Meta-disciplines and Invisible Work, featuring Dr. Paul Marty

Journeys in Research, Ep. 9
Recorded February 9, 2021

Evangeline Coker: Paul Marty, thank you so much for joining us today.

Paul Marty: Thank you. It's a real pleasure to be here.

Evangeline Coker: So, you got an early start at being at the forefront of technological advancements. In the 1960s your father worked on the groundbreaking computer system and precursor of the internet PLATO, the first computer-based instructional system. And you as a child got to bring it home and test it out! What was that like?

Paul Marty: I tell you, that really was something else. So, yes, my dad worked on the PLATO project at the University of Illinois. In fact, we moved to Champaign Urbana in 1972 when my dad, who was a pioneer in computer-based language learning technologies going way back to the 1950s, was recruited by the U of I to design and develop language lessons for PLATO. I should probably explain if you don't know about PLATO, and by the way there were PLATO terminals at FSU in the 1970s, too, so people here might remember the system. PLATO was the world's first network computer system for higher education. It was developed in the 1960s, and for a lot of people in the 1970s and the early '80s this was the internet.

There's a really good book on the history of PLATO called *The Friendly Orange Glow* by Brian Dear. It came out just a few years ago, and that book does a really good job of explaining some of PLATO's unbelievable technological advancements for the time. PLATO had touchscreen plasma displays (that's actually where the "friendly orange glow" came from, because the screen would glow orange from the plasma), vector map graphics, integrated audio and video, and of course groundbreaking applications for its time – electronic mail, instant messaging, massively multiplayer online roleplaying games – all of this in the early '70s. You can imagine being a kid in the '70s and having access to these computer games. The very first flight simulators were played on PLATO. In fact, PLATO's flight simulator program was bought by Microsoft to be the cornerstone of their flight simulation line. The world's first MUDs, multi-user dungeons, were on PLATO (Moria, Oubliette, Avatar), and the world's first first-person shooter were developed on PLATO as well in the early 1970s. PLATO was literally decades ahead of other computing systems at the time, and its many innovations really laid the foundation for educational software, learning systems, computer gaming, and today's cyber culture.

Evangeline Coker: That's awesome. You got to work on that as well – not as a developer but as a child. You had the system in your home before a lot of other people did. Getting that early start in working with technology, did that affect your eventual interest in information science, or was that kind of its own thing?

Paul Marty: Absolutely it did. I probably didn't recognize how it was shaping me at the time, but I grew up with PLATO. As you say, we had a PLATO IV terminal in our house. I had an author account on PLATO when I was six years old. I learned the program on PLATO in the 1970s using PLATO's built-in programming language tutor, and every day after school I would

come home, I would enter my PLATO name, and I would complete one PLATO lesson after another. Frankly, it didn't matter to me what I was learning – French, math, genetics, chemistry. I loved PLATO. I loved learning on PLATO. That shapes the way you think about the world and the way you access information. I should probably point out here that I was also the sort of kid who loved to read encyclopedia articles, usually in alphabetical order.

The PLATO lessons really were something else. I didn't really understand at the time how they were shaping me. You know, you're a kid, you take all of this for granted. Certainly, I didn't give a lot of thought to the faculty and the staff who designed these programs. I just wanted to find the answer that was going to make the rabbit hop across the screen, or the dart pop the balloon. Those educators, the designers, the programmers, the developers, they were the invisible workers of the early information age.

It's important that we remember just how unusual this was from an academic perspective. At the University of Illinois, there were biology professors who spent long hours learning how to use PLATO's advanced graphics to simulate generations of fruit fly development over time, drawing each generation as they evolved on the screen so that students could understand the evolution of genetic anomalies. There were chemistry professors who built entire virtual chemistry labs on PLATO, so you could walk students through the titration techniques one step at a time on a PLATO screen. This is 1973, 1974. It's hard to even imagine, looking back. And then there's me. I'm a kid after school, and I just soaked this all in. Think about that and how unusual having access to information like that online was in the 1970s.

