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What’s the Big Idea?

Password-free smart phones. New cancer compounds. Better earthquake protection for buildings and bridges. Take a look at seven technologies under development at Ohio University.
Ohio University is a reservoir of expertise that benefits not only our students, but the public at large.

With each issue of Perspectives we describe some of the diverse and significant outcomes from the research, scholarship, and creative activity of our faculty, staff, and students. As individuals central to the creation of new knowledge, our faculty are in an excellent position to help the public understand major developments in the news, and news outlets increasingly look to the university for such assistance.

In some cases journalists are interested in reporting the results of the research conducted directly by our scholars and artists. Assistant Professor of Psychology Peggy Zoccola’s findings on the adverse health effects of dwelling on stressful events have been widely covered in venues that include Good Housekeeping.

Associate Professor of Physics and Astronomy Douglas Clowe’s results on merging galaxy clusters were similarly reported in dozens of national and international outlets in the past year.

The news media also look to Ohio University faculty to help interpret news more broadly. Professor of History Katherine Jellison has become a go-to source for journalists interested in reporting on the history of First Ladies, including Michelle Obama, and their relationship with the public. Communication Studies Professor William Benoit was widely sought out by media sources during the 2012 election for his expertise on political communication and the impact of positive and negative campaign messaging.

To help connect our faculty with writers and journalists who need their knowledge, Ohio University’s Communications and Marketing office, with assistance from partners such as the Office of Research Communications, has established a searchable Experts Directory that lists faculty who are skilled at talking with the media, indexed by subject area: http://www.ohio.edu/ucm/media/experts/. Through the directory and other channels, news sources have increasingly solicited Ohio University faculty. In 2013 our faculty have been quoted in newspapers across Ohio, including the Columbus Dispatch, Toledo Blade, and Cleveland Plain Dealer; and national outlets including National Public Radio, the Washington Post, Popular Science, and US News & World Report, among others. Last year saw more than 1,000 news pieces that cited Ohio University scholars. The prominence of OHIO faculty as expert sources in the media is testimony to our importance as a public research university.
Finding fungus

Tim Ryan tests new method of detecting mold in buildings

Mold isn’t responsible for that nose-scrunching stench we experience when stepping down into a dark basement or finding rotten food at the back of the fridge. Microbial volatile organic compounds, or MVOCs, are what really stink.

Tim Ryan, an Ohio University occupational health and safety professor, smells potential in predicting hidden mold by testing for MVOCs, the molecular metabolites released from mold as it grows. The only complication, he notes, is that not all molds emanate the same MVOCs or release them at a consistent rate.

In a study funded by the Ohio University Research Committee, Ryan tested the basements and upstairs living rooms of 23 different homes for mold and MVOCs. Air samples were collected and analyzed in the lab. Out of the 14 MVOCs tested, only one, 3-octenone, proved to be present at a statistically significant level when Ryan compared samples between the basement and living rooms of the homes. The findings were published in the international journal *Chemosphere*.

“We already know certain MVOCs such as geosmin are present when mold grows, but adding this new compound to the list is helpful,” Ryan says. “Now, under wet conditions where someone might expect mold, we can measure the 3-octenone levels and verify that.”

The National Institutes of Health reports that inhaling mold spores can exacerbate asthma and cause health problems such as chronic coughing, eye irritation, and blurred vision.

Rooting out and fixing mold problems can be costly, however, especially for commercial businesses, Ryan says. His findings suggest that property owners could bypass expensive traditional tests triggered by water damage or moldy odors.

“Right now if people smell something musty in a 40-story office building, you have to go around drilling holes in the wall every three feet searching for spores. That, or you can take an air sample back to a lab for analysis, which takes 7 to 10 days to complete,” Ryan says. “You’re putting everyone working in the space at an inconvenience.”

MVOC sampling and analysis can be accomplished in a day, however, which results in less down time, fewer occupant complaints, and potentially more definitive results, he says.

story by :: PHILIP BARNES
A plot with a twist

How a secret garden can teach the community about sustainability—in all aspects of life

Poking out of a field along the Athens Hockhocking Adena bikeway, a small, circular bamboo forest may not get more than a passing glance from the casual observer. But if you venture off the path and come closer, a tunnel becomes visible through the brush. It’s an enchanting, undercover entryway to the West State Street Research Site, known better by some as the Ohio University Gardens.

Ohio University environmental studies graduate student Sarah Minkin is no stranger to the place. With her peers, professors, and community members, she treats the garden as a patch of sustainable practice, where crops and flowers can be grown without the use of fertilizer, pesticides, or anything harmful to the environment. But Minkin notes that she’s interested in more than growing plants; she is interested in education.

“Sustainability education does not translate to gardening or purchasing local food from local distributors. It is more than that,” she says. “In my opinion, sustainability education is very much about providing a framework for examining the world.”

Minkin has been drawn to the topic of sustainability since her days as an undergraduate student at Ohio University, when she received a Provost’s Undergraduate Research Fund award to travel to India to study sustainable agricultural models such as food forests, where crop diversity increases yields without the need for pesticides and harmful chemicals.

In her graduate work, she’s looking at how to apply sustainability principles right here in Ohio. As part of her “Garden as a Classroom” project, in fall 2012 she brought elementary students to the Gardens to teach them about food webs, biodiversity, and habitats. Minkin also has visited elementary classrooms and facilitated environmental and science education programs. The project won her a first-place prize at the university’s Student Research and Creative Activity Expo in April 2013.

In the next phase of the research, Minkin will investigate ways teachers incorporate sustainability in the classroom, from first-grade lessons on how potatoes grow to college-level discussions of the economic and environmental consequences of nonrenewable resource dependence. Through her work with the Common Experience Project on Sustainability, she plans to assist in the development of a sustainability curriculum for Ohio University classes across campus.
Minkin is quick to point out that sustainability education is just as important outside of the classroom, noting that the local community can become the focal point of learning. She plans to host events at the Gardens such as panel discussions and workshops to engage people of all ages.

