

Rethinking Interdisciplinary Collaboration

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I. Lost in Space

“For a man needs only to be turned round once with his eyes shut in this world to be lost...”

Henry David Thoreau

I am pleased to be here with you on this special occasion of the opening of UTEP's Collaboration Hub. To that end, I have some brief remarks regarding interdisciplinary collaboration. Permit me to impart a few personal anecdotes, as I believe they are relevant to your endeavors.

Your president, Diana Natalicio, stated that when she first set foot on the UTEP campus as a young assistant professor, she was scared. Even though we are separated by only half a generation, Dr. Natalicio and I share a common thread. Neither of our parents were college educated, which made us the first in our families to achieve this milestone. In my case, my mother completed her “four-year” college degree at age 60, so it's completely logical why she urged me to make the most of my educational opportunities.

I stand before you today, having embodied the multidisciplinary approach to education (although I didn't know it at the time). In college [Austin College in Sherman, Texas], I was a double major in art and quantum chemistry. With raised eyebrows, professors scratched their heads at what they thought was a “bi-polar” approach to education. There are words to describe this approach: ambidextrous, associative, collaborative, integrative, many-sided, multidisciplinary, interdisciplinary, trans-disciplinary, multifaceted, protean, synthesizing, versatile – but back then, it was frowned upon as a “lack of focus.”

Fortunately, I had great teachers on both sides of this Mason-Dixon line that separated the natural from the social sciences, and who helped me stay the course. The first was Dr. Frank Edwards, a chemistry professor who earlier in his career was lead scientist on the Manhattan Project. The second was Buckminster Fuller, architect and inventor, who at age 78, taught at my college. Not only did they encourage me, it was their belief in me in those formative years that steadied me as a timid, assistant professor in the business school at UCLA. I was the only anthropologist on a faculty that closed ranks around the disciplines of economics and finance.

With a background in anthropology and chemistry, I always saw the similarity in the combinatorial properties of molecules and how humans culturally connect. My problem was that I couldn't get anybody else to see it. There was little or no data at the time to prove it. Therefore, I set out to get the data. It took me four decades. It was an exciting journey through chemistry, mathematics, anthropology, sociology, systems theory, and business. That's not a

lack of focus – that’s an *abundance* of focus. Hand-scribbled graphs gave way to computer graphics that visualized connection; and mathematics was the language that described it. Thousands of cases later, we now know that both nature and culture are infused with hidden network algorithms.

What evolved as an interdisciplinary education ordinarily would have been denied to me had I not had access. Access is an amalgam of inspiration (being true to your passion) and opportunity. UTEP as an institution provides a unique alchemy of access and opportunity that your students both need and deserve. Obstacles? Sure. But obstacles are a part of the annealing process. That’s why UTEP being a nationally recognized research university *with* a 21st century student demographic is so paradigm shifting!

II. Place and Space

“We shape our buildings and afterwards our buildings shape us”
Winston Churchill

In 2014, UTEP marked its first centennial celebrating its humble beginnings with a student body of 27. I understand that this is your fourth symposium but let me suggest that the prior three events were merely dress rehearsals, because today marks the beginning of your next century.

The Collaboration Hub and the interdisciplinary research building are both icons of a transformation in education that lauds, not lowers, an interdisciplinary ethos. Interdisciplinary endeavors are the shape shifters of 21st century education, but who shapes the shapers?

We have only to look back to the 20th century to find two of the most influential shapers: Michel Foucault and Jane Jacobs. They bookend last century’s thinking with dark and light visions for humanity and they have inspired generations of architects and designers in this century ... and not all for the right reasons.

Let me give you an example. In Foucault’s 1975 book, *Discipline and Punish*, he borrowed from Jeremy Bentham’s 18th century notion of the *Panopticon* (1787), which is a building structure where all occupants are visible. To Foucault, the Panopticon was *the* metaphor for modernity. Not only were you visible within it, but also you wouldn’t need anything like bars, chains, or heavy locks to keep you there. Instead, it utilized downwardly individualizing disciplinary techniques to keep you subjugated. Techniques like examinations, requisition orders, time cards, and other processes, procedures, and policies could thwart any attempt to escape the bureaucratic maze. His inspiration? Schools!

Arguing the opposite position was Jane Jacobs, a contemporary of Foucault. Her 1961 book, *The Death and Life of Great American Cities*, outlines four guiding principles for making urban places vital and vibrant. Her ideas have influenced many university campuses. For example, places must serve more than two functions at different times of day or night. They must weave in dense interconnections of people and have places like cafes and forums for

meeting. Buildings should be diverse and flexible. In fact, her principles are echoed in the guiding principles for the Interdisciplinary Research (IDR) building. Researchers are only now just beginning to test her ideas with data. Marco De Nadai and his colleagues at the University of Trento in Italy aggregated city databases including OpenStreetMap, census data, land use data, satellite images, Foursquare data, and mobile phone records for six Italian cities. His findings confirm that collegiality and vitality are correlated to flexible and diverse mixed used spaces and places (*MIT Technology Review*, March 24, 2016).

