Transcript of Interview with Howard Jackson by Noel Ologo

Interviewee: Howard Jackson
Interviewer: Noel Ologo
Date: 8/4/2019
Location (Interviewee): Cincinnati, OH
Location (Interviewer): Cincinnati, OH
Transcriber: Kevin McPartland

Summary: Dr. Howard Jackson received the B.S degree in physics from University of Rochester, NY. He is currently Professor of Physics and Distinguished Teaching Professor at the University of Cincinnati.

Categories: Arts & Sciences, AAUP, City University Transition

Tags: Department of Physics, mentor, funding, faculty, Sanders Hall. faculty union

Noel Ologo: So, hello Dr. Howard Jackson. Yeah, you know my name already. We are going to ask a few questions to help have like, information that future historians can look to, and to have like archives of information. So we're going to ask a few questions. And you can ask them as you can answer them as freely as possible.

Howard Jackson: Okay.

NO: All right.

HJ: [inaudible]

NO: Alright, so when did you come to the UC and what brought you here?

HJ: [Laughs] So a very long time ago. So in 19—September 1974. And, and so, that means I've been at the university for 45 years, kind of a thing. And so I'm in physics. And so the typical way to an academic career is when gets your PhD, and then has a postdoc or two, and then comes to a faculty position. And so this was an attractive position and with interesting faculty members, and we came to Cincinnati.

NO: So, um, what were you? Were you how passionate were you about teaching? And like? Would you want to go into that a little bit?

HJ: So I have two passions? Well, maybe three, because you know, there's research teaching and service as well. And don't forget that, please. And so as, as my record sort of indicates, then I was interested in teaching to begin with. And so the—what happens with a new faculty member in physics at that time was, you were assigned to, let's say, a course. And you were told, 'this is the textbook.' And, and that was it. And so that's a, that puts the person in a demanding circumstance, and I'm sure my first students found it demanding as well. So I learned lots there. And, and then there's a whole arc here. But one of the things that I did with help from the university, so the university had what effectively was a faculty development fund of a certain kind at that time. And so you may be familiar with classroom response systems, you know, where a faculty, you know, your instructor can ask you a question, and then you can answer it on your iPhone or your computer, or your clicker.

NO: Clicker.

HJ: Clicker questions, kind of thing. And so, so I actually was the first individual to introduce that here. But it was called class talk, believe it or not, I remember. And that was simply, and that was hardwired. So when students came into the class, and this is like a class of 100, then the, there was a Hewlett Packard. Well today we just say it's a calculator. But if they call it a computer, and it was mounted on a clipboard, and they had to pick one up as they came in, and then I spent one Christmas vacation, hardwiring the classroom, probably illegal, and and they enter they plugged in. Now, this was a nice system in the sense that I could see, Can I ask a question? And I could actually see what you were doing. There be a picture of the class, essentially a schematic of the classroom. And I could see that, no, I've got this one. Right. I'm going to pick on him and have him explain to the class what actually happened. Well, that's now evolved into a much more elaborate all wireless system, of course, but still is, is widely used the idea of pausing and asking a couple of questions. So, so my interest in teaching was early and often, I guess.

NO: So the clickers today are the instructors able to know who answered which question right or see a poll on the board?

HJ: You, You can do that, but not as conveniently as this other system which of course was had a huge overhead, I mean, having to plug in and then they didn't work and you'd have to troubleshoot and all the rest. So it's, it requires then I think in this case, too, you have to know your students by name separately from the computer kind of thing.

NO: Okay you mentioned teaching, research and services, how different dose from each other? And I think I know what research is about, like, how do you do all three? And so how do you fuse it together?