“The sustainability panel discussions will feature local growers and processors, who explain how we get our food and talk about agricultural systems and the interdependency of social and environmental systems,” she says. Sustainability panel discussions may also focus on water, energy, technology, and social justice, with food and food systems being an overarching theme. “We’re in a garden, so obviously we can’t ignore agriculture.”

In May 2013, Minkin was named a National Wildlife Federation Campus Ecology Fellow, which includes a $2,000 award to support environmental education and biodiversity on campus. Minkin and her adviser Art Trese, a professor of environmental and plant biology, also received support from the Ohio University 1804 Fund to build a pavilion at the West State Street Research Site. Minkin hopes it will become a gathering place for students, faculty, and community members alike, serving as a beacon of sustainability that might just make Athens’ secret garden a little more noticeable.

Ohio University sociologist Donald Hutcherson examined both criminal and conventional labor market data of 8,984 individuals documented in the Bureau of Labor Statistics National Longitudinal Survey for Youth from 1997 to 2005. The annual assessment addresses issues such as criminal history, family relations, education, and hardcore drug use.

“The original goal of this survey was to collect information on labor lives of youth in the United States, so it was incredibly useful for my research on incarceration and its connection with future criminal earnings,” says Hutcherson, an assistant professor of sociology and criminal justice at the university’s Lancaster campus. “We collected 5,000 specific pieces of information from each of the samples starting when subjects were 12 to 16 years old. With all that data, you can imagine how exhausting the process was.”

Hutcherson found that on average, the ex-incarcerated individuals have an annual illegal income of $1,070 while those with no prison history make just $120 illegally per year. The results were published last year in The Prison Journal.

“Those who spend time in prison simply fail in the conventional labor market,” he says. “There’s a stigma of having a prison record, and that comes at the cost of social capital, or connections with people who could land you a job.”

The survey data back up his claims. The ex-incarcerated are less likely to be employed than those who were never imprisoned (38 percent vs. 50 percent, respectively). Hutcherson adds that most criminals aren’t receiving an education or gaining work experience in prison, causing them to turn back to networks of crime for illegal income. And that puts them right back where they started.

Approximately 70 percent of criminals are re-arrested and 30 to 40 percent land in prison again after release, he says.

“Since the early 1970s, we have moved from a rate of 50 people incarcerated per 100,000 to something around 800 per every 100,000. The goal was to reduce the crime rate, but that hasn’t happened,” he notes. “We need to do something else with this population.”

Hutcherson suggests a plan of intensive probation for nonviolent offenders, which make up more than half of the prison population. “We shouldn’t be sending nonviolent offenders to prison,” Hutcherson says. “Typically, they aren’t incarcerated long enough for drug treatment, and of course, you have the stigma of a prison record, leading to unemployment in the conventional job market.”

Opposite page) The West State Street Research Site offers graduate student Sarah Minkin and others opportunities to study alternative agriculture, soil science, and native plant conservation and restoration.

(Left) Sarah Minkin

Sociologist Donald Hutcherson found that ex-incarcerated individuals have an average annual illegal income of $1,070.
Buildings are much more than just homes, shelters, or workplaces, says Ohio University graduate student Joey Behrens. They shape us as much as we shape them.

“Like us, buildings tell stories, and homes share the same role as the human body: They protect us from elements and vulnerabilities,” she says.

Behrens explores this concept in her artwork: prints and colorful oil paintings of cityscapes, distorted skyscrapers, and, more recently, a wearable collection of sculptures that she calls Architecture Embodied.

The sculptures are set to be shown in her thesis exhibition at Ohio University’s Trisolini Gallery next spring. Each resembles a building, constructed with handmade paper from fibers of the Japanese kozo plant, which she prefers over traditional wood pulp for its resilience and skin-like translucency. The paper is used to create windowless paper walls, which she then naps to a scaffold of wooden stakes. This creates the framework for desk-sized apartment complexes, office buildings, and smaller, modest houses.

Behrens incorporates molds of shoulders, arms, and heads that allow her model homes to be worn. The kozo paper provides a durable structure for the pieces. However, over time, the sculptures are subject to tearing, which Behrens compares to the wear and tear of a normal occupied house.

For three weeks, on a trip to Cape Girardeau, Missouri, Behrens wore one of her houses like a hiker’s backpack strapped over her shoulders. It was a good conversation starter, especially in Starbucks, she says.

“Often times, objects are made and then just exist in the gallery,” she says. “By wearing the house around on my back, so many more people saw it. It serves to interrupt people’s normal daily expectations. There is something really exciting about art and everyday life bumping up against each other.”

Behrens is currently seeking volunteers to model more of her sculptures around Athens, Ohio. With support from Ohio University’s Anthony Trisolini Fellowship, she will continue to work with various materials, emphasizing her focus on theme rather than medium, in the project.

“In contemporary art, there is less of a focus on ‘what it is you do’ and more of an idea of ‘what can you do to service the idea that you are working with,’” Behrens says. “It’s about using the right medium to get your idea across in the best way possible.”

story by :: PHILIP BARNES

Graduate student artist Joey Behrens (at left and below, left) uses strong but translucent fibers from the Japanese kozo plant to build her wearable, portable sculptures.
Political science fiction

What Battlestar Galactica can teach us about international relations

The science fiction television series *Battlestar Galactica* drew a legion of fans for its dramatic depiction of a robot genocide that leaves 50,000 human survivors searching for a new home in the universe.

It’s now attracted the attention of political scientists who see parallels between contemporary issues on Earth and the show’s discussion of topics such as civil/military relations, terrorism, technology, religion, genocide, and gender roles. *Battlestar Galactica and International Relations*, co-edited by Nicholas Kiersey and Iver Neumann, is a collection of 10 essays from scholars who explore the show’s far-reaching influence.

“We looked at all these themes from a critical perspective and we tried to see how *Battlestar Galactica* is making the world a better or a worse place—and sometimes it’s both,” says Kiersey, assistant professor of political science at Ohio University’s Chillicothe campus. “We didn’t just have one thing to say about it.”

Kiersey’s chapter discusses how the series parallels the way people think of technology today and the concerns that it runs our lives. He argues that *Battlestar* and contemporary international relations theory both consider modernity and technology to be the downfall of humanity.

