so I guess I was really enjoying what I was doing. I remember in 2004, the NASA Deputy Administrator came to MIT. In the Aero and Astro Department, they had just started this new concept of teaching CDIO: Conceive, Design, Implement, and Operate. The faculty was talking about how this is the way that they want engineering students to design products. The NASA Deputy Administrator said, “That’s good, but it's all theoretical. Do you think that you need a little practical experience for them to really grasp this?” Everybody nodded their heads. And then he said, “Well, you know, I can arrange for something to happen at the Kennedy Space Center, which is NASA's operations center.” Everybody thought it was splendid, and they all looked at Jeff because he's the astronaut and he knows Kennedy Space Center well. I was just sitting there and thinking, “Oh, my.” And as we were walking out, I said, “Jeff, who is going to design all the pedagogy that goes with this? And who's going to pay for this?” And he said, “You are!” [LAUGHS]

KUNZ: Oh, my goodness.

PATEL: That's right. I could beg NASA through Space Grant and write grants. I could manage annual million-dollar grants, which sometimes were $2 million. I could do that part. I could write another grant, but pedagogy? I mean, I learned physics years back. I didn't know enough astronautics, and I didn't even know the basic rocket equation.

KUNZ: When you first started, where you primarily writing grants? What was that like?

PATEL: Yes, I was primarily writing grants and managing them. I would look at all the proposals. The MA Space Grant Consortium is a network of 20 universities, so it's not only MIT. All 20 universities would participate in the grant, so I would have a professor at each university who I worked with. There are lots of criteria as to how you can fund this, and NASA has lots of rules and regulations. This is federal funding, so there are restrictions. I would manage all of that.

I'd done financial management—how do funds flow, and all of that, managing budgets, et cetera—so I said, "I can do all of that, but the pedagogy, I don't think so." So, I went to the International Space University in Barcelona in 2008. Oh, my goodness, that was something. I was with 20-something engineers and it was fresh in their minds. I was studying hard while my class in Barcelona was having a good old time.

KUNZ: To take a break from it?

PATEL: Yes, exactly. So here I am. In two years or so, I may retire. But it has been fun.

KUNZ: When you worked with the AeroAstro Department to help design the Space Grant Program's pedagogy, did you have any involvement with the Unified Program [the first two years of curriculum for students majoring in Aerospace Engineering designed to give all students the base skills necessary for higher level studies] for their base curriculum that they designed?

PATEL: No. The Space Grant Program was for seniors and graduate students only. The unified program [Unified Engineering; A four-course curriculum in Aerospace Engineering taken over the first two years of the major; offers the students a comprehensive introduction to the fundamentals of Aerospace Engineering] is for students' first two years.

Anyway, I came back, and then we figured out the pedagogy—about what it should be. The result was that every year, Callie, for two or three weeks, I took 8 to 12 students to the Kennedy Space Center. We got the run of the Center—places that even employees couldn't go into.

At the end of the program, the students had to write a paper and give a presentation for the department. Employees accompanying us would come and gawk because there were places, we were admitted to that are not open even to employees. So that's what I got to do at the Kennedy Space Center. I saw pieces and modules to build the International Space Station. We would see [a module], one year and then it would be taken up and we would see it becoming part of the Space Station in orbit. I saw every one of those modules. It was quite something.

Last year was the first year I didn't do the program [2020, during the onset of the pandemic]. Now, I'm tired to restart. Also, the Commercial Crew Program is where the action is. The shuttle is long gone. The International Space Station has been built. There's a lot of interesting things going on in the Commercial Crew area, but it's not part of NASA, per se. Blue Origin and SpaceX have their own facilities at KSC, but they would not cooperate with NASA 's education programs. They do their own thing. So, I said to myself, "This is a nice time--

KUNZ: You've been doing work with NASA for almost 20 years now. How would you say your experience with the agency has changed over time, in regard to the people you've worked with there as well the people who enroll in the Space Grant Consortium?