HJ: So that's a good question, actually. But so I what I would say is faculty members are, are curious people. And so they're doing their research, that's certainly you're exploring new things that haven't been understood before. I'm an experimentalist. And so that means there are laboratories that were involved, research laboratories. Okay, and then, for teaching, you know, how can you do a better job? How can I make it so that all my students are successful, and not just a few kind of thing. And that's certainly something that the physics community, but also, the department here at the University of Cincinnati has been active in pursuing. So again, you're asking questions, you're curious and trying to do a better job at what you're doing. Service is a kind of a different sort of thing that requires then a focus that has to include more than yourself, right? So you can say, 'I'm a, you know, good research, or I'm a good teacher,' that's an individual, but in a service regime, then you're talking about interacting with a collection of people, and then doing something for the university, that actually is something that moves—moves us towards excellence, or moves us into a new area that we weren't before, and prove something kind of thing. So that's a very different aspect of, of this. And, and it's, you know, it's like any other personal interaction, there's certain domains there that are that are unique, I think.

NO: Okay.

HJ: So, so I, as you're saying this, then I'm remembering. So when you come to the University, when I came to the University, then one of the things you want to know is, is there space, so I can carry out my research? I mean, that's sort of a basic thing. And so before I actually came and interviewed and all the rest, I was assured, 'yep, there's a, there's a large space for you.' And, and so I'm looking forward to seeing this space. And indeed, there was a large space, okay, this was in Braunstein building built in the 30s. And, and I think this room had maybe not been painted since the 30s. And, and for sure, the electrical supplies infrastructure was wholly inadequate, they were dropping from the ceiling, incandescent, you know, sort of 40 watt bulbs kind of thing. It was fairly

primitive. So we got that done. And so my first, first effort in the lab was actually painting the lab. Okay, anyhow.

NO: Yeah. I think you might have talked about this a little bit, but like, I want to know, what your hiring process was, like, like,

HJ: So. So there's an application, of course, and then well, so I don't know what how they were making the evaluation here, of course, I wasn't here. But so you make an application in which you attach all of your efforts and say, you know, this would be an interesting fit. And then you come physically come if you're invited one of the finalists, and, and you spend all day talking to different individuals, and not only talk to individuals, but then there is a, it's called a colloquium, a talk to all of the faculty and all of the basically graduate students. So that demonstrates both, well, something about your research and because that's what you're presenting, and, but something about your teaching capabilities. Can I communicate, what my work is about and why I think it's important and, and, also, where could this whatever I had done, or could this lead kind of thing, would that be interesting? And so, so it's a, actually, it's a strenuous process in the end. You're pretty tired by the end of the day, I'd say.

NO: Okay, so let's take it to the classroom. What did you hope your students took from your class like every day?

HJ: So one of the one of the pieces is that just as in history that you know something about then there's a way of looking at the world of interest and so there's a physicist way of doing that as well. So certainly I hope to convey the basic physics concepts, but also that there is a way of thinking about things that is unique to a physicist. And I hope some of that was conveyed. And also something about the, the elegance of the of the subject. And so it's very easy to get caught up into the details of how to solve this gaseous law problem. But, but then you ought to be able to see, you know, this is part of a larger picture. And that develops, of course, not just in the first course, but after a number of courses. And so I hope I initiated some of that. I hope, that the students were interested. So the first courses I was teaching, we're actually the majors, which is great, because, you know, they're well motivated, and they're interested in so they have questions that help propel the class and in good ways. But again, I certainly learned a lot that first—I learned a lot during that first year of teaching.

NO: Okay, and then, with regards to practicals, physics practicals, like, has it like physics practicals in class, like, like lab work?

HJ: Yeah.