In another essay, University of Massachusetts Amherst professor Charli Carpenter explores the way civil military relations in the show shaped the attitude of Tahrir Square protestors during the Arab Spring. Egyptian protesters employed quotes from the series during their demonstration in the form of tweets and placards.

The book—out in paperback for a general audience this fall—not only has attracted the attention of academics, Kiersey reports, but an endorsement from actor Edward James Olmos, who played Admiral William Adama on the *Battlestar Galactica* series.

story by :: TAYLOR EVANS
In forests such as Tar Hollow State Forest in Chillicothe, the site of her study, various practices are used to reduce the incidence of wildfires. Forest management professionals may selectively log trees or set controlled fires. But these changes also may create stress for the birds, which come to Ohio each spring.

“They usually start arriving here around the last week of April to breed, and by the end of July or August they head back to Central and South America for the winter, so they’re here for a very short time,” says Williams, who earned a doctoral degree in biological sciences at Ohio University and now is a visiting professor.

During the warblers’ Ohio season, Williams walks the forest terrain almost every day to collect data on the animals. A grant from the Ohio University Student Enhancement Award supports the travel of undergraduate research assistants who must drive an hour from Athens to reach the site. The funding has been a huge help, she says, as the site is too large for her to cover on her own.

Williams studies three stands that each span 75-80 acres. She’s been researching these areas since 2009, which has allowed her to see some of the same birds return to the site.

To monitor the birds, Williams and her team capture them in a mist net (nylon mesh suspended between two poles), and then attach small, government-issued aluminum bands to their legs. She weighs the animals, draws blood for hormone testing, and collects fecal samples.

As the bird is common in Ohio and nests close to the ground, it’s easy to observe. The relatively small birds (adults weigh about 11 grams) are olive green, bright yellow, and black in color.

Williams’ study will explore whether the birds exhibit increased levels of corticosterone, a hormone emitted under stress and energy demands. It can impact reproduction, growth, and immune function. So far, she’s found that the hematocrit (the percentage of the volume of whole blood that is made up of red blood cells) of nestlings in the selective harvest stand was lower than of those in the unaltered forest. This may impact survival, she notes.

The birds already face a high mortality rate, she adds, as 50 percent of the nestlings die shortly after they’ve hatched. Predators such as snakes, deer, and even other birds find an easy target in the hooded warblers because they nest so close to the ground.

“We need to give these things a chance; they’re amazing creatures,” Williams says. “If we’re doing things to the habitat so they’re not able to breed, we need to know.”

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**The hooded warbler is a small bright yellow, olive green, and black bird commonly found in Ohio.**
Photo therapy

Hospitals can be intimidating places, especially for children fighting life-threatening illnesses. Sterile rooms paired with a barrage of needles, pills, and whirring machines can leave young patients speechless.

Katelyn Schlosser, a master’s student in child and family studies, gives these children a voice. For her thesis project “Photographic Research Through A Child Life Lens,” Schlosser took cameras to a large freestanding children’s hospital in the Midwest and gave them to a diverse group of five adolescents between the ages 14 and 18 who were receiving pediatric cancer or hematology (blood disorder) services.

Although others have pursued similar photography projects, Schlosser is unique for analyzing the photos through what she calls the “child life lens.” Child life specialists are trained professionals with expertise in helping children and their families overcome life’s most challenging events, according to the Child Life Council, which provides certification for the field.

“Within the field of child life, we look at stressors on families and children and how we can help normalize the situations for them, primarily in hospital settings and medical settings, but it can also be nonmedical settings,” she explains.

Using the cameras, the children documented their daily lives by photographing objects and moments that were significant to them. The subjects included family, medical instruments, and food.

One child took an abstract photograph of egg drop soup, Schlosser recalls. When she asked him to talk to her about it, he said, “This is the first thing I could eat in two days.”

Schlosser, who has a bachelor’s degree in commercial photography from Ohio University, worked with both out-patients and in-patients. She found that the camera project was a useful form of expression for the children, especially for the latter group.

Schlosser is further analyzing the themes of the photographs to understand the unique experiences of the children receiving these medical services.

“I definitely think that continuing education for current hospital staff and nonmedical staff about what the child has perceived and how they express that is very important,” she says.

story by :: TAYLOR EVANS
The rise and fall of Idlewild
A history of a unique Michigan resort town

During two periods in the 20th century, a small Michigan town called Idlewild was a popular resort community for the black middle class. It attracted intellectuals such as Dr. W. E. B. Du Bois during the 1920s, and top black entertainers, from Jackie Wilson and the Four Tops to Della Reese and T-Bone Walker, during the 1950s.

Today the Lake County town has become an “idle place,” however, that’s searching for a new identity, says Ronald Stephens, an associate professor of African American studies at Ohio University.

Stephens is the author of Idlewild: The Rise, Decline, and Rebirth of a Unique African American Resort Town (University of Michigan Press). He’s spent 20 years interviewing residents and vacationers, as well as reading through archives and microfilmed collections of historical black newspapers such as the Chicago Defender, Pittsburgh Courier, and Michigan Chronicle to paint a portrait of this legendary resort town.

Few other resort towns catered to the black middle class during the segregationist period, although places like Idlewild did exist—American Beach in Florida, Highland Beach in Maryland, and Oak’s Bluff in Massachusetts.

Those who frequented Idlewild from the 1920s until after World War II identified with the New Negro age, which included the Harlem Renaissance cultural movement, Stephens says. Visitors included “black businessmen and women, people who owned black newspapers, barber shops, beauty salons, mom and pop stores in black neighborhoods and communities,” he notes.

After experiencing two peaks as a vacation resort for the black middle class—first in the 1920s, 1930s, and 1940s, and then again in the 1950s and 1960s—Idlewild faced a social and economic decline. Most scholars argue that the passage of the Civil Rights Act of 1964 contributed to this downturn, but Stephens presents another argument.

“Most of the literature says that what killed Idlewild was that the entertainers stopped going. After the signing of the Civil Rights Act of 1964, the entertainers and the black middle class could go other places,” Stephens says. “But that’s not the only thing that killed it. Those entrepreneurs did not reinvest in the community.”