PATEL: It has changed tremendously. When I joined, the shuttle program really ruled NASA. It was all about the shuttle astronauts, keeping the shuttle maintained. That was one of the big difficulties. The program that I taught was for AeroAstro students to understand the relationship between design and maintenance, and it was directly related to the shuttle itself. When the shuttle was initiated, NASA quickly made up this elegant machine. They went to Congress, and they said, "This is what it's going to cost. We'll have 120 flights, and—" They completely forgot about repairs and maintenance! It turned out that after each shuttle mission it would take six months to refurbish each of the orbiters. NASA had four orbiters in the shuttle program. Now, to do your math, Callie, how were they going to do 120 flights?

KUNZ: Oh, my goodness. Not very well thought out then!

PATEL: Exactly. Another mistake, the shuttle was no made of off-the-shelf parts. Each part was unique. After each flight, damaged parts had to be individually re-manufactured and fitted according to the specifications. It took months to repair just the heat tiles.

Every part in the shuttle was uniquely manufactured for that [mission's] orbiter. There were several orbiters if you remember: Enterprise, Columbia, Challenger, Discovery, Atlantis and Endeavor. Each one had individual parts. They had to go back to the original drawings and manufacture that part. That was a good example for young engineers to see what it takes. You can design the most elegant machine, the most elegant product, especially in the space program, where most products have very long life cycles. Often, they last for 50 years, and they must be maintained and repaired over that period. If you don't take into consideration the repairs and maintenance cost, then the cost that you are delivering [to Congress] up front is completely incorrect, which is what NASA did. They said, "Oh, it will take about so many billion to manufacture these." Well, how about the billions of dollars that it will cost you to maintain it? They had completely forgotten about that. What happened?

The shuttle program had to be scrapped at some point because it was just too expensive. I would take the students there and say, "Look carefully and learn." We were allowed to walk on the floors and talk to maintenance engineers, and they would give us very simple examples. They would say, "OK, so you see this bolt here? I have to take out 15 parts in the front to reach this bolt here." If they had only thought of putting the bolt here, I wouldn't have to unscrew all these layers to fix it." You understand, as an engineer, that simplicity, when you are thinking about repairs and maintenance, plays a crucial role in design.

KUNZ: Why was MIT brought in to work so closely with NASA, to organize the consortium and to allow Space Grant participants to visit the Space Center?

PATEL: Because Jeff Hoffman is an astronaut, and because of MIT's expertise. Cabana [Robert Cabana, Director of Kennedy Space Center 2008-2021]—who was the director of the Kennedy Space Center then—they call he and Jeff 'astronaut brothers.' They had flown together. However, the Kennedy Space Center staff would often complain about why MIT was given this preferential treatment. They said, "Why not the University of Florida?" I would have to listen to this each year, Callie. I'd say, "You want to talk about this, talk to your Center director, not me."

KUNZ: That's really interesting. I have some friends that are in the AeroAstro program, but I think they're more airplane-focused as opposed to space-focused. What a unique opportunity for consortium participants to have been able to work so closely with NASA.

PATEL: It was. To keep it alive, I would take testimonials from each student. The requirement was they had to write what they got out of the program and how it impacts their career. I would send all of that directly to the Center's director, to Robert Cabana. I'd say, "This is a life changing experience. This is something they will never be able to have, even if they come and work for you."

KUNZ: They wouldn't get to see as much of the Space Center as an employee as they could in the program.

PATEL: They wouldn't be able to grasp the entirety of what goes on at Kennedy, so that was quite an experience. I think for me it was just mind blowing. I'm glad I managed to do it for almost 18 years.

KUNZ: Wow.