Today, everybody has access to the internet in their house. You can turn to the internet to learn something new, and you can find thousands of YouTube videos about whatever you want to learn, but access to online information, especially those sorts of educational lessons that we had on PLATO, that was a rare thing 50 years ago. To answer your question, yes absolutely, access to that information, to those resources, really influenced my life as an academic and built my interdisciplinary interests in research and teaching.

Evangeline Coker: Not only did you have all of these special courses in French and in chemistry when you were six years old, but you have a background in various disciplines in academics as well, including classics, ancient history, computer science, and engineering. How did you and, I guess more importantly, *why* did you choose information science as your academic home?

Paul Marty: Yes, my undergraduate degrees are in computer science engineering, and classics and ancient history, both from the University of Illinois. They had a great program where you could get a bachelor of arts and a bachelor of science at the same time, and after that I could have gone into industry, or I could have gone to grad school in engineering, but I didn't want to do either of those things. So, I ended up going to Cambridge to pursue a PhD in Roman history.

Long story short, I was examining and comparing arguments between Greek historians about the nature of Rome in the mid-second century BCE, how those perceptions changed say from Timaeus to Polybius, what that says about the fate of Rome as an empire. But the key thing here is that what interested me in all of that historical work was the study of historiography. That is to

say the study of the study of the writing of history. It's very meta. So when you think about historiography, that's a puzzle to be solved by following the trails left through the historical sources, and when you're dealing with the history of the Roman republic, especially in the second century, it's like a puzzle where all the pieces are blank, and you have to figure out how they fit together. That was really fascinating to me at the time.

I have a former history professor who used to say that when you look at history, there are three questions that you should ask. The first question is, "what happened?" The second question is, "what did they *say* happened?" And the third question is, "*why* did they say that happened?" The first question is unknowable unless you were there, the second question is all we have in the sources, and the third question is the interesting question. There's a natural segue there from historiography to information science.

After I decided to abandon the PhD in classics, I returned home to east central Illinois, and I took a job there at the University of Illinois as Head of Information Technology at the university's World Cultures Museum. Now this museum had been collecting since the 1870s, and since 1910 had been housed in the attic of an old building on campus – not the best environment for the museum's artifacts, no climate control. It was a mess. In the 1990s, this museum received a major gift to move to a brand new facility, and I was hired to modernize their computer systems and build the databases that were necessary to re-inventory the museum's collections, coordinate the move to the new location, all of these things. I'm working on all of this, building databases, connecting them to the internet. We had 40,000 artifacts online with pictures in 1996, when a friend of mine comes to visit, and he says to me, "Did you know that you're doing library information science in a museum?" And I said, "No." And he said, "Did you know that Illinois has the number one library science program in the world?" And I said, "No."

So, armed with that knowledge, I went over, and I met with the Dean of the Library School at Illinois, and that's when I discovered this field. What I discovered is that there was an entire discipline out there, one that I had never heard of before, that had dedicated literal centuries to studying all the questions that I was muddling my way through in this museum. Questions about information organization, and access, and data management, and data science, and there was an entire discipline that studied this in incredible depth and that asked these questions that had never come up in my background in computer science or my background in history. They had all the answers I was looking for.

This was the spark that information science itself is a meta-discipline. It's like historiography. It's meta. It gives you a set of big, powerful tools that you can use to think about knowledge sharing and information organization – those big picture theoretical, epistemological, ontological questions that underlie so much of what we as academics do without even thinking about it. This discipline of information science had been studying this for ages, and few people knew they even existed.

One of the key things that you learn when you study information science is that technology changes, but the ideas stay the same. The answers may vary, but the problems that we face working with information, all those methods for solving them, they stay the same. This is an important mental shift to make because people get hung up on the technology. I understand that.

Technology is flashy, and it's fun. I'm on the steering committee for the Innovation Hub here on campus where everything is flashy and fun. But the thing about technology is that technologies change. The tools change; the tools don't last. What we tell our students is that the tools you are learning to use now are not the tools that are going to be relevant five years from now, so don't get hung up on what the specific technologies are. The important thing is that you learn how to use those tools to accomplish a particular goal: that co-creation and sharing of knowledge and learning and dissemination of information. That's why people need to learn the methods, the techniques, the theories of working with information sources and systems and services, so that they can apply those lessons using whatever the technology of the day is.

