

# EFFECTING CHANGE TO DO SOMETHING BIG



If only people would stop smoking, exercise and eat more fruits and vegetables. This lament is commonplace in the medical profession, where every day doctors see a direct link between poor diet, smoking and lack of exercise with an increase in diabetes, obesity and other life-threatening diseases.

But how do you get people to change their high-risk behaviors? Should you try to change just one behavior at a time? Or is there a link between unhealthy behaviors that makes it more effective to treat them all together?

These questions fuel the research of Bryan Blissmer, an associate professor in the University of Rhode Island (URI) kinesiology department and a member of the research faculty at URI's Cancer Prevention Research Center (CPRC).

With funding from the National Cancer Institute (NCI) and the National Institute on Aging, among other sources, Blissmer has been involved in a series of studies over the past decade, which together explore the most effective and efficient ways to motivate and sustain behavior change.

Traditional thinking has been to focus on changing just one behavior at a time, but this doesn't reflect reality, Blissmer said. The reality is that most

people who smoke are also likely to have poor nutrition and to not exercise on a regular basis, a pattern called multiple risk behavior co-occurrence.

If having multiple risk behaviors is the reality – and studies have shown that it is – doesn't it make sense to learn the best ways to intervene with people, who engage in more than one unhealthy behavior? Blissmer thinks so and with a \$589,000 grant from the American Cancer Society, he is studying new intervention strategies to help people change more than one behavior at a time.

"Now we have a buffet-style approach to intervention," said Blissmer.

People are given information on individual problems, but seldom receive advice on how to make lifestyle changes that integrates their health issues, he said.

But this "modular approach" fails to take into consideration the fact that one behavior might beget another, said Blissmer. It also ignores the fact that factors such as economics and emotions can also play a role in behavior change, making a new, more holistic model of intervention worth studying, he said.

The goal is cancer prevention, said Blissmer, a disease that is still the number one health concern of Americans and which has been proven to be caused, in some instances, by smoking and other unhealthy behaviors. To that end, Blissmer frequently collaborates with James Prochaska, CPRC co-director, who co-created the world-renown Transtheoretical Model of Behavior Change, which says changing behavior is a psychological process involving several stages.

"In essence, all my work is interdisciplinary," Blissmer said.

The CPRC, and URI in general, has given him the opportunity to do high-level, quality research on behavior change, which is a multidisciplinary science by definition since it involves so many different areas of expertise, he noted.

Blissmer's previous studies have included Project Health, which compared computer-based intervention programs to treat people who engage in three high-risk behaviors. On this project, which was funded by the NCI, he worked



*Bryan Blissmer*

with Wayne Velicer, a psychology professor at URI and co-director of the CPRC.

Project Health led to Project Raise, which involved creating a digital coach, known as a "Relational Agent," who uses pre-recorded scripts to help people change their habits regarding sun exposure and exercise. The Relational Agent is a "lifestyle change coach" with a different script for every day of the year. Blissmer is working with researchers from Northeastern University on Project Raise, which was also funded by the NCI.

Another study has used more conventional methods of communication, such as a printed newsletter and telephone interviews to encourage 1,200 elderly residents in East Providence, RI, to stay physically active and eat a healthy diet. Called the Study of Exercise and Nutrition in Older Rhode Islanders (SENIOR), this study also utilized a different approach to behavior change that encouraged the older participants to choose what works best for them, rather than being told what to do.

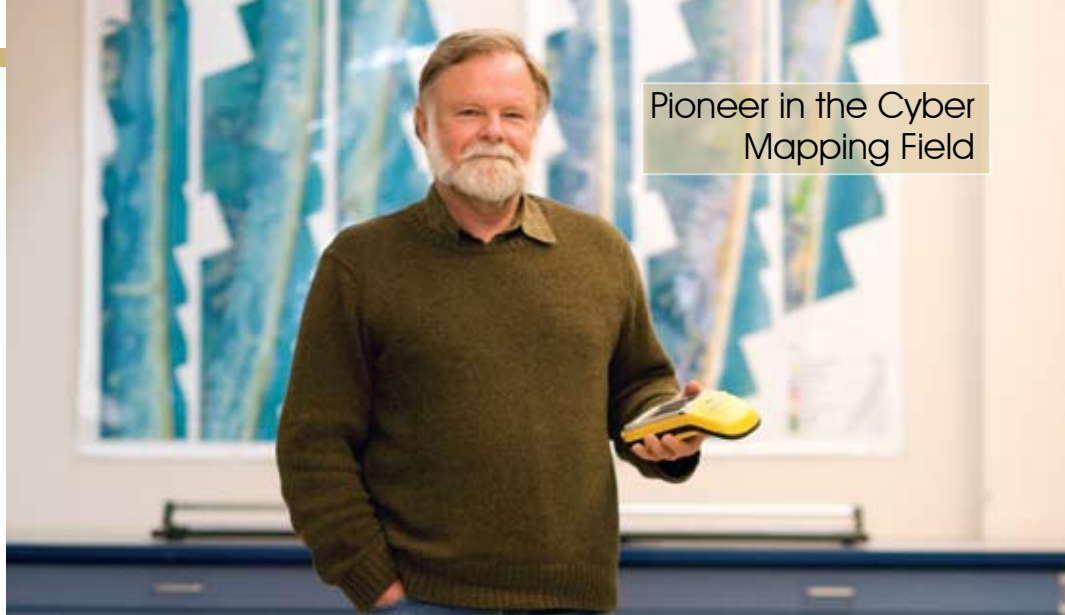
"We don't dictate," said Blissmer.