PATEL: I saw the International Space Station being built. Then, as soon as it was built, that facility closed. Then I saw the whole shuttle program being closed. There was something called the Orbiting Processing Facility, where the orbiters were repaired after each shuttle mission. That facility was closed. Then I saw the Commercial Crew program start at NASA—SpaceX, Boeing, and Blue Origin. Interestingly, a few of the last people to visit launchpad 39A, from where the shuttle used to launch, before NASA gave it over to SpaceX, were MIT students who I had brought to the Kennedy Space Center.

KUNZ: Great!

PATEL: We went into a lot of facilities—we were allowed to very early on, when people were setting up. We saw the SpaceX facility. We saw the Boeing facility. And two years back, we saw the Blue Origin facility. There was no equipment there. Yet. It was just the facility, but that is where the rockets would be built. At SpaceX, we saw a rocket being assembled. They were the first people that built it not upright but lying down, which is easier, and then hooking it up vertically, which is how the Russian Soyuz is built.

But this was a big change. You know, the near-earth programs were all going to be handled by Commercial Crew companies. I also saw was the SLS [NASA's Space Launch System, which is building a shuttle-derived launch system]. NASA has said that they would build the extremely heavy rockets that would go into deep space, so that's the only thing they're building there. I've seen that being built stage after stage. So, there's been a huge change in space programs at NASA, with younger engineers coming in slowly.

KUNZ: While making the contributions you have, you had such extraordinary opportunities to see aspects of the space program up close.

As far as you having brought in so many undergrads to the program, I understand that you've also worked with the Undergraduate Practice Opportunities Program, UPOP, which offers MIT sophomores opportunities to help accelerate their career planning.

PATEL: Yes.

KUNZ: What was it like working with MIT undergrads in that role? Although you didn't really have that undergrad experience at MIT, having done your master's in Management at Sloan, could you talk about some of the differences between your experiences as an MIT student and the experiences years later of the UPOP undergraduates you worked with?

PATEL: In the Kennedy Space Center program, I used to have undergraduates, so there was that experience as well. I worked with UPOP starting in 2003. It's been a while since I was associated with them, though. I think it started as the result of an MIT survey with industry about MIT graduates that said, "What do you think of our graduates?" Usually, the response from industry was, "Technically, they are wonderful. But socially, interpersonal skills, et cetera…there could be an improvement" You have to remember that things have improved tremendously. MIT's Admissions Office is now looking for candidates with a more well-rounded personality. But way back-- I remember that when I I'd be walking the corridors, there would be students walking with their heads pointed down. People were nerdy, let's say that, for the average MIT student then!

Human skills are also very important, though, especially if engineers want to translate into management positions. Industry would come back and say, "We do expect that some of our engineers do to reach management positions, and we don't feel that MIT students are always well equipped in those areas." That's what UPOP was designed to address.

I don't know what they are doing now, but I remember that when I was involved, there was a focus on 'soft skills.' In the evening, they would help with "how do you have dinner" etiquette, or they'd have a banquet. Things like that. Or they would ask students, "How would you respond to a difficult situation?" On one occasion, that question had to do with the Challenger accident [in 1986, when the Space Shuttle Challenger exploded shortly after its launch, killing all seven crew members on board] and the fact that there were one or more engineers who said before the flight, "I don't think we should fly. It's too cold." It was a very cold day. But President Reagan was going to appear, so NASA had to fulfill that and gave the approval for Challenger to fly. In any case, UPOP would pose questions to students such as, "How do you manage a difficult situation? Do you listen to your own convictions?" Because all engineers at some point in time or the other, when they are building or whether, they'd say, "No, I don't think this is safe. No, I don't think it'll work, et cetera?" "How do you manage those situations without appearing arrogant or without appearing abrasive, aggressive?"

I quite enjoyed being a part of that. I believe at any level of your life, I think you can learn yet more in that area, regarding 'soft skills.'

KUNZ: I believe UPOP is still doing similar things, and having students think about similar questions. I have a few friends who took part over IAP [MIT's annual three-week Independent Activities Period] this past January.