This is an important lesson to learn, especially here in academia, because here, academics, we're all so trapped in our little bubbles. We're all trapped in our own little silos. And we forget that there are bridge-builders out there that are connecting these disciplines through theories of knowledge and data and information.

Evangeline Coker: I like that: technology science as a bridging discipline. You've said before that you're a proponent of interdisciplinary education and the idea of being a generalist. How is being a generalist valuable to you as a researcher, and why might you encourage other researchers to be generalists as well?

Paul Marty: That's critically important. It's super valuable to me. Again, it's one of the things that attracted me to information science as a discipline. Information science is a very interdisciplinary field. The people in that field have diverse interests and diverse backgrounds, and that's important when you look at an academic home and whether or not you feel like you're going to fit in someplace. The nice thing about being in an interdisciplinary field is that it gives you those connections that can help you stay at the cutting edge of research and teaching and learning.

I often like to mention Mark Granovetter's theory of "the strength of weak ties." He's a famous sociologist. When you have strong siloed groups, just like all of academia in their own little bubbles, the individual or the field that bridges those groups (even if it's just a very weak bridge, even if it's just a very weak tie) is often the most important thing in terms of coming up with new research ideas and keeping knowledge and education going. When you look at this from the library information science perspective, those interdisciplinary connections are incredibly valuable. This constantly shocks people, but as a result, library information science as an interdisciplinary discipline is almost always on the cutting edge of a whole bunch of different areas. People don't always recognize this, and it's hard for people to wrap their heads around sometimes. I like the joke that this can be a dangerous thing. Sometimes you're so far ahead, you're behind.

I don't know if you remember the multi-user virtual environment called Second Life that was popular in the early 2000s. Ring any bells? Well, here at the iSchool, we built FSU's first virtual campus in Second Life in 2004. It was pretty cool. We had all kinds of stuff there and buildings and interactive spaces. We held graduation there, we had convocation ceremonies there, we held classes there. I had a class that made all kinds of amazing exhibits online there, which were just so much fun to walk through. I held office hours there and met with students there, but after a lot

of this experimentation, what we learned is that the platform really wasn't going to meet our needs. It was a fun thing as sort of an entertaining virtual world to walk around in, but if you wanted to have serious classes and serious interactions there, it didn't scale for one thing. If we had more than 50 people on our server, it really bogged down, and we had at any given time 500 online students. So, it really wasn't going to work to meet our needs. So, in 2008, we pretty much abandoned it.

So, you can imagine when another department here at FSU that I'll leave nameless comes along ten years later and decides they're going to experiment with Second Life. They had no idea we were ever there in the first place. None. And why would they? Ten years ago? That's ancient history. And the funny thing about this is that we published our work in Second Life. We wrote down what we learned about it and got that published, but that's as good as forgotten, too, because of the difficulties of doing interdisciplinary research. Why would somebody in another field go read journals in our field to see if anybody else had done work in this area before? People almost never conduct interdisciplinary literature reviews, and it's hard to do a good one. In many ways this really speaks to the pluses and the minuses of interdisciplinary research, the benefits, the dangers of having interdisciplinary research interests in academia.

I'll say straight up: being an interdisciplinary researcher is hard. Getting research funding is hard. I can't begin to tell you how many times I've had proposals rejected by, say the IMLS, the Institute of Museum and Library Services, because I was a museum researcher in a library science program. I'm not on either side or the other. How do they fund that? They don't. On the other hand, being an interdisciplinary researcher does open up a lot of new opportunities for collaboration, which leads to new opportunities for publication and new opportunities for fun research projects.

Evangeline Coker: So, what kind of research are you involved in today?