Usually, study participants are told to eat a certain number of fruits and vegetables a week and how often they need to be active and then the researchers check up on them to see how they do. But with the SENIOR study, the participants choose their own behavior changes based on their individual needs and goals, such as increasing sociability and mobility. A second phase of the study has been focusing on how to help older people maintain positive changes, an even bigger challenge than getting them to change in the first place, Blissmer said.

With both phases of the SENIOR study, Blissmer has worked on a team that includes Phillip Clark, director of URI's Program on Gerontology; Geoffrey Greene, URI nutrition and food science professor; and Deborah Riebe, chairperson of the URI department of kinesiology. Working as an interdisciplinary team has taken research on behavior change to a new level in the realm of public health, said Blissmer.

"It's an effective way to do something big," he said.

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## Pioneer in the Cyber Mapping Field

### Peter August, Mr. Map

If you want to know where something is in Rhode Island – or anywhere for that matter – the person to see is Peter August.

A professor of landscape ecology in the University of Rhode Island (URI) department of natural resources science (NRS), August began his career at URI teaching vertebrate biology with a particular focus on bats and rats. But in 1985, he came across a fledgling field, which he has since helped to develop into a source of pride for the state's flagship university, and in which he is now regarded as an expert.

That field is Geographic Information Systems (GIS). In other words, mapping with computers.

"In '85, I realized that GIS was going to be fundamental to science and resource management because my ecology work required me to use maps on a regular basis," August said.

As an ecologist, one of August's interests has been to design a network of conservation areas to protect biodiversity. If people don't know where wetlands and other fragile ecosystems are, how can they protect them? Performing even simple measurements on maps, for example calculating areas of complex shapes or lengths of curvy lines, can be tedious and inaccurate by hand. GIS systems are able to do these complex measurements almost instantly.

In 1985 – long before students carried laptops and millions of families had personal computers in their homes – August and NRS colleagues, Arthur Gold and William Wright, applied to Rhode Island's Department of Environmental Management for a grant to build a GIS system for the state. At that time, GIS technology was brand new, making them pioneers in the cyber mapping field.

"The first thing we had to do was put the basics into the system," recalled August.

The basics included such information as the location of the state's aquifers, groundwater and other natural features as well as man-made features such as town and state boundary lines. From the outset, the URI team made a commitment to creating an open database that could be accessed by anyone in Rhode Island. This was a key decision very early in the evolution of GIS. Now, the database is a community resource where all major state and federal agencies, and many communities, contribute to the database and draw from it as their needs require.

"It took us a long time to create an information resource that would serve everyone's needs," said August. "Now it is one of the most comprehensive GIS databases in the country." The database has a significant number of multi- and interdisciplinary research and scientific uses. Last year over 800 Gb and 350,000 data files were downloaded from the Rhode Island Geographic Information Systems (RIGIS) website from users all over the state and region.

That the URI team accomplished this goal can be seen by the fact that all communities in Rhode Island use the state's RIGIS system for planning purposes. The state, too, has relied on the system, at one point hiring URI to find 10 locations in Rhode Island where the state could place another central landfill.

These days, the RIGIS system operates in the Environmental Data Center at URI, where GIS experts work on projects as diverse as helping the National Park Service predict which parks could be at risk from sea-level rise to helping assess suitable sites for offshore wind farms to creating an online digital atlas of Rhode Island's environmental and cultural resources. It's a long way from rats and bats for August, but he's pleased with the trail his career took 25 years ago.

"I get a lot of gratification when the maps we make result in protecting the environmental assets that make Rhode Island a special place," he said.