I also wanted to ask you about the work you've done for the Association of MIT Alumnae. [AMITA funds this oral history project.] I believe you sat on AMITA's board for some time. What was your role?

PATEL: I joined AMITA way back in '78, I think. It was soon after I graduated. I used to go to meetings. Margaret Coleman [Margaret Coleman Haas, '50 Food and Nutrition; one of fewer than 10 women in the class of 1950] was president of AMITA then. I said to her, "You know, I have a background in business." There were no women from Sloan who had joined AMITA at that point. Most of the other members were engineers or scientists—mostly scientists. Margaret Coleman was from what was referred to as "Food and Nuts"—a program that has been eliminated, Food and Nutrition, in the School of Science. There were a lot of women in AMITA from "Food and Nuts" and from Biology, but nobody from Sloan, so they said, "I think you should become treasurer." I was treasurer for a very, very long time. Eventually, I said, "You're going to give me something else to do." I took up a few more positions, for example, helping to give scholarships to women students. I remained part of the board until I went to Amsterdam.

When I returned, I joined AMITA again for a couple of years. I was doing the same thing, mostly scholarships, which was always interesting to me—looking at resumes and saying, "We've got money for four students." I knew how much the budget was, et cetera. "Should we break it up into five?" That kind of thing. All told, I might have participated for 25 years or something like that.

More recently, I served for three years on the board of the MIT South Asian Alumni Association. But then it was defunct for a while. It all depends on who's running it. I resigned about two months back because there's only so much you can do in life!

I've also been active at the MIT Club of Boston, on the K–12 committee. I've been on various Alumni Association committees.

What else have I done? Well, I've worked with MIT's 100K Entrepreneurship Competition [part of the MIT Innovation Initiative]. I was a mentor there.

KUNZ: Could you talk a bit about that?

PATEL: It started off as a 10K competition. Basically, the idea of the program is to try to get engineers to think about products that are marketable so they can then go and start their own companies. MIT would set aside $10,000, and there would be a competition amongst student entrepreneurs. Students come up with ideas for startups, and they would require mentors. They would get mentorship from alumni who were in that field. As a mentor, you would give them ideas about whether their idea was marketable, and business advice, for example, what the cash flow would look like. I was a mentor in that program for five or six years. I also managed to get a grant from the state of Massachusetts for $10,000 to give an AeroAstro award. By then, the competition had become for a $100K prize.

You will become an alumna at some point, and you'll get a message from the Alumni Association, asking, "Would you like to come and talk to students?" I've done quite a lot of that too. I don't have time anymore because I travel back and forth to California to see my children. There should be a rule that children shouldn't be allowed to leave beyond 100 miles of their parents!

KUNZ: I'm sure my parents would feel the same with me in Boston and them back home in Minnesota.

PATEL: Is Boston home for you?

KUNZ: Yes, I currently live in Cambridge.

PATEL: Oh, my goodness. You are Course 6, right?

KUNZ: I'm Course 6-9, which is the newest interdisciplinary major, which is focused on computer science and neuroscience. I've been really enjoying my computer science and algorithms classes, so I'm considering taking the more strictly computer science route to pursue that.

I also wanted to ask you about work-life balance and whatever issues you might have had to grapple with in that realm. Do you have takeaways based on your own experience juggling your career and caring for your two children?

PATEL: You know, it's changed so much. I remember when I went out to work and I was pregnant. I was so afraid to tell my boss that I was pregnant. I hid it for such a long time because I was worried that it would interfere with my work, and they would slide me down. It was as bad as that. Basically, you would sort of lie and say, “Oh, dear, I've put on some weight, et cetera.” And the idea that being able to nurse a child while working-- I did not nurse either of my children, for that reason.

Now, for instance, my daughter nursed her baby for almost eight months. She could take a breast pump to work. I think companies and institutions are much more friendly toward the idea that you can take maternity leave too. I just got two weeks.