Paul Marty: My main area of research for the past 25 years has been museum informatics. I study the connections between people and information and technology and museums and cultural institutions. Really interesting things to study. My ongoing research right now, really over the past decade or so, is focused more and more on the problems of invisible work in museums, especially with invisible work in museum computing. All too often, people from the museum visitors to the upper administration and museums, they only see the end results of museum technology projects: the online collections, the interactive exhibits. They don't see where these things came from, because the hard work required to get us there was all too often invisible to the very people who are benefiting from it. This has been an interesting topic to look at. The topic of invisible work and invisible labor resonates with a lot of people and offers some interesting opportunities for interdisciplinary research. For example, about five years ago I collaborated with some folks here at FSU from the University Libraries, from the Department of English, from the Digital Humanities program, and we put on a fun three-day conference looking at invisible work in the digital humanities that was sponsored in part by FSU's Office of Research – thank you – and resulted in some really great talks and a wonderful special issue of Digital Humanities quarterly looking at this topic.

Right now, I'm working on an oral history project that's documenting the history of museum computing through this lens of invisible work in museums, and it looks at the challenges that this lack of visibility poses for digital leadership in museums. I'm working with a colleague of mine at Harvard University, and we're collecting as many oral histories as we can from museum professionals from the 1960s up to the present day. What we're trying to do is take these stories and craft a kind of annotated history that illuminates that unseen, behind-the-scenes, and all too often taken-for-granted work of museum technology workers. Our ultimate hope with this research is that by sharing these stories, we'll help people realize that it's not magic elves working behind the scenes in museums sharing our collections and the sum knowledge of humanity, but real, live people who need real live support and encouragement.

Evangeline Coker: You were talking about IMLS issues and trying to get them to take someone who works in museums seriously. When you're transitioning to library science or showing you can do the same kind of work for both, do you feel like maybe the idea of the invisible worker, or maybe the invisible researcher, transcends into grant organizations and opportunities? Do you feel like you have to fight a battle there?

Paul Marty: It absolutely does. I mean, if your work is interdisciplinary, your work is often invisible. I think it's one of the disadvantages of being a bridge-builder, especially in a field like information science where a lot of people tend to have the attitude that as long as it's working, they don't care who gets the credit. I've had this conversation with a lot of our graduate students. They put together this amazing resource, and a whole bunch of people are using it online, and yet nobody knows that they were the ones who put it together, and they say, "I don't care about the credit as long as somebody's using it." And I say, "Well that's only so well and good up until it isn't. Up until you lose your job because people don't realize what it is that you did."

This is an interesting problem. Let me give you an example from the history of museum computing that shows the nature of this. I don't know if you remember. Again, this is ancient history of technology days, but there used to be a photo sharing service online called Flickr. Do you remember that? Flickr had this thing called the Flickr Commons project. I don't know if you ever heard of that. It was a whole bunch of cultural institutions that got together to share open access images that people could use via Flickr, a wonderful collection. Hundreds of museums and archives and libraries around the world were contributing to this. Well, a friend of mine at the Smithsonian, I was talking to him about this one day, and he said he was looking at the numbers, and the images that they uploaded to Flickr Commons had more page views in one month than they got in five years on the Smithsonian's website. Yet here's the kicker, it's extremely unlikely that anybody browsing these images on Flickr Commons had any idea that those images were uploaded from the Smithsonian. So where do you draw the line as an information professional? Are you happy that all of these millions of people are using your images? Does it matter that they don't know whether or not it came from the Smithsonian or some other institution? At what point does that matter to you in terms of your funding?

So, when we look at the invisible work of libraries, archives, museums, all of our memory institutions, a lot of these institutions are constantly being attacked. Tax cuts come along. Why should we fund the library? Why should we pay for a library if everything is online? Well, who do you think put all that stuff online in the first place? And everything's not online anyway.

When your work is invisible, then you run the risk of somebody saying, “Who are you, and what do you do that’s so important anyway?”

Evangeline Coker: Is there any advice that you would give to researchers out there right now who feel like their work is invisible?