NO: Has it changed over time, like, the sophistication of

HJ: So I mean, this is uninteresting to anyone except for people my age. So this was a time when if you were an experimentalist, and you were technically up to date, then you could build measuring instruments that at least rivaled and sometimes were better than what you could buy commercially. So I have completely useless collection of knowledge of digital circuits, and, and all the rest, because now, in fact, those are much more sophisticated. And, and I can say that I purchased the first computer in the Department of Physics. So there you go. Now, you know, there are computers, we've got them in our pockets, right, and they're everywhere. So, so times have certainly, certainly changed in that sense. But what hasn't changed is you still have to bring to, to research for instance, some, some deep thinking, driven by curiosity, but also driven by—I'm an experimentalist, can the measurements that I'm capable of making then possibly inform the questions that I'm asking. So those are hard questions, and ones that are always fun to, fun to engage in. So as you as you

probably know, when you do research, and in some sense, when you teach, the outcomes are not for, they're not sort of written in stone, they can be a lot of different ones, like, 'gee, you know, that research idea I thought was great. It's just not gonna work.' Now, some of them do work. And and that's, of course, exciting.

NO: So let's talk about your—the relationship between like your colleagues, how was that? And like, do you have like any favorites or like, And has it changed over time to like,

HJ: So? So? Yes. So in some sense, the whole research enterprise has changed. So I was what you would call an individual PI—principal investigator—on on grants. Okay, that's fine. And if you say, 'well, how does that compare now to what it was back, then?' I would say that now there is a much larger probability that I'll be collaborating with others. So that there are a large number of people involved in the effort. And so I'm an experimentalist, maybe I'm collaborating with a theorist as well. Or maybe, and this is really important in the area I'm in. There's a group that's making very special samples. So one of the things that I'm interested in, for instance, is something called semiconductor nano wires. They're semiconductors that are, have a diameter, there may be a couple microns long and their diameter would be a 1,000th of your hair. Very special. Okay. So there are experts in the world that grow these. And so that have as their research effort, I need to I want to, I want to grow these very special samples. Well, I have not I don't have that capability. In other hand, I have certain characterization capabilities that this group doesn't have. So we get together and they, it's synergetic. They provide the samples and we make the measurements of the physics and sometimes we find that you know, this sample really isn't quite up to, up to snuff, so to speak, or the quality we can tell is not really as good as it should be. And so that's feedback to them. And so it's a, an effort then that instead of involving a graduate student, and one faculty member, then involves a larger number of people. So the research enterprise, how one does research actually has changed in that sense.

NO: And when you say collaboration, is it just amongst physicists or is it like, with others like math?

HJ: That's good. It's a good question. And so now one of the pieces that certainly has developed over time is the power of interdisciplinarity. And so, so I have within the university here, I've collaborated with certainly a half a dozen different faculty members from departments other than the Department—of Department of Physics, and actually, that's largely connected to engineering, but actually even touched CCM at one point, so College Conservatory of Music. Because there's the physics of music. Right. So there certainly is a connection there as well.

NO: Okay, so how did you feel about all like, how did you interact with like, administration?

HJ: So I have a good story here, actually. That's a question I had thought about. So—the—so I live in Clifton. So just basically, on Howell avenue which is Ludlow—just sort of down the base of the hill kind of thing. Well, so what? Well, I, I for many, many years, I walked to school, okay, it's just a little over a mile or something like that. So, so I'm walking along one day, and up the hill. And it was—the weather wasn't very nice. And, and this car pulls up next to me, and this is a big car. What's this? And so it was President Joe Steger. And I had met, Dr. Steger, in other circumstances, but not very much. And so. So we chatted, and then he had questions for me about my experience, and so forth, and fine. And so this then turned out to happen, just by happenstance, when I come to school, and when he comes to school, it was happening, certainly a couple times a month, or whatever. So I got to know him in a informal circumstance kind of thing. And then eventually, if you if you go on a little bit, then I became VP for Research, and Dean of the Graduate School and so that that connection with Dr. Steger clearly was in at least in part behind that kind of thing. So it's a so I both have interacted with the administration, but also have been an administrator.

NO: Okay, whether any incidents—good, good and, like, bad like that happen? Would you like to share some of those with us? It's not really good. Yeah.

HJ: You mean, in terms of the administration?

NO: It could be any incident like on campus doesn't have to be?