KUNZ: That’s not a lot of time.

PATEL: Two weeks, and I was back.

PATEL: I’d get my kids together in the morning, dump them at daycare, and go to work. And then, at 5:45, I'd be desperate. Even if I knew I had some work left, I'd be desperate to go and pick them up because daycare would close. It was super stressful while I was working at Wellesley.

But I really do think things have changed, Callie, tremendously. Maternity leaves are much longer, that the idea that you can have some flexibility in your work situation has taken hold, et cetera. I would say, take advantage of that. It's still tough, though. Also, talk to your partner before you have a child. “Hey, listen. Do you want children? If you don't want children, you're not a partner for me.”

KUNZ: “It's your child as well as mine—"

PATEL: We didn't have that. We thought we just were going to have children. We didn't have that conversation with our partners. “Hey, how much of a father are you going to be?” I think that all of that is changing. As women become equal partners in their families, they become equal partners in their parenting. And if you have a partner that can help, who can do some of the parenting, or at least come halfway-- I mean, he's not going to be able to nurse the baby, but he can do the diapers!

KUNZ: Right.

PATEL: That's something I think women should increasingly have a conversation about, which we didn't do in my era. I say more power to us—let's educate the other sex!

KUNZ: I agree.

Are there any other takeaways you'd like to share that might be beneficial for current and future students? Things to know as they approach their studies at MIT and their lives afterwards?

PATEL: I think MIT is a great place for students. If students have any inclination to become scientists or engineers, I think you couldn't find a better place. MIT is really a wonderful institution. I think that they make a concerted effort to give you—even if you are the nerdiest of people—a well-rounded outlook to life. And for a science and engineering education, I don't think it could get too much better. There's also a very global view MIT has, and an interdisciplinary way of solving our problems. It is very interesting.

In 2010, NASA had a competition to grant almost $2 million to run middle school programs, not college programs; Space Grant is only for colleges. It was called the Summer of Innovation. I won that grant and conducted the program for five years as director.

I had never done work with middle school students, but I approached the state [of Massachusetts] and set up a whole bunch of programs. I found that girls would say they don't want to become engineers, that it's too hard. They would say, "Science, yes, we like science, we like math, but not engineering." So, I would try to rephrase the question. I'd say, "OK, think about it. Do you want to solve the problems of the world? Hunger, transportation, water, do you want to solve those problems?" They would say, "Yes."

And I would say, "Who do you think solves these problems? What do you think engineers do? They solve problems. Whether they build bridges for transportation, whether they build huge gadgets to clean out water systems, they are building to solve problems." Then they would say, "Oh, yeah, maybe we'll become engineers." I think if you pose the question slightly differently to women, women are always happy to solve problems. But somehow, for a long time we have been taught that men should become engineers and women should become something else. That was a very interesting eye opener for me.

MIT women engineers definitely solve problems. And those who study at MIT learn to use a multidisciplinary approach.

KUNZ: It’s great to meet women like you who have helped encourage young girls. When I was younger, even though the approach was, “You can really do anything,” you still see so many girls who say, “I'm not good enough at math. I'm not good enough at science.” You see them kind of jumping off that train so early.

PATEL: That's right.

I think there are two things that I would always say to a younger girl: “You don't have to become a scientist. You don't have to become an engineer. But think about this. You must learn some math because it's a language. Think about this as a language of science. You need that language just in case you change your mind to do science eventually.”

The other thing is, “Do you like to solve problems? Do you like to make the world a better place? Then engineering is for you because that's what engineers do. They learn certain disciplines to solve the problems of humanity. So, if you like that, then give yourself a chance to become an engineer.”

KUNZ: Well, I can't thank you enough for your time. I’m so glad we’ll be able to include a bit of your story in MIT’s Archives.

PATEL: Thank you so much, Callie. It's been a real pleasure getting to know you, meeting you and talking with you.