Paul Marty: That’s a really hard question to answer. That’s a really hard question to answer. I mean, I think the most important thing is to build as many connections as you possibly can and promote your contributions. The problems of invisible labor of course go way beyond interdisciplinary issues. They speak at a lot of the balance of power within academia. You have invisible workers, forget interdisciplinary, you have invisible workers within a single department or within a single research lab, and this is something that academia has been dealing with for a very long time. How can we highlight everybody’s work in a way that makes it understandable to people inside that department, outside that department, a broader audience?

When people don’t understand the work that somebody does, it’s easy to undervalue it, and it’s easy to defund it. So as much as possible, we have to help everybody understand the work that’s being done, no matter how different it might be, no matter how invisible it might be. When we look at invisible labor in academia, one of the problems is that this all too often falls on the shoulders of women and BIPOC women in particular. When we have that happening, we have to shine a light on that. Back to what I said earlier about people saying, “I don’t care if I get the credit or not.” Well the challenge with that is not caring about who gets the credit comes from a really strong position of privilege. If you don’t care about who gets the credit, that means you’re already in a privileged position. We really need to make sure that everybody pushing all of this work, no matter how invisible their contributions are, are getting the credit for what they’re doing. Otherwise, we’re not going to have an inclusive society within or without academia.

Evangeline Coker: Part of that inclusivity with academia I think goes back to what you were saying about interdisciplinary research. How do you think that academia can break down these silos that have been keeping people divided and encourage more interdisciplinary research?

Paul Marty: Again, it’s a very difficult question to answer. Personally, I feel like I’ve been fighting against academic silos my whole academic career. It’s like tilting at windmills only harder. This is all wrapped up with the challenges of being a generalist. Academia doesn’t like generalists, or rather the academic process discourages generalists. Academia is all about specialization, and that just gets worse as every year goes by, and the pressure to publish gets more and more, and the pressure to bring in grants gets more and more, and that just forces people to specialize even more as they churn out those least publishable units. So we’re fighting against the trend here. But I truly believe it’s an important trend that we have to fight against, because if we don’t recognize the importance of our work and the invisible labor of everyone who’s contributing to those works across all of those academic or disciplinary boundaries, well then we’re just arguing our way into obscurity, and no one’s going to understand what we’re doing. So, this is why I think it’s so important that we try to break down those silos, that we try to encourage more interdisciplinary research.

On the good side of things, I will say there are a lot of people here at FSU that are working to promote interdisciplinary research. The CRC, for example, has those multi-disciplinary grants, which is fantastic. And the Office of Research is doing a tremendous job with all those Collaborative Collisions to bring people together from different academic disciplines. You know, speed dating for researchers. The Office of Faculty Development and Advancement is also doing a lot of work looking at mentorship and the campus climate and how do we break down those silos. In fact, we just started a full professor working group to discuss these issues, mentorship in particular, with a focus on invisible labor and how do we support people across campus on whom this work falls, and it's usually invisible work, and usually they don't have the support to take it on. So, there's a lot of work being done in these areas. It's hard though.

One of the things that I've done over the past few years is I've helped coordinate the faculty luncheon series, which is on hiatus now, but before the pandemic used to meet once a month for lunch and have a talk from a faculty researcher talking about their work. Getting people to talk to each other, to share their research with other people outside of their discipline, that's very hard. It's so important because that's how we build the connections. That's how we build bridges. That's how we increase knowledge across disciplines. But it's hard work. People are busy. Most academics, most researchers, are so busy they don't feel like they have time to eat lunch, let alone eat lunch while learning about somebody else's research. How do you help people understand why it's important for them to take an hour out of their extremely busy day and learn about work that someone else is doing in a discipline completely different from yours? That's a huge challenge, yet hugely important.

I connect that back to what we were saying earlier about Granovetter's work Strength of Weak Ties and what we were saying earlier about information science as a meta-discipline. These connections between disciplines, they're the most important thing for us to build, and I really think that as a university, as a society, we have to promote those meta-disciplines. We have to promote those bridge-builders, because that's how we're going to shape the future.

Evangeline Coker: Thank you so much.

Paul Marty: You are very welcome.