HJ: Well, I think that the—so in 1974, this was still a city university, and—but transforming itself as a next year to to a state university. And, and I think that transformation was, is actually really essential to the quality of the university that you see now. I mean, the well, the city couldn't support it, but the state, whatever you think about the support of the state, provided certain kinds of support, but also it also provided capital support. So if you said 'hey, I want to build a new building,' then that was possible because of state state funding and between when I came in now I'll make the estimate. Probably about a billion dollars worth, literally a billion dollars worth of buildings have, have gone up. And that's made possible then the quality of our programs and the quality of the research that's carried out in those programs and, and serving students in sort of appropriate ways. So that's a big evolution. Part of that, and not really part of that, but connected in time and I was the AAUP came in. So American Association of University Professors. And so you may or may not know that there is a contract that the faculty have with the university. So that says that, you know, next year, there'll be no salary increases, or there'll be a 2%, whatever it is kind of thing. And that certainly has led to divisions. And so. And those divisions, part of the divisions there have to do with the fact that AAUP has to represent people in the College of Arts and Sciences, which is research intensive, but also [unintelligible] Blue Ash as well, which is not research intensive, all those are different, quite different cultures kind of thing. But the same rules, okay, a lot of them were very useful rules were in place. And then there was this question of merit, whether there should be merit or not. And that certainly was divisive. And so, you know, if you, if you ask a collection of people, whether they you think they're average, or they're above average, you're not surprised to find that the collection of people always say they're above average. Right. And, and so, a good bit of the time, and especially early times AAUP did not have merit, and I thought that was—I disagreed strongly with that kind of thing. And there was, there were different views within the department having to do with that kind of thing. So that certainly is a difficulty. Now, there are always going to be tensions in a, in a university, this size kind of thing, about what priorities should be. And so moving away from the AAUP, that's even true, you know, as an administrator, whether you're able to have certain priorities that you can put forward that people collectively agree on. Well, that depends on how well you've crafted your arguments and what the local circumstance is. And so there have been successes there and places where there weren't successes there. And, and I think that that's not, that's not an unexpected kind of thing.

NO: Where they like any more events that you found—

HJ: You know, it's maybe it's selective memory here, but nothing is coming online. You know, I wish there were some dramatic events.

NO: Oh yeah, were you here for the implosion?

HJ: Oh, for Sanders?

NO: Yeah.

HJ: Oh yeah, I watched the—got up early and watch the explosion—implosion. Right. Right. Right. But that was time. I mean, that was not a safe building. And so, I'm glad we moved on from

that. Now, the next thing coming up, of course, is, you know, do you know, Crosley, the tall building? Chemistry building? If you look out my window here, and you know, it's a tall grey cement building, right?

NO: Oh, yeah. Yeah, yeah.

HJ: Okay, so that was—so here's a useless fact, that was a and this took a year of negotiations, I think, a continuous pour. Meaning it's—when you start putting this cement in, then you you don't stop at any point, because then it structurally won't be in good shape. You just keep on going. That means it's hard to take down. So they're struggling with that, that is a current struggle about how they're—what the timing of all that is and so forth. Who knew?

NO: Okay, um, how did the—or how does the university respond to your, your needs? And is it doing a good job?

HJ: Yes and no. Okay. So for instance, in the sciences, then—this—there's been a great deal of effort. And I've been part of that supported by the National Science Foundation on pedagogical advances: what helps students learn more effectively, let's say. And one of the, one of the pieces is that you get the students to collaborate. Okay, fine. Well wait a minute, you need a space in which to do that. So these are sometimes called studio spaces or sometimes called TEAL classrooms. And many universities have been, actually made whole buildings that are filled, filled with these kinds of things. And that allows a great deal of flexibility, as opposed to fixed seating and so forth and or stadium seating for that matter. And the university has been very slow to respond to that. There's one such—a small one like 48 students, one such classroom in the library, Langsam on the first floor there. But, But otherwise, I think the university despite some advocacy has not been responsive to, to those sorts of developments. In terms of, you know, there's a 10,000 foot view as well. So in order to have a active graduate program, in order to teach laboratories and so forth, you need graduate students. In the STEM disciplines, then the expectation is there'll be an assistantship, graduate assistantship. And I think those are not supported at the level it is really needed to be, needs to be present. So that's a I think, an—a failure in the sense that the quality of the Graduate Student matters a lot. And, and if a student a good student has a choice between one university that has a higher stipend and the same demands on his or her time, and another, then they might go to the one that is paying the higher stipend and so we can't, in certain circumstance be competitive. So that's certainly the problem. And and I think it's recognized, and it's just a, it's a question again, of priorities. So