I am not claiming that Jane Jacobs is an oracle or that the Italian researchers are on the right track, but I do think her ideas and their data are capturing what we recognize as *third places*, locations that are not homes (first places) or places of employment (second places). Third places are where people go to gather and socialize. This, of course, can be any college campus. Curiously, third *spaces* (as represented by your Collaboration Hub) are only just beginning to be understood. We have yet to fully appreciate how this relatively new digital landscape will change the way we learn and pass on knowledge. I suspect, however, that it will rival anything the Serengeti plains offered our hominid ancestors.

Your Collaboration Hub is *the* perfect triangulation of physical place, social interaction and digital connection making it, I think, an inflection point for educational transformation at UTEP. You may think you have tamed this frontier land as a “place” ... as anyone’s eyes scanning this sparkling campus can attest, but I think you are also facing a brave new world in terms of interdisciplinary research, collaboration, and problem solving. Not many universities do this and do it well.

Therefore, you have your work cut out for you. You see, I think designing the IT infrastructures and constructing a building while challenging, may in fact be one of the easier things to do. How will you engage faculty who speak different academic languages in interdisciplinary research? How will faculty members who are schooled in singular disciplines support interdisciplinary students? How will you tell the difference between administrative obstacles and a pathway to success? What will be your policies and procedures for navigating faculty promotions or new degree programs?

Press forward and don’t despair; mistakes will surely be made, toes stepped on, feelings hurt. That is all a part of the natural order for pioneering a new frontier – and we do it, not for us, but for the next generation of students.

Institutional Integration

“No organism likes to be imprisoned.”

Richard Neutra (architect)

Permit me to conclude by sharing a personal story. As a young doctoral student at Harvard, I reached out to the National Science Foundation (NSF) 30 years ago in a bid for funding my doctoral research to analyze social networks. At the time, the NSF didn’t know what a social network was – a computer network, yes – but social networks? No. It was suggested that the business school might be able to help me. I can assure you that taking that walk from Harvard’s graduate school of the arts and sciences “across the river” to the

business school is like crossing the Rio Grande with a toothpick; there was scant support for interdisciplinary work at the time. But, off I went to the business school only to be told to return. Frustrated at the complete waste of time, I prayed for a pox on all their houses! I self-funded through school and made a promise I would never again return to the NSF.

Two decades later with my Ph.D. well behind me, I recounted my “tale of woe” to my hapless seatmate at an NSF rubber chicken dinner where I was to report on social network data collected from STEM school districts. The meeting ran over and I recused myself so that the NSF deputy director could speak and we could all go home. When NSF’s time came, my seatmate, James (Jim) Hamos, stood up and walked to the podium. GULP. I had been “ragging” on the NSF to an officer of the NSF! He then proceeded to summarize my story for all to appreciate. We all had a good laugh at my expense; it was late, so thankfully no one could see my 50 shades of embarrassment.

Perhaps it was the only gracious thing he could do at that moment, but he suggested that I re-evaluate my viewpoint and apply to the NSF again. Well, I took him up on it. Eventually I became co-PI on a five-year NSF grant known as *I-Cubed: Innovation through Institutional Innovation*. NSF’s objective for I-Cubed was to determine if institutions of higher education could substantially and sustainably change by meaningfully integrating innovation, or was the innovation simply ignored, marginalized and stigmatized. My I-Cubed was wholly apart from the other I-Cubes, as it was a study of the I-Cubed grantees. I can’t sugarcoat it: I was biased ... and not in a good way based on my priors.

We studied I-Cubed grantees at six universities and of the six, two were considered to be on a path of far-reaching transformation according to the KPIs (key performance indicators) in the literature. I am happy to report that UTEP was one of the two remarkable universities. This research required site visits, document reviews, and social network analyses at two points of time for each of the six institutions over the duration of the 5-year study. We saw remarkable changes within each university and interesting differences between them.

Perhaps the most startling observation was that faculty development and promotional policies lagged far behind in acknowledging, measuring, and rewarding interdisciplinary collaboration for researching and integrating innovation. It’s ironic because alignment between behavior and policy is crucial – you can’t advise, admonish, or expect faculty to behave in a 21st century interdisciplinary world and then reward them on priors established from silos set up in the 20th century. That’s just magical thinking! Unless the guiding interdisciplinary principles *parallel* procedures and policies, then the rest, my friends, is window dressing. *Policies can be just as imprisoning or freeing as any physical building*. So, our report to the NSF is that when universities take aim at change, their aim is too low.

And that is why I am so excited to be a small part of this grand opening of UTEP’s Collaboration Hub because I truly do hope that it will herald these changes in education. All I can say is where were you 45 years ago when I needed you? However, I am glad you are here now for that next generation of interdisciplinary students.

Thank you.