

# Divining VALUE

Dr. Mitzi Montoya measures the perceived value of virtual reality.



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**My interview with Dr. Mitzi Montoya, a leading researcher in computer-based virtual environments, is set in a real coffee shop, face to face.**



## The irony is not lost on me.

Ideally, our meeting would take place in the online realm that garners much of her academic focus these days—“in world”—however, my not-yet-birthered avatar would probably be technically challenged and keep her experienced digital alter ego waiting for days.

Online virtual worlds are making great strides and becoming increasingly “real,” but the value of face-to-face meetings cannot be duplicated, according to Montoya, Zelnak professor of marketing innovation in the Department of Business Management at North Carolina State University in Raleigh, N.C.

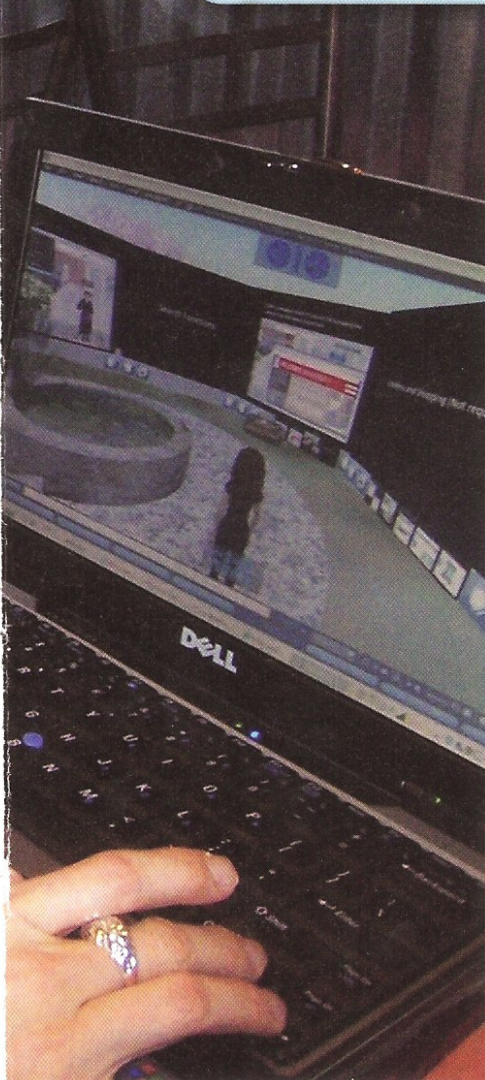
Montoya’s current research and publishing pursuits focus on measuring the effectiveness of virtual worlds as a valuable business tool. She and colleague Dr. Anne Massey, dean’s research professor in information systems at Indiana University, have developed a measurement scale to assess the perceived reality and value of interaction in virtual worlds—something they call Perceived Virtual Presence (PVP).

When Montoya and her research team announced the PVP scale late last year, she said the more “present” users feel in vir-

tual worlds, the greater the effectiveness of training, collaboration, education or presentation.

“PVP is the whole idea of projecting yourself into the [virtual] environment,” Montoya says, sitting across from me at a real table over a real cup of coffee in a real cafe where the aromas cannot be digitally synthesized. “We talk about it along three dimensions. We talk about feeling immersed in the environment or feeling like you are there. It is also about being absorbed in whatever task you are supposed to be working on. And then it is being engaged with the other people so that you have the sense that the avatar that you are looking at is the other person that you are working with. Those are the three dimensions: environment, task and people orientation. There are measures to those relationships. Technically, how you get there is you ask people a battery of questions and try to identify the underlying dimensions that are behind what people are saying.”

In sports, getting lost in the moment and performing at your best is commonly called “being in the zone.” In psychology, it’s called “flow”—a state of mind that leads to



BY PATRICK JONES



maximum productivity.

“It is the sense of getting lost in the moment,” Montoya says. “A lot of research has been done that looks at high-performance athletes. When they flow, and when they are in the moment, they are not breaking down how they are performing at their peak. For instance, in basketball, they see the court and just know where to be and what to do.”

Read a book and you can visualize and become absorbed in the story. That’s flow, she says, and the same concept applies with virtual worlds.

“So how do you break that perceived virtual presence down and measure it and relate it to people working better this way than other ways? Does it matter or is it a waste of time? Those are all really important questions,” she says. “What if [a virtual world] is just a flashy



**There are great examples that you see in [gaming] leadership behavior that is exactly what you need in management.**

environment that, frankly, is a waste of time? Companies need to know that information. The whole focus of what I look at

is how people work collaboratively and the best way to do so.”

Montoya reaches for a sip of coffee and looks me directly in the eye, highlighting an important point.

“Virtual technologies are certainly not better than face to face,” she says. “That is still the richest form of communication. Setting that aside and, now, looking at how [virtual worlds] compare to other technologies, you have additional non-verbal cues. And you have a different sense of being there with the other person or avatar representation, if you will, than you do over the phone. It is part of the ability to look at

objects interacting together and to have a sense of being there. That is the whole idea of presence. It makes a difference in how people interact and engage.”

## BACK TO THE FUTURE

Montoya has been a professor at North Carolina State University since 1995. She graduated with an engineering degree from Michigan State University and worked for a few years in the automotive industry as a design engineer before returning to the academic world.

Her father an electrical engineer, Montoya’s fascination for technology came about naturally.

“He said I could study anything I wanted *in any of the engineering disciplines*,” Montoya says, grinning. “So he had a

strong hand in saying I could be any kind of engineer I wanted to be as long as I was an engineer. And I have said the same thing to my eldest son. I think it is great advice. You can do anything you want out of the college of engineering.”

Montoya returned to Michigan State to earn a doctorate in marketing, which, on first take, seems an unusual blend of academic study to complement her engineering discipline.

Not so fast, says Montoya, who can logically walk you through the connections and explain precisely how she found her niche and calling.

“If you think about it, a new product or service has to be both well designed and it has to meet some need in the market,” she says. “The reason we see such high failure rates in product development is because it could be a great design—brilliant engineering—but no one wants it. Or people want

it, but if it is not well designed, then you completely missed the mark.”

Engineering and marketing must communicate with each other—product innovation is a very interdisciplinary process, she says.

“So, by accident, my random [academic path] led me right to where I needed to be in terms of having the different perspectives that you really should have in place to study innovation as a process and the decision making in that process.”

Montoya, 40, has spent much of the past two decades researching innovation and new product development. She is at the forefront of learning how teams make decisions while utilizing the best available technological tools.

“As the working world has changed and people have become more distributed around the globe to do that work, my primary area of research is on virtual teams,” Montoya says. “That work, for the most part, has been supported by traditional media such as e-mail and col-

laborative software. Artificial environments are simply a new way to support virtual collaborations.”

Those not yet familiar with virtual worlds may cringe at what sounds like pulp science fiction. But for those quick to poo-poo the new, consider as you’re Googling today that 15 years ago you probably didn’t anticipate your life revolving around the World Wide Web.

“I can frankly tell you that the first time I ever saw a virtual world, I thought it was the stupidest thing that I had ever seen,” Montoya says, laughing. “However, I will also tell you that we are looking at the bubble of a new generation of the workforce that grew up in the gaming generation, or whatever you want to call them. This is their world and this is their environment.”

Montoya’s two sons, 15 and 11, think it’s hilarious that their mother is working with virtual worlds—naturally, a relative of