NO: How about like, very more personal needs?

HJ: So, so you need space, I have space kind of thing. But the expectation is that once they—a researcher gets his or her lab going, I'm talking about experimentalists now, and then they should be obtaining external funds. So, so most of my funding, for instance, has come from the National Science Foundation, both on the research side, the physics side, if you will, and on the pedagogical or the teaching side. Different divisions of NSF but also, that external funding allows you to do lots more than what you could do with just what you have. And you need it because some of the, some of the circumstances are simply you can say, Oh, well, now you have this piece of equipment, or these collection equipment, you're all set ready to go. But they're, you know, you need bits and pieces of things, supplies, and so forth. And, and so you need this external funding. I think the university has also been slow to develop a model where central facilities can be used. So let's suppose you need some kind of characterization that your lab doesn't have, and others may need it as well, then is there a central place you can go and pay for whatever the services some reasonable rate. That's a, that's a circumstance which has been hard to sustain in the present climate, and where

the university needs to support that in in ways they hadn't been able to. So that's a—that's a limitation. Again, it's a question of priorities.

NO: And how have like students changed over time in terms of like population, diversity and like, other factors you [unintelligible] you?

HJ: Right, it's a good question. And so the—so I think the—so they're different populations of students here. So I talked for a moment from about majors. Okay, then we've—over this time, we've certainly increased the number of majors by a large percentage and have attracted more women and some minorities. And the quality is the numbers have increased, but also the quality has. And so this past year then one of our undergraduates was finalists for national American Physical Society Award for her research, one of three finalists. And that's really remarkable achievement. And it speaks actually to the student, of course, but also to the mentoring that she's gotten from the person that she was working with. And so lots of our—I'm going to say virtually all of our majors then have the opportunity to work with individual faculty members. And sometimes that actually results in papers. And so they really have a huge head start if they're interested in going on and, and maybe even becoming eventually a faculty member. So the quality of our undergraduates has gone up, the numbers have gone up. And I think also the, our graduate students have a record of being successful. So that speaks to the, again to the mentoring, because maybe a little different than history, there's a very fairly intensive sort of mentoring going on, almost on a daily basis for our graduate students, as well. We're also as a department, we also are—have connected to some of the high school teachers in the region. And, and we also are part of the APS, the American Physical Society, has a Minority Recruitment Program, that we're part of, and so we've had some successes in that area as well. So I think, you know, collectively as a department then so there's an evolution so that virtually everybody is research active, and everybody is engaged in the issues that in some sense. You think, 'well, society ought to be worrying about these issues.' And I think I'd say very positive things about the department in that area.

NO: And how about diversity?

HJ: So the diversity—so I mentioned the inherent minority Recruitment Program. And, and—so there is a actually a separate committee in the department that's worrying about that and working on that. And I'd say, medium success, not, not hugely successful, but some success. It turns out that, I think, this is the third now, and wasn't the first, that we graduated—so now we're talking about the graduate program—we graduated the first, third, or the third PhD in physics of a black individual way back in the 30s kind of thing. So that certainly is a, you can say there is a history there kind of thing. In the STEM disciplines, then, you know, roughly speaking, the number of women is like 20% in physics, not, not great. And so, we actually have—we, we beat that number by a significant amount, both in our undergraduate and graduate populations. So, anyhow, some efforts there that are I would say, our continuing if you will.