Few developments have been made in Idlewild since the 1960s, and economic recessions have led to a drop in employment opportunities for residents. The resort town has survived mostly on tourism from retirees who remember the lively scenes from earlier decades.

After 30 years of economic decline in Idlewild, the state of Michigan assisted the town through a federal grant for historic preservation. Idlewild became the first site to have five historical markers revealed on the same day, in the same place.

Stephens notes that today, however, Idlewild lacks the resources and leadership to promote tourism. The residents continue to grapple with whether to try to regain the Idlewild of the past, he says, or pursue a new identity.

Story by :: NATALIA RADIC
The woman paced back and forth outside the airport, waiting anxiously for her husband to pick her up. She called him once, twice, three times. An hour later—at 7:00 p.m.—her phone finally rang.

"Where are you?" she demanded.

"It’s only 6:00 a.m.," he mumbled. "I have plenty of time to pick you up."

As the woman had feared, her husband, who has type 1 diabetes, had spent the entire day in a kind of hypoglycemic—or low blood sugar—stupor.

This type of scenario is not uncommon among the world’s 20 to 30 million people with type 1 diabetes, a disease in which the body does not produce insulin. These people must constantly monitor and control their blood glucose levels, adjusting their insulin with daily shots or an insulin pump to avoid crashes or spikes that, when severe, can be fatal.

Yet even the most sophisticated available glucose monitoring systems cannot adequately warn people that they are about to become hypoglycemic, especially while they are asleep, says Frank Schwartz, professor of endocrinology and J.O. Watson Chair for Diabetes Research at Ohio University. Those systems measure glucose levels in the fluid underneath the skin, which...
may be anywhere from 8 to 15 minutes behind actual levels.

“A patient who has hypoglycemia unawareness could already be unconscious before the sensor’s hypoglycemia alarm tells them they are too low,” he says.

Although these monitors collect nearly 300 data points per day on the patients who use them, analyzing all of that data to make treatment recommendations has become nearly impossible for physicians such as Schwartz, who manages some 400 to 500 patients.

A solution to the problem came to Schwartz from an unlikely place: his oldest son Scott, a music producer.

“One day I was watching him merge 60 tracks of music into a single recording using a computer program called Pro Tools,” he recalls. “I thought the music patterns resembled glucose patterns and that there must be a way to do this for diabetes. So I came knocking on the door of the computer scientists and found Cindy.”

Cindy Marling, an associate professor of computer science, had a track record of building artificially intelligent software systems to help physicians manage data and follow trends in their patients’ health. Schwartz, Marling, and Jay Shubrook, associate professor of family medicine, joined forces to build the 4 Diabetes Support System (4DSS), an experimental computer program that automatically merges and analyzes patient data and recommends personalized therapeutic adjustments for patients. The software could detect patient problems only after they occurred, however.

So the researchers approached Razvan Bunescu, a machine learning expert and associate professor of computer science, to create a revised version of the program that could warn people up to an hour in advance of imminent changes in their blood glucose levels, which would allow plenty of time for them to take preventive action.

With funding from the National Science Foundation, the team has created a software program that uses support vector regression, a time series forecasting technique previously used to predict stock market prices and utility loads. Specifically, the regression models are trained for each patient using current and past data about his or her blood glucose levels, insulin dosages, food intake, and exercise.

The longer a person uses the program, the smarter it gets.

“The computer should be able to learn patterns from patient data and use them to make predictions itself,” Bunescu explains.

When the team first tested the software, it fared about as well as a physician in predicting glucose changes at 30 and 60 minutes. But after additional development of the technology, “we are now outperforming the experts,” he reports.

“The neat thing about this software is that it has the ability to learn how individual patients respond to life events,” Schwartz says. “So if, for example, you’re ready to go to bed and you want to know whether you’ve had enough snacks to keep your glucose from going low until morning, the program can run a simulation and tell you if you need more or less food.”

In another example, if a user tells the system that he or she will go mountain biking “and you historically had become hypoglycemic two hours into your ride, the system would make a note of it,” he says.

“The next time you go riding the system would remind you to either eat plus reduce your basal insulin rate or stop your pump or whatever works best for you. In addition, it could alert you during the exercise if it determined that you were going to go too low in spite of the earlier suggestions. It could almost be a continuous mentor—or nag—giving safety reminders and helping with glucose control.”

Another benefit of the software program, according to Marling, is that it will enable patients to play “What if?” games. Patients can ask, “What if I have this chocolate sundae right now? What do I need to do to compensate?” The system can predict for them how their bodies will respond and recommend a dose of insulin.

Marling added that it’s important to keep in mind that a computer is not licensed to practice medicine and that the FDA will not allow a computer it hasn’t approved as a medical device to make therapeutic interventions.

“We see this product making recommendations that an advanced practice nurse or other diabetes specialist would then have to approve,” she says.

Now in its fourth clinical research study, the team has added a smart phone interface to make data logging even easier for patients. They hope this feature will help overcome one of the limitations of the program: human error.

“Some of the patients are very accurate (about logging data), but others forget what they ate,” Bunescu says. “So data may be missing or the time when they ate may be wrong.”

The researchers now are investigating the option of either licensing the software to a company or of creating their own company. Although they currently have some software ready to be commercialized, they plan to continue to improve it in the years to come.

“Diabetes is so complex, and the more we work on it, the more ideas we come up with,” Marling says. “But we can’t wait for the ultimate system; we have to use whatever we have now because it can really improve people’s lives.”

Schwartz is particularly excited about unveiling the software program.

“I’ve been taking care of patients for over 35 years and I have seen lots of bad things happen to patients with diabetes that theoretically are all preventable,” he says. “If I could get this program into a useable form that could be used by patients throughout the world, I’d be pretty satisfied.”
Hugh Iltis was searching for wild potato plants in the high, arid slopes of the Peruvian Andes when he found what may be the world’s smallest violet.

The scientist had paused to photograph wildlife, but dropped his camera filter. As he combed through the dry brush to retrieve it, he pulled up tufts of a tiny, flowering plant. Upon later inspection at his camp that evening, he recognized it as a type of violet, but had never seen anything like it before.

