



## Engineering Recovery

An expert in organizational change turns his eye to addiction.

When **David Gustafson** approached an addiction treatment center in 2003, seeking to kick a thirty-year heroin habit, the facility wanted to admit him immediately, but its beds were full. So the center staff suggested, "Why don't you call back once a week and let us know if you're still interested,"

trial and systems engineer was working on behalf of the treatment center and had donned a fake persona to experience its processes firsthand.

As director of the Network for the Improvement of Addiction Treatment, Gustafson works with more than forty agencies around the country in

Gustafson brings an engineer's mindset to improving these numbers. He helps treatment programs critically examine their processes with an eye toward four key goals: cutting the time it takes to get into a treatment program, boosting patient admissions, reducing appointment no-shows, and keeping patients in recovery longer. Participating programs report 40 to 50 percent gains in all of those areas — success that has the network and its partners looking to spread their theories and techniques.

"There are 13,000 treatment agencies in this country; we're working with forty-four," says Gustafson. "There are a few more that might benefit from this — like 12,950."

Gustafson has spent forty years helping organizations change their operations to become more productive, and much of his work has focused on improving health care. He has developed technology to help people cope with serious illness, such as cancer, and facilitated quality improvement processes for a number of health care providers. But addiction treatment is fairly new to him. He joined the network in 2003, when it was launched with funding from the Robert Wood Johnson Foundation and the federal Center for Substance Abuse Treatment.

Gustafson says people involved with treatment programs tend to be receptive to change, because they work to create change in their patients' behaviors every day.

"We tend to say, 'Just look at yourself and think about how you bring about change in the work you do every day. Now take those concepts and apply them to the business processes,'" he says.

— Madeline Fisher PhD '98



BRUCE FRITZ

**David Gustafson knows that addicts can reap great benefits from treatment counseling programs — but only if they have access to them. His network helps centers improve their efficiency so that they can reach out to more patients.**

the would-be patient recalls.

For seven weeks, Gustafson dutifully phoned, getting in return a terse recording on an answering machine. There was "no feedback about what was happening or whether I was moving up the chain," he says. "Simply, 'Leave a message.'"

His story might have ended there, except for this: Gustafson wasn't really a heroin user hoping to change. Instead, the renowned UW-Madison indus-

try effort to increase the productivity of treatment programs, many of which struggle to handle patient demand and keep people on a course to recovery. According to figures from the national Substance Abuse and Mental Health Services Administration, less than 10 percent of the estimated 23 million Americans in need of addiction treatment get it, and of those, half drop out without completing programs.

## Talkin' 'Skahnsin

### Linguists listen to how we talk 'round here.

For newcomers to Wisconsin, a humdrum visit to the store can turn into a startling cultural experience when the cashier politely asks, "Do you wanna beg for that?"

It's one of the more comical manifestations of the unmistakable Wisconsin accent. Just as they pronounce *bag* more like *beg*, native Wisconsinites pronounce many words just a little differently. *Milk* can sound like *melk*, for example, while *cot* often comes across as *cat*.

These curious bits of the 'Skahnsin accent speak volumes to linguists such as **Joseph Salmons** and **Thomas Purnell**. The UW-Madison professors have launched the Wisconsin Englishes Project to study why Wisconsinites talk the way they do — and how those regional speech patterns may change over time.

Contrary to popular belief, regional accents have not diminished in the age of mass media. In fact, they're shifting and becoming more distinctive all the time, making them a living model for linguists who hope to understand what influences people's speech patterns. Wisconsin is a particularly intriguing place to ask that question, because it sits at the intersection of two radically different regional trends. To the west, people tend to pronounce *caught* like *cot*, a pattern linguists refer to as the "Low-Back Merger." Meanwhile, parts of southern Wisconsin are being influenced by a speech pattern, known as the "Northern Cities Shift," which tends to make *cot* sound more like *cat*.

"Wisconsin is probably the only place [in the United States] where two huge, highly conflicting linguistic patterns are colliding," says Purnell.

The researchers will study this lingual battle by collecting audio recordings of native Wisconsinites and analyzing them with acoustic equipment that breaks speech apart into sound waves, allowing them to identify exactly why someone from Chicago sounds different from someone from Rice Lake.

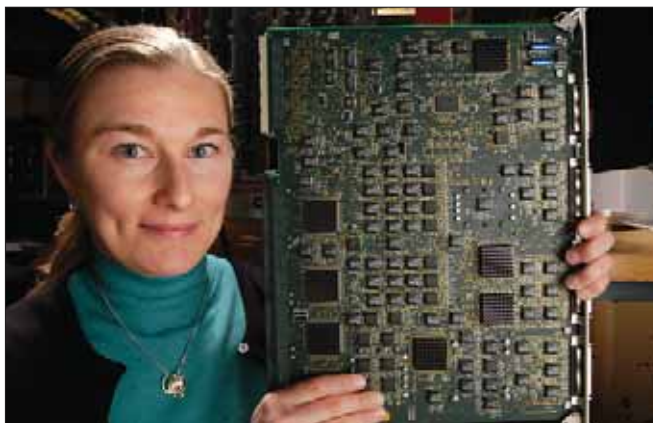
Salmons and Purnell say their work can have important implications for how English is taught in schools and may lead to new questions, such as how ethnicity and immigration will



affect dialect over time.

"As opposed to other dialects in America, Wisconsin English has been grossly understudied," Salmons says. "This is just the tip of the iceberg."

— Paroma Basu



Physicist Pamela Klabbers shows off the processing card that drives the world's fastest camera.

COOL TOOL

### Picture This...and This...and This...

Think that hot spiffy digital camera you just bought is fast? UW-Madison researchers have developed a \$6 million camera that puts it to shame. It's designed to capture particle collisions — about 40 million of them every second — making it the world's fastest image processor.

Who needs all those snapshots of protons banging into each other? Well, particle physicists do. They've long searched for the elusive and short-lived bits of matter that are released when larger particles crash — particles that they've only theorized exist, but never seen. The UW's "camera" will be hooked up to a giant accelerator in Switzerland that will create collisions between particles traveling near the speed of light. Not only will the camera process an image about every twenty-five billionths of a second, but it will self-edit those images, sending data about only the most interesting collisions. Now that's a feature we'd like to see on some of our friends' cameras.

— Michael Penn

Scientists may have a little more time to help ward off a potential outbreak of **avian flu** among humans, according to the findings of a UW-Madison flu researcher. Virologist Yoshihiro Kawaoka studied human tissue samples and learned that although the virus responsible for avian flu can replicate in humans, only cells deep within the respiratory system have receptors that allow the virus to enter. The research helps explain why the virus rarely infects humans, and it also suggests that existing strains of bird flu must undergo genetic changes before they are capable of posing a serious threat of a pandemic. "No one knows whether the virus will evolve into a pandemic strain, but flu viruses constantly change," Kawaoka says. "Certainly, multiple mutations need to be accumulated for the virus to become a pandemic strain."

The largest individual gift in UW-Madison history — \$50 million from alumni John '55 and Tasha '55 Morgridge — will pave the way for pioneering scientific collaboration at the **Wisconsin Institutes for Discovery**. The Morgridges' donation will be matched by the Wisconsin Alumni Research Foundation to help build the facility, which will bring together scientists to attack the problems of disease and advance regenerative medicine.

A UW-Madison team has developed a unique ranking system that seeks to preserve **Wisconsin's lakes and rivers**. The researchers divided the state into 1,600 hydrological units and identified the areas where conservation efforts are likely to be most effective. Those results will help guide restoration of watershed lands that keep pollutants from spilling into waterways.