NO: Also, sir, with respect to the unions, do you have any involvement—union like unionization? Do you have any involvement in that or?

HJ: No, I resigned from the AAUP when they stopped having merit, and I thought that was simply inappropriate. And, and that's a value in some sense. If you're not going to go in my opinion, if you're not going to value merit, then it's, well, that's a key piece that was missing. Like but so No, I have not had active involvement. With the AAUP, that's, that's certainly true.

NO: Okay, um, what happened? What on campus has changed since you started till now, like in terms of buildings, and in terms of

HJ: A billion dollars Yeah. Well, what it also means is the quality of the, let's say the research space, but also the teaching space, the quality of that has changed, as well. And so that's enabled things that just couldn't have been imagined when I first came here. So that's a, that's a terrific, I think, achievement of the state of the university. And so I—in more recent times, if you will, you know, if you wound back 10 plus years, then in fact, there was no rec center. You know, the rec center here?

NO: Yeah.

HJ: Right. And so that's, that's a place that I frequent. And I'm glad that that the facility is there, for instance. And, and actually, it's extremely well used, so it's not—you know, you hear complaints about 'oh, you know, universities aren't paying attention to this or that, but they're going to have a climbing wall and this and that.' Well, I think there's a place for the climbing wall in that. And at least I think it's, it's worthwhile. So the quality of life, then on campus, as well. So it's combination of things that's improved, but then also the quality of the faculty, I think, has, has improved for the Research One. And I think that shows and in lots of ways and better that benefits undergraduate students and graduate students. And so that's all for the good.

NO: And, um, has the UC's priorities shifted, like, since you started here? In terms of, you know, like, the way it started, like a municipal school, like, like, has it—is this still like in—is it still involved with like, the community and all other things like that, like, has the paradigm shifted in any way? And how, sorry.

HJ: So I'd say the, the central change is now it is fully what's called a Research One University. So all of the faculty members, at least in the in the Department of Physics are research active. And that doesn't mean that they're sitting around in their office, doodling in doing something, they're publishing and doing all the things that you'd expected a really good university to do. And that's you, you can witness then the quite dramatic increase in external funding that it means, you know, if you, if you get funding from the National Science Foundation that's reviewed at a very high level, and you have to be nationally, at least, maybe internationally competitive. And so that's a measure that's sort of objective, meaning it doesn't depend on just what people are thinking locally. And then having said that, then a variety of faculty members do connect to the community and, you know, visiting classrooms, and the Cincinnati Museum Center has a nano day and—involved in nanotechnology. And so we go over there with graduate students and have some demonstrations for people from ages four to 84. So that's, I'm going to call that modest outreach. But if we're connected to the community in that, in that sense, we don't have a, you know, some sort of elaborate public, you know, advertised outreach programs. And that's an area that one can think of, but there's only so much you can do and so I think the, the fact that we're informed and connected is very positive and I certainly would encouraged that something more formal would have to be thought about, can we actually carry that off? And do we have the funds to carry it off, etc. So, but that's, that's certainly an area that could grow kind of thing.

NO: And where do you see UC going in the future, and what do you hope for the school?

HJ: So I'm, you know, I'm pleased we have new leadership with Neville Pinto and we have this 1819 Innovation Center if you will, or Over on Reading road kind of thing. So there's an opportunity then for people that have an entrepreneurial brand to do things that maybe wasn't available as easily, if you if I can put it that way, as before. And so I think that's a really positive sort of thing. And that space then also allows if—it allows for certain kind of interdisciplinary studies that need to be co-located, I mean, we need to be put together in order to be successful. So I think that's a very, very positive sort of thing. The, the VP for research has and—and the president and provost have launched a digital, digital initiative, our Digital Futures Initiative. And I think that

has—I have had some modest involvement in that. And I think that has lots of possibilities. So lots of possibilities on the research end of things where you use machine learning and artificial intelligence to advance a field. But even for teaching, so that in principle you could have natural language recognized by a computer program that could respond to your natural language question kind of thing. And that's a place where I think there could be large advances both in the research area and in the teaching area. So I think that's a and, and across disciplines to not I mean, we're talking about physics perhaps here, but this would be across the distance. So I think there are you know, if we were having this conversation and, you know, even five years from now, then I think there'd be lots of advances in that area. So don't ignore artificial intelligence and machine learning.