The discovery languished for 30 years until Iltis showed the specimen to Harvey Ballard, then a doctoral student in botany at the University of Wisconsin focused on violet research. The two scientists searched the literature for a match for the diminutive plant, which is only 1 centimeter high. They concluded, however, that the 1962 find was “utterly distinct and undescribed.”
Today the scientists have a name for the violet: Viola lilliputana, in honor of the small folk featured in Jonathan Swift’s Gulliver’s Travels. In 2012, the duo finally published their description of the plant, which boasts unique characteristics.

Why did it take so long? First, a gap between finding a specimen and describing it for the larger scientific community isn’t so unusual, says Ballard, now an associate professor of environmental and plant biology at Ohio University. And when they do, scientists are required to write it in Latin.

“But for the first time in hundreds of years, the Botanical Congress has allowed scientists to submit descriptions in English to speed up the process of describing and publishing new species,” he explains.

The two scientists also have spent the past two decades pursuing other lines of research. For Iltis, professor emeritus of botany at University Wisconsin-Madison, that’s agricultural plants, including work on how humans first cultivated corn. Ballard has built a career as a global violet diversity expert. He’s traveled internationally to collect and study viola in a variety of habitats, such as Hawaii or Bolivia, where the plants live in extreme conditions or may be endangered.

But the duo never forgot the strange little flower that had been collected in the Andes Mountains.

Iltis and Ballard aren’t the only ones who thought the find was cool. The International Institute of Species Exploration at Arizona State University voted it one of the top 10 interesting biodiversity discoveries of 2012. The institute releases its list, deliberated by a team of scientists, to raise public awareness of the vast diversity of plant and animal life on our planet. It’s a snapshot of some of the amazing creatures and organisms that reside on this globe, as well as a reminder of what’s at stake if we don’t protect nature.

“Worst-case scenarios suggest that as many as 50 percent of species might not survive the 21st century. Unless we know what species exist to begin with, how are we to detect or respond to their loss? Only knowledge will prepare us to minimize extinction, maximize sustained biodiversity, and understand the wondrous history of the origin and diversification of the biosphere of which we are a part,” said Quentin Wheeler, the institute’s executive director.

The top 10 list, which also includes a glow-in-the-dark cockroach, a monkey with human-like eyes, and a sea sponge that’s an architectural beauty, was featured in National Geographic and other national media outlets. The 10 discoveries were selected from more than 140 nominated species out of an estimated 18,000 species in 2012, according to the institute.

But back to lilliputana. Other than being one of the smallest violets in the world, it also has unique leaves and other characteristics, such as a pair of long, gauzy appendages that wrap around the young flower bud. Although Ballard can only speculate about the function of these features, he suggests that they probably evolved to help the tiny violet survive in the harsh climate of the Andes.

“It’s an amazingly hostile environment,” Ballard says. “Everything that grows there is the size of your thumb or smaller. It bakes in the sun all day and freezes at night.”

Although the Lilliputian violet is unique, Ballard notes that he expects to describe and publish at least seven other new species from this region of Peru in the next year. A new grant from Ohio University’s Baker Fund will allow him and longtime collaborator Juliana de Paula Souza, a postdoctoral fellow from Brazil now working at Ohio University for the next year, to study collections of other Latin American violets at various herbaria (plant museums) around the United States and in Mexico.

Ballard confirms that the Andes, the discovery site of lilliputana, is one of the top “hot spots” on the planet for violet diversity; the mountains of China and the Swiss Alps also rank high. But you don’t have to go that far to find unique new species of viola, the scientist notes. During a trip to Virginia last year, Ballard informed state natural resources officials that the plant they’d been identifying as a Midwestern prairie violet for decades was, in fact, a completely different and unique species inhabiting shale barrens, another harsh and exposed habitat that has yielded many other species new to science in the previous century.

A different violet blooming between cracks of the crushed limestone gravel at the Mountain Lake Biological Station, the base camp for Ballard and assistants during his Virginia violet hunting, also turned out to be something unexpected. It was a population of the northern bog violet Viola nephrophylla, known previously from very old specimens in three counties of West Virginia and thought to be extinct south of western Ohio and New York.

“There are still a lot of discoveries,” Ballard says, “to be made right here in the United States.”
Terms like Big Brother and privacy no longer work,” says John Gilliom, an Ohio University professor of political science. “Everything you know about surveillance is either wrong or incomplete. We push the readers to ask themselves a series of questions that compel them to rethink things.”

Gilliom and Torin Monahan of the University of North Carolina at Chapel Hill are co-authors of *SuperVision* (University of Chicago Press), which details the many ways in which our activities are tracked. Although avoiding the digital watchdogs is almost impossible—even for those who stay off Twitter and pay for goods in cash—the authors seek to raise awareness about how much we’re under surveillance and its implications for a democratic society.

One concept the authors seek to debunk is that “big government” is the main source of modern surveillance. It’s actually big corporations, sometimes working in conjunction with government agencies, that advance and use surveillance technologies, they argue. In the wake of the book’s publication, two news stories—Edward Snowden’s allegations of a mass public/private sector effort to track Americans’ personal information, as well as law enforcement’s work with cell phone and internet companies to track user data to apprehend suspects in the Boston Marathon bombing—serve as high-profile examples of the scholars’ argument.

The book seeks to appeal to a general readership by noting how some of our common daily tools, such as cell phones and social media use, play a role in surveillance. Cell phones archive the locations and movements of their users, “just waiting for the FBI, or hackers, or your creepy stalker ex-boyfriend to access and exploit,” the authors write.

The technology can be used for good, too, they are quick to point out. GPS capabilities in cell phones are frequently used by authorities to locate people in distress. Citizens may snap photos or shoot video that can aid law enforcement in capturing criminals.

But surveillance goes far beyond our high-tech toys. The authors point out how big entities—schools, employers, banking institutions, insurance companies—are practicing forms of surveillance as well. Some of these systems may reduce discrimination, such as computerized traffic cameras that flag speeders for tickets regardless of their race, age, or make of car. On the other hand, the authors note, some entities may use surveillance data to make important decisions about us, such as whether we’re eligible for jobs, insurance, or a bank loan.

