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Panel #1: Undergraduate Education and the Research University

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UC MERCED PROFESSOR OF COGNITIVE SCIENCE, EVAN HEIT, PH.D.	Okay, thanks very much. I'm going to talk about two issues that I hope will be connected to what everyone else is talking about. I'm going to be speaking about academic structures and also interdisciplinarity.

And in terms of academic structures, I want to say that academic structures really matter and I want to agree with what Regent Marcus said, that this is a really a privilege we all have here; to be at a new university and it's, you know, an awe-inspiring task to create your own structure as you're developing but somehow, we're going to do it so structures do matter but on the other hand, they're not everything, and if you just look at research universities and all universities, there are great research universities and not so great universities that have a variety of structures. So structure does not completely determine quality of a university.

What I use is the analogy of computer programming languages. So you can take two really different computer programming languages, LISP and Pascal and some things are easier to program in LISP and other things are easier to

program in Pascal, but if you really need to, you program anything in either language, because the two languages are formally equivalent and they're equally powerful.

So to continue this computer analogy, I want to echo something that [UC] President [Mark] Yudof said, you know, you need to look at inputs to the program, you know, as well as outputs. And on the input side, you need to look at resources. And to build a great research university, you need resources. It comes down to things like operating budget, capital resources, facilities and so on. But it's more than that. It's also high standards for hiring faculty and it's also bringing in the wonderful students that we bring in. So these are also important ingredients.

And on the output side, as we're thinking about what our structure ought to be, I think it would be valuable to target particular outputs. Bringing this back to the subject of graduate education, it's worth pointing out that at AAU public universities, the best public universities in North America, the average proportion of graduate students is 26%.

Now we need to think as we become a major research university at UC Merced, how are we going to grow our population and proportion of graduate students from the present 7%? So as we think, as a community, what our structure ought to be, we need to think about what structure will support growing our proportion of graduate students. This is just one benchmark; it's not the only one.

I think you could look at things like student-faculty ratio or ratio of ladder-rank faculty to other kinds of faculty, and I think you could make the same points there. So I hope we can be systematic in choosing our structures and you know, assessing them against benchmarks.

So the second topic I'd like to talk about is interdisciplinarity. And I'll give you a couple of anecdotes from my first days at UC Merced so I'm an old timer here. This is my fifth year at UC Merced, and I'll tell you two stories so...

When I arrived, we were in temporary accommodation. The campus wasn't really built yet so in my first months, I shared an office with an economist and a developmental psychologist and next door was a biologist, and down the hall were a couple of computer scientists. And this would not happen at any other university.

You know, first of all, three faculty in one office. Not good. But in addition, just being in this, you know, jumbled up group of faculty, and we continue this to the day. And it's one of the wonderful things about working at UC Merced is that we don't have, you know, one historian next to another historian next to another historian. It's still all jumbled up. It's a wonderful thing about working here.

The other anecdote is soon after I came to UC Merced--so you probably know we didn't have departments when we opened and we still don't have academic departments. Someone once said to me, "How wonderful. At UC Merced, you don't have departments. You can hire people that no one else would hire." And I still have mixed feelings about this comment. It makes me uneasy. So I'll just leave it at that. So let me say that, you know, here at UC Merced, interdisciplinarity is in our DNA. So we are interdisciplinary. My least interdisciplinary, most disciplinary colleagues here are far more interdisciplinary than people I've worked with at other universities. So I think that some structures will help us continue interdisciplinarity more than others, but I suspect no matter what we do, what we're going to have this interdisciplinary nature of our research.

Now we need to celebrate interdisciplinarity but just to be a little bit negative and, you know, provocative for a minute, I think we also need to be aware of the pitfalls of interdisciplinarity. So one pitfall is that we can't ignore teaching in traditional disciplines.

So undergraduates often seek out majors with traditional-sounding names. This happens with graduate students, too, probably to a lesser extent. But we need to be aware of this. In fact, you know, one good way to train someone to be an interdisciplinary researcher is for them to get a succession of disciplinary degrees or a succession of opportunities to train in different disciplines.

So as educators, we need to work with this tendency rather than work against it. So, for example, recognizing that many of our students want to get majors in traditional-sounding disciplines, we should promote double majors, make that as easy as possible to do, or promote doing minors so they could do a major in one thing and also learn a lot about some other subject. At the graduate level, what I would like to see happen at UC Merced, is that it's the norm that faculty belong to more than one graduate group. For this to happen, what it means is that graduate groups will tend to be more expansive than undergraduate programs and even if a graduate group has a very traditional-sounding name, which has some purposes, it would tend to include faculty from multiple disciplines. And finally, as interdisciplinary researchers ourselves, we can involve students in our research and that's another way that they're going to learn about interdisciplinarity, as Hans Björnsson said, you know, this is something we've already succeeded at at UC Merced.

Now, the second pitfall I want to mention about interdisciplinarity is that there are different ways of defining it. And you could define interdisciplinary as

"between disciplines." And I think this is a concern because research and teaching are social enterprises. So when you do research, you're working with collaborators, you're doing it for an audience, you're publishing in journals when you're teaching class you need students in your class.

And I worry about these empty spaces that the Chancellor talked about, the empty spaces between the golf balls. You know, in some cases, there could be reasons, you know, those spaces are empty. And even if there's no good reason why those are empty, we need to look at where our colleagues are, and we need to work with our colleagues.

You know, even uniqueness has pluses and minuses. So doing something really unique has the potential to be extremely innovative and you know, does more than simply, you know, existing as one of these golf balls that we already talked about, but on the other hand, you know, you might have a less of an audience for what you're doing. You know, to be an impact, you need to connect with as many people as possible.

So I'd like to propose the following definition of interdisciplinary that's as positive as possible. My definition is, how many disciplines are you connected to, in other words, how many ways can you contribute? In terms of research, how broad is the interest in and what is the impact, how broad is the impact of your research?

And in terms of teaching, how many undergraduate majors do you contribute to? In terms of graduate education, how many graduate groups do you belong to?

So I think that interdisciplinary has this opportunity to, you know, simultaneously work in multiple golf balls, and I think that's much more appealing than, you know, kind of being in space between them.

I'll finish with a really concrete example just because it was on my, it's on my mind, I had a few meetings yesterday, and in one meeting the subject of religious studies came up as a possible, you know, area we might hire in. In another meeting, the subject of environmental management came up as a possible area that we might hire in. And these are two really interesting, potentially interesting research areas. And the really concrete question that we want to face here, is let's say we wanted to hire in religious studies and environmental management. How would we do that? And what we probably don't want to do, and these, you know, potentially empty spaces between what we have now, what we don't want to do is create two little new silos, or two little new academic units, you know, the religious studies department and the environmental management department, particularly in this time of limited resources, it's just not really feasible. What we'd want to do is hire these interesting people in religious studies and environmental management and think about how to maximize their collaborations in terms of research and also think about maximizing their contributions in terms of teaching.

Realistically, we would not be able to create a religious studies major and a religious studies graduate group and an environmental management major and graduate group. We would need to think about how these new, interesting people could contribute within our existing structures and the big question is, what should our overall structure be so we could take advantage of these opportunities? Thank you. [*applause*]