NO: All right. So let's talk about some of your achievements in the university, like as vice president. I see here it says, Vice-President of Research and University Dean of Advanced Studies from 1999 to 2004. You want to speak do you want to talk to us about those?

HJ: Well, so, so they were aware of their responsibilities very well to advance the research mission of the university and to advance the graduate students. And so there are lots of possibilities there. I could talk about, but, um. So, um, so I'll mention maybe a couple can be so one thing is that, again, resources matter, right? OK, great. So, uh, so when I came into the office, I looked at whether there were endowments. So, endowments give you money every year that you could use for certain things, but they often have, almost always have restrictions that can be used for certain things. So I came across an endowment that said this is for faculty members who haven't yet gotten their PhD to get their PhD, you know, to support. But we essentially don't have any such people. I mean, you know, everybody does have their PhD. So it was actually I don't know what you call it. I think it was just sitting there and it was accumulating money and not being used. And the initial donor actually had died. And the but he had, some others that are associated with him, some offspring, so to speak. And so I contacted them and said, 'can we make this for faculty use, but not for this specific, you know, to get your PhD?' And after some go rounds and this was this was approved. So I used the money to, to initiate a grant proposal, writing seminar. And so the idea is, if you're new to writing grants, then there's lots to learn and, and you have to be nationally competitive. You can't just do. 'I did a pretty good job. They should give me some funding here.' And, and so this was actually initiated and actually it's been continued in certain kinds of ways. And so that what that does is it prepares you as a new faculty member to be successful in writing proposals. Now you have to have the idea, of course, but then there's more to writing the proposal and just having an idea that's actually a pretty good idea. So I would say that was a, you know, if you will, slightly unusual circumstance kind of thing to just to discover an endowment, an endowment that wasn't being used and figuring out a way to sort of use it. So I was also successful in getting at the university level a large influx of funding to raise graduate stipends. And, and again, you make the argument. So I got lots of data from lots of different places and showed that we were behind and we needed to step up. And, and that was supported at the at the cabinet level. So I was happy to be able to, to actually, actually do that. I also initiated some, some incentive programs. In other words, if you do this, if some department does, you know, attract some students that are self paying. So some students from from other countries come with government support. And—but this was not not all that common and not being paid attention to and even some students within the U.S. are willing to pay. And so I suggested that if you're able to do this, then we'll give you back a certain percentage of what, what comes in. And this provided a stream of income that wasn't, wasn't present previously. And so incentive programs were. And maybe as a as a last example, I also used what to call research challenge funds to, to incentivize people to get together, interdisciplinary again and to carry out research that will lead to a proposal being submitted kind of thing, and made that a local competition. And actually a couple of those, a certain number of those were actually quite successful, I think. So any increase in external funding was, I mean, nearly a factor of two during that time. So that was that was good.

NO: That's a lot of stuff.

HJ: Yeah, that's right.

NO: So. Talk to us a little bit about. Some of your colleagues you find like, like you also find your work they've done in the past are still doing or, or maybe they have like retired or something like any of them you find like—any of them's work, you find that commendable? Is there anyone you want to talk about like that or like with like in the in the physics, you know, circumsphere?

HJ: Yeah, not quite sure I'm getting the question.

