

COLUMN

The magical world of data sharing

Andrew Peterman says scientists need to reach out.

IMAGE SOURCE: CORBIS

Backstage at Disneyland, the scene is not pretty. Think of Bambi's mother dying or Simba's father being killed in the wildebeest stampede — those heart-wrenching moments when the magic of your childhood starts to waver. Even though I was well into adulthood, that's how I felt the first time I did backstage fieldwork at Disneyland. The enchantment slipped away as I watched the characters of my childhood tear their stuffed heads off, dripping in sweat.

I recalled this experience three years ago, as I sat in my office at Walt Disney Imagineering — the science and technology division of the Walt Disney Company, based in Glendale, California. The song *It's a Small World* played as I waited on hold for a colleague to check for energy-use data that I had requested. These data could help our scientific team to understand how people use buildings, and to make designs more efficient. We knew that closing the exterior doors of a retail building would reduce energy consumption, but we did not know by how much or how it would, say, affect traffic flow. My role as a scientist was to research and devise strategies to reduce energy consumption across Disney.

But I and my team fought unsuccessfully to get company employees to divulge energy-use data. Most researchers have dealt with this problem, whatever their scientific field. Why, I wondered, must accessing data be such a struggle? I also wondered why Disney could not find better hold music.

My colleague, a manager at one of Disney's retail locations, came back on the line. She would not release the data, and gave no explanation. I explained that the research would remain in the company. I urged her to reconsider, given that the information could ultimately save the company money. "Sorry, no can do," she said. "Have a magical day."

It is not surprising that most people are afraid to relinquish data, even internally. Releasing data is like letting guests see Mickey Mouse tear his own head off backstage. If people see how things work, they might not want to come back. The holders of the data might also worry that exposing the information will get them into trouble. This fear is a major challenge for scientists attempting to do research that might very



well help the data holders.

After more than a year of trying to gather data at Disney, despite cajoling, harassing and coming as close as I could to actually bribing facility managers, I managed it for only a few buildings. Initially, I saw this as an organizational failure for the company. But I realized that the problem was not Disney's alone. As scientists and engineers, we often assume that our research goals are the same as the goals of the people from whom we need to get the data, when in fact they might be quite different. We are not trained to effectively engage others in our research.

In pursuing my PhD, I have learned that my job is not just to research, collect and analyse data and present results. Scientists must be intimately involved in working with those who possess and control data, beyond simply extracting information. We must teach those who will be most affected by our work how and why they should be involved in the research process. And it is crucial that we explore their goals, try to understand their apprehension and work to allay those fears.

I should have tried to understand how my research affected that Disney manager — perhaps buildings with proper energy-use practices would reduce costs or improve her employees' comfort. Scientists and engineers often encounter resistance from the people who stand to benefit most from our work. It should not be that way. As the song goes, "There's so much that we share, that it's time we're aware, it's a small world after all." ■

Andrew Peterman is a doctoral candidate in civil and environmental engineering at Stanford University in California.

GRADUATE STUDENTS

Teaching aids research

Teaching others helps science graduate students to improve their own research skills, according to a study (D. F. Feldon *et al. Science* 333, 1037–1039; 2011). The work compared science, technology, engineering or maths (STEM) graduate students who teach with those who only conduct research. It examined the quality and testability of hypotheses by the students at the start and end of an academic year, as well as the strength and design of their experiments, on the basis of assessments by independent scientific reviewers. The analysis is the first of its kind to measure the growth of skills, says lead author David Feldon, who studies STEM education at the University of Virginia in Charlottesville. He theorizes that teaching in STEM enhances early-career scientists' understanding of what comprises good research.

EMPLOYMENT

Degree brings prospects

About 52% of people who graduated from US professional science master's (PSM) programmes in 2010–11 had new jobs 1–6 months after earning their degrees, says a survey. *Outcomes for PSM Alumni: 2010/11*, released on 23 August by the US Council of Graduate Schools (CGS) in Washington DC, found that 39% of those with new jobs had secured them through internships associated with their PSM. CGS president Debra Stewart found the numbers encouraging. "Employers are seeing the value of the PSM," she says. Most of the jobs were research related. The survey had 320 responses from graduates of 58 PSM programmes. Advocates call the PSM a viable alternative to the PhD.

WOMEN IN RESEARCH

Romance beats science

Young women who want romance show less interest in science, technology, engineering and maths (STEM) than in other fields, says a study (L. E. Park *et al. Pers. Soc. Psychol. B.* 37, 1259–1273; 2011). The authors gauged reactions of 350 students to 'romantic' images such as candlelight and sunsets, to other images of books or libraries, and to chats about dating or tests. Those who saw and heard romantic content reported less interest in STEM. Such dynamics could contribute to women's low representation in STEM, says lead author Lora Park, a psychologist at the University at Buffalo in New York.