“What is scariest to me about surveillance is the way it affects our life chances, but it is hidden,” Monahan says. “We are sorted into groups of people that are (considered to be) risky by organizations, and that changes lives.”

The authors note that many people willingly sign up for their own surveillance, out of a desire for security or belonging. You may buy a home in a gated community, for example, out of fear for safety, or join Facebook to avoid the fear of being left out of social conversations. The need to have someone watching out for us may override concerns about loss of privacy, *SuperVision* notes.

For those feeling concerned about their exposure, the authors offer tips on how to make Facebook or Twitter profiles more private or how to decrease your virtual presence, including through the use of anonymizing software. There are even firms for hire that can “scrub” online information.

But the authors also ask the readers to reflect on big picture questions as well. “Ultimately we wanted to write an enlivened, imaginative approach to thinking about surveillance issues, raising questions of whether or not surveillance and democracy can actually co-exist,” Gilliom says. “Under these new circumstances, what are our hopes for having an egalitarian society?”

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The new short story: Dinty W. Moore cultivates flash nonfiction for the digital age
To get a quick sense of who Dinty W. Moore is and where he is on the planet, take a deep breath and read from his self-styled online bio:

“Dinty lives in Athens, Ohio, the funkadelicious, hillbilly-hippie Appalachian epicenter of the locally-grown, locally-consumed, goats-are-for-cheese, paw-paws-are-for-eatin’, artisanal-salsa, our-farmers-market-rocks-the-hills sub-culture, where he grows his own heirloom tomatoes and edible dandelions, and teaches a crop of brilliant undergraduate and stunningly talented graduate students as director of Ohio University’s BA, MA, and PhD in Creative Writing program.”
AN ESSAY IN A FLASH

Though the term “flash nonfiction” is fairly recent, Moore says, the brief form of nonfiction in this country is nothing new.

“You could argue that Benjamin Franklin was the first brief literary essayist on American soil, if you count the concise entries on weather and astrological events and the advice on etiquette—‘Fish and visitors stink in three days’—which he inserted into his Poor Richard’s Almanack, an annual publication he started in 1733,” Moore says. He adds that the 1800s were full of brief prose, thanks to the proliferation of newspapers and magazines, and rapidly advancing printing technologies.

In tracing the lineage of the brief essay in this country, Moore tags Washington Irving, Henry David Thoreau (the stand-alone chapters from Walden), Mark Twain (one problem being that he freely mixed fact with fiction), Robert Benchley, Dorothy Parker, James Thurber, S.J. Perelman, and E.B. White as practitioners of the short form. But it wasn’t until the latter half of the 20th century that the short form came into its own.

“The energy and activity that coalesced around the brief fiction genre led to the publication of several anthologies of short fiction and also attempted to give the work a proper name,” Moore explains. “The term ‘shorts’ has been used, but ‘flash’ became the most widely used term and remains the standard to this day. The author, through language, is trying for a burst of self-awareness that the term flash implies; the compact prose illuminates like a flash gun.”

In the closing years of the 20th century, Moore says, the popularity of flash fiction led to an interest in flash nonfiction, and this genre particularly excited Moore. “These early anthologized mini-essays topped out at 2,000 words, and I thought, ‘How interesting—what can I say about my life that can be crystallized in this short format?’”

Moore can define the elements of the brief essay form—it is sharply focused, ambitious, intimate, and demands concentrated attention—but he prefers to describe the form with a metaphor.

“In an essay of conventional length, if there’s a fire burning deep in the forest, the reader might begin at the forest’s edge and be taken on a hike, perhaps a meandering stroll, into these woods, in search of that fire. In a brief essay, however, the reader is a smoke jumper, one of those brave firefighters who jump out of planes and land 30 yards from the fire. The brief essay, in other words,
needs to be hot from the first sentence, and the heat must remain the entire time."

His interest in the short form led Moore to found the online magazine titled *Brevity: A Journal of Concise Literary Nonfiction*.

“My patience for reading prose on the Web stops after a couple of screens, so I came up with the 750-word limit for a *Brevity* piece. The advent of blogs, Facebook, Tumbrls, and Twitter seems to validate the idea that shorter chunks of prose are more enticing to users of these new technologies,” Moore says. When he launched the magazine, he didn’t have great expectations for its longevity. Moore imagined it might not last more than a few issues.

“*Brevity* has grown beyond my wildest dreams in its 16 years of existence,” he says, “and judging from the ever-multiplying numbers of submissions and the geographic locales of those who submit, the flash nonfiction movement has flourished in tandem with our online magazine.”

Though still committed to publishing new writers, the magazine has enjoyed an embarrassment of recent riches, he adds, including the work of two Pulitzer Prize finalists, numerous National Endowment for the Arts fellows, Pushcart Prize winners, and authors from India, Egypt, Ireland, Spain, Malaysia, and Japan. *Brevity* averages 10,000 visitors a month and has a mailing list of 5,000.

**THE WRITING LIFE**

Although Moore has made a name for himself in the flash nonfiction genre, his own published writing also includes conventional essays, memoir, short stories, and writing guides for fellow scribes.

“The majority of my work is still longer than the ‘flash’ limit, though I remain drawn to the brief form,” Moore notes, adding that he finds the brief essay form maddeningly difficult. “It takes great effort to craft the tiny Faberge egg that a flash essay must contain, and I may be a better editor of this specialized form than I am a writer of it.

“I think, and hope, that all of my writing, including longer essays and my books, has been influenced by my experience editing and writing in the flash form,” he continues. “I certainly pay more attention to compression and concision—saying something once, saying it precisely, and saying it with color and image. I am also keenly aware of the need to pack so much into the first sentence, so the reader has multiple handholds to pull her forward.”

Moore has been thinking of his readers ever since his early writing efforts in the first grade.

“I was writing funny little things and showing them to my classmates and my teacher, and getting positive reactions, and in this way distinguished myself,” he recalls. “But as the years went by I thought that if you wanted to be a serious writer you had to be from New England, go to Harvard, and be somehow connected to this other elevated world. But my dad was a car mechanic, and we lived a lower working-class life; so I convinced myself the only way I could be a writer was to work on a newspaper.”