NO: OK, I was trying to like people like you, you want to talk about, you know, people like maybe—

HJ: So I have a network of people that I talk to and, and you have networks too. Everybody has networks, saying you may not call it a network, but, you know, a collection of your friends that you complain about or you complain to maybe. And so that's true also—I mean, this is true, I think of every academic. There's a collection of people, and not just in the, within the department that you have a relationship to, who are—who will be honest with you. Honest in the in the sense of evaluating an idea, for instance. So you if you're talking to these individuals, you can present an idea that's half baked. And instead of saying, 'oh, here are the six reasons that will never work,' or won't get you where you want to go to go, they're willing to keep the balls in the air and say, 'Okay, yeah, right. That would give you this possibility. Well, what if you did this other sort of thing?' And I think that's actually this network piece is—it's really important. And I'm going to actually change the subject a little bit, but it has to do with networks. When a new faculty member comes in, then I think there needs—and we do this in physics, there needs to be active mentoring. And that mentoring isn't just that, okay, so if you're my mentor, you tell me everything I should be doing or whatever. It means that when I have a question about something that maybe you're not an expert on, you know, somebody who is an expert on or is more knowledgeable than you and you introduce me to that. And so now I'm beginning to build my own network, own network. And that's, I think, a way to get to really effective mentoring. It's not just a one on one. It's, you know, it's the individual new faculty member connected to a collection of people that becomes a network. So that's local, if you will. But that same idea applies at the professional research sense where you're at a meeting, for instance, let's say your new faculty member. And so if, if I'm, I'm the more senior member, I might introduce you to a couple of people that you should know because of their expertise, which maybe complements you with your own kind of thing. And so facilitating that actually is a key part to making you a more effective researcher, I think a more effective teacher for that matter, and, and more effective in the service sense, in the sense that you're connected maybe to people not just in physics, but maybe in engineering or maybe in history and, and beyond kind of thing.

NO: Okay, so this will be almost at the end like and I was looking at res—research, things like the school has done, I saw something about using a laser to help solve cancer or something like that. YAG laser or I think something like that. Is there anything like research that the physics department has done is out there that is like maybe the first, the first to do that or something?

HJ: Lots. Right. Right. So so some of the previous efforts. Okay, so how do we want to do this? So the idea that people are research active and externally funded is a validation of their doing things that are new and haven't been done before. And that's the only way you actually get funded. That's recognized. Not only that, but sometimes it's also important to be recognized in terms of, um, professional recognition at the American Physical Society level. So there's something called the—you can become a fellow of the American Physical Society and that recognizes some unique contributions. So we have a number of those in the department of which I'm one kind of thing. So

we did some work in what's called near field optics that was, was new and, and has has developed into a whole field actually kind of thing. And the same is true of the other individuals who are APS fellows kind of thing. And so the answer is yes, lots of, lots of innovative research. And, and that's of course, very exciting. Now I actually, I actually have a few patents as well, but I'm sorry to tell you that they're, they're not bringing in tons of money. So there are possibilities, but they didn't develop into anything that was truly useful, I guess, kind of thing.

NO: All right. Thank you. And lastly, is that a is there anyone you would recommend for an interview and why?

HJ: Oh, you mean.

HJ: Yeah, yeah. The history in terms of, like, acknowledgment history.

HJ: Right. All right. Well, I'll have to give that some thinking. Some, some thought. You know, one of the one of the pieces is that you have—an individual faculty member has choices of what sort of balance between the areas of research, teaching and service actually are. And so if you're asking about people that have maybe a broader view of what's going on, you need people that have been intensively involved in service kind of thing. And, and so if you look at actually some of the emeriti that were listed on the email that you sent, then a number of them are, useful. That would have useful things to say. One, the person that comes to mind in chemistry is Bruce Ault, A-U-L-T. But he's on the list. And I don't know, I guess there are a number of interviewers. Kind of thing. So you should lasso him.

NO: All right, sir. Thank you so much.

HJ: Oh, it's a pleasure. I'm not sure whether you learned anything,.

NO: We did. We did.

HJ: Okay.

HJ: I'm going to even write a research about what you've talk to me about. I'm going to, like, find one thing that resonates with me. So I would write like a five page research paper.

HJ: I'm sorry.

NO: All right. Thank you, sir. And also. Yeah. And also.