As a student, Moore served as editor of the campus newspaper at the University of Pittsburgh and knew he was a good journalist, but longed to be more self-expressive and artistic. He began to hang out with painters, and though he discovered he didn’t have any talent for painting, he fell in love with the artistic process. In the next six years, “pouncing around from thing to thing,” he failed, he says, as a wire-service journalist, modern dancer, zookeeper, Greenwich Village waiter, and filmmaker.

“But I knew I wanted to make art,” Moore says. “So at age 28 I had this forehead-slapping moment where I realized writers can be artists too, and writing had been the only thing I’d been very good at.”

“In a brief essay, the reader is a smoke jumper, one of those brave firefighters who jump out of planes and land 30 yards from the fire.”
Creative writing is Moore's true calling, but the actual process of developing a piece is challenging and "very messy," he notes.

"I get an idea and scrawl down a few things, push those sentences around and try to get them to cohere. By then I might have an idea whether I'm going to flesh out this idea as a conventional essay, experimental essay, or illustrate it with Google maps" (as he does in the illustrated essay that stars him and American journalist, writer, editor, and actor George Plimpton). "You keep pushing the clay around until it forms into something you recognize."

Moore explains that he typically scribbles notes on an index card or scrap of paper, but moves fairly quickly to the computer. And he’s a big believer in writing "lousy first drafts." There are two advantages to this approach, he says—a writer doesn’t pressure himself "right out of the chute" to be brilliant, and if he is simply spewing out words and memories and not trying to make much sense of them, there’s more possibility to surprise himself on the page.

Moore also believes that the most fruitful events or moments to write about are those that continue to confuse us. He stresses the importance for him of writing to understand the difficult questions, to explore who and what were the primary movers and shapers of his past.

"I'm the product of an alcoholic father and depressed mother, and so have explored in several essays how my development was influenced by my parents, but also how much was the result of political and cultural circumstances of the time: the Vietnam War, protests, Watergate, paranoia around Nixon and government. And I can't discount the influence of TV shows. I ended up spending as much time watching Dick Van Dyke as talking with my father. How did those sit-com patterns settle into my brain and influence my behavior even now?"

Moore adds that his study of the principles of Buddhism for more than three decades also figures into the writing process, beginning with what he calls simple mindfulness.

"In the context of writing, mindfulness means that at those moments when you are focusing on an elusive line of poetry or a stubborn plot obstacle in a story, you are able to remain attentive to the task at hand, seeing the words that are before you, hearing the possibilities in your mind, not succumbing to the thousands of other willing and ready distractions," Moore writes in *The Mindful Writer: Noble Truths of the Writing Life*, which was published in 2012. This book is a rough sequel, he says, to his book *The Accidental Buddhist*, from 1999.

Moore says that although he enjoys the process of writing, it really doesn’t get any easier. He believes the real writing gets done in the rewriting, and a typical finished essay of his goes through anywhere from 18 to 24 drafts.

"It takes me a long time to figure out what a piece is going to be about, what's really interesting. And from draft to draft I clean up rhythm and sound and the timing of the prose," he says. When he can read a whole draft aloud without stumbling over weak metaphors, clumsy sentences, or inadequate descriptions, then he knows the piece is finished.

Moore has clearly succeeded in several short-form genres, but has he ever considered writing his Great American Novel?

"I've already done that, written three novels actually," he says, adding that he's published none of them. "In grad school I was going to be novelist, but it turns out I've had much more success with the short story, which somehow segued into writing and publishing the essay, the nonfiction version of a short story. At this point, I think I’ve found my genre.”
Take a look at seven technologies under development at Ohio University
Your iPhone knows you from your unique finger swipe. A new test can tell whether you’re at risk of hardened arteries. A device implanted in your office building protects it from major earthquake damage.

These are just a few big ideas that Ohio University inventors have developed in recent years. Will these innovations come to your home, workplace, or doctor’s office? If so, when?

Each year, Ohio University’s Technology Transfer Office looks for new campus inventions that can be patented, licensed to a company, and manufactured and marketed for commercial, industry, or military use. In some cases, faculty, staff, or students might license the technology back from the university and launch their own startup companies to develop the products. Otherwise, the university works with established and startup businesses around the globe to take these ideas from the laboratory to the marketplace. The university has commercialized several innovations in biomedical sciences and engineering. Last year, the university received $9.4 million in royalty income from research licenses, making it the top institution of higher education in Ohio for technology commercialization revenue. At the university, the revenue goes back into research and commercialization initiatives. The process of turning a big idea into a product can take several years—and some inventions never make it to the marketplace. But the experience of developing creative solutions and the prospect of making an impact keeps inventors going. What’s in Ohio University’s technology pipeline? Here are just a few snapshots.
Americans are urged to get colonoscopies to find and treat cancer of the colon before the disease progresses. Millions of people now are signing up for the medical procedure, which isn’t without its risks—some patients may experience a puncture or tear that requires immediate intervention.

Mechanical engineer Junghun Choi is determined to help doctors improve their skills at performing colonoscopies through a new training model that gives medical students interactive feedback. Currently, students learn on a passive, rubber torso. Choi’s technology is a synthetic colon equipped with multiple sensors that tell students and their instructors how quickly they are moving the probe through the tract and if they are using too much force.

The engineer is working with David Drozek, a Heritage College of Osteopathic Medicine professor and colonoscopy expert, to test the model’s effectiveness with medical students.

Choi also is working on several companion technologies that provide an early warning signal to docs that the colonoscopy probe is kinking in the colon, as well as more efficient technologies for cauterizing polyps and tumors found during these exams.

Students test their skills on Junghun Choi’s synthetic colon technology. PHOTO: MARK DAWSON
When a team of Ohio University medical scientists and engineers tested a new compound's effectiveness on treating atherosclerosis—or the hardening of the arteries that can lead to stroke or heart attack—they made one unexpected finding. A protein called Wnt5a routinely showed up in the affected arteries.

The researchers now are working on development of a new test that searches for levels of the protein as a first warning sign that a patient may be in danger of developing atherosclerosis, says pathologist Ramiro Malgor.

The diagnostic test could be less invasive and less expensive than current methods, which also have limited use in catching the disease in its early stage, according to the research group, which includes several faculty members in the Heritage College of Osteopathic Medicine and the Russ College of Engineering and Technology.

Buildings and bridges may be equipped with vibration reduction systems that feature sensors, computers, and energy dissipation devices that can detect earthquakes and absorb shocks. The problem? These systems are a bit too complex, which doesn't always instill confidence in their reliability, says civil engineer Ken Walsh.

With support from the National Science Foundation, Walsh is developing a mechanical system that relies on a pneumatic damper in combination with a novel mechanism and simple sensor to detect and dissipate energy from earthquakes or other disasters. Motion of the building or bridge drives the damper piston, which compresses gas contained in one of the chambers. This stores energy that otherwise would be absorbed by the structure, he explains.

Each time the building changes direction, a valve on the device is pulsed open and closed. The energy stored in the damper is dissipated, and the process is repeated. By triggering the valve mechanically rather than through a complex system of sensors and computers, Walsh argues that the system will be more reliable and more attractive to building and bridge owners.

The device could be used in a broad spectrum of applications that call for shock absorption, he notes, such as cars, aircraft, or in military weaponry.

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No matter how clever or complicated your passwords for electronic devices and online applications may be, hackers are quickly finding ways to break them. Technology companies now are looking to biometric methods—such as a fingerprint login—to keep our transactions secure. Biometrics, however, have a fundamental flaw. “Once your fingerprint data have been stolen, you’ll never be able to grow a new set! At least you can reset your passwords, but your fingerprints and other biometrics are with you for life,” says Ohio University biomedical scientist S. Lee Hong.

Hong and engineer Chang Liu have developed a new approach that avoids such pitfalls, they say. Their interface for smart phones and other electronic devices remembers and matches the characteristic movement patterns of the individual user. “If someone hacked in and took the data underlying the movement and fed it back in, the system would reject it,” Hong says.

It would take only seconds to trace a new behaviometric pattern — no memorization involved, he adds.

The technology could be used in mobile devices, by banks and e-commerce, the military, and the healthcare industry, the researchers report.

“Recent deployment of high-resolution touch displays on mobile devices enabled us to develop this novel authentication method for the masses without any additional hardware,” Liu says.
From finding new compounds for drug development to detecting narcotics or explosives at crime scenes, scientists have relied on mass spectrometry to identify molecules. Ohio University chemist Hao Chen is developing a portfolio of technologies that can expand the capabilities of this classic technique.

In 2004, Purdue University scientists developed a technique called desorption electrospray ionization (or DESI) that can analyze solid samples, which is built on a Nobel Prize-winning method for creating an electrically charged mist. Chen adapted the DESI technology to include analysis of liquid samples and has cut the preparation time (which can last from minutes to hours in the laboratory) entirely.

The chemist’s inventions also can help analyze compounds more precisely and quickly, which could, for example, increase the number of compounds drug companies could explore as treatment candidates in a shorter time period, getting new therapies to market more quickly.

His technologies also may aid basic research in areas such as imaging flaws in human protein folding, which have been found to be the underlying cause of major neurodegenerative diseases such as Alzheimer’s.

Chen’s research enables scientists to combine the power of mass spectrometry with two other important techniques in the chemist’s toolbox, electrochemistry (chemical reactions triggered by electric voltage) and liquid chromatography (which separates mixtures), he notes.
Almost all cancer cells are “addicted” to glucose, says scientist Xiao Chen. They depend on glucose and other nutrients to fuel growth. But a new compound developed by biologist Chen and organic chemist Stephen Bergmeier is showing promise as a road block to this process, which essentially could starve cancer cells of their preferred energy source.

“Chemotherapies are not very specific,” Chen says, “but this is a targeted approach.”

In laboratory studies, animals treated with the compound showed a 60 to 70 percent reduction in the size of their cancerous tumors compared to a control group, and a few subjects were even tumor-free by the end of the treatment. No significant side effects were observed.

The compounds are based on PGG, a naturally occurring substance found in vegetables and beverages such as red wine, which has been touted by other studies for its heart-healthy properties. The researchers’ synthesized version is still in development. Right now, the compound has a short half-life in the body of about 30 minutes. The team—which has drawn from the expertise of biochemists Jennifer Hines and Shiyong Wu, as well as biologist Robert Colvin—is striving for the six to 12 hours needed for the compound to be effective in humans.

COPPER TUBING

HEATING, VENTILATION, AIR-CONDITIONING, AND REFRIGERATION (HVACR) SYSTEMS

The multibillion dollar heating, ventilation, air-conditioning, and refrigeration system (HVACR) industry uses more than a billion pounds of copper heat-exchanger tubing annually. Although copper is a pricier choice than competing materials such as aluminum, manufacturers prefer its thermal conductivity, strength and durability, and ease of joining and field repair, says mechanical engineer Frank Kraft. There’s also new interest from makers of medical and biological refrigeration systems in copper’s inherent anti-microbial properties that can inhibit the spread of pathogens.

To help meet the evolving demands of the industry, Kraft and his students have developed a patented process to manufacture micro, multi-channel copper tubing for high-quality, high-efficiency HVACR systems. The process creates an inherently stronger tube and a higher internal surface area, which improves heat transfer, he explains. This allows HVACR systems to work at higher operating pressures, which increases system efficiency.

Kraft currently is working to commercialize this technology for several applications, including heat exchangers for industrial solid state laser systems and for solar thermal receivers.
The program prompted the teacher to set daily goals for the child, such as finishing a small percentage of a worksheet, and provide feedback at key moments throughout the school day. At the end of the day’s classes, she showed the girl how well she had done toward meeting that goal, and the student received privileges that were based on her progress. It was a simple thing, but powerful.

“Once we implemented interventions with this girl, we saw that she responded,” Owens recalls. “She needed that structure and discipline.”

In fact, the girl’s behavior and performance improved so much that, by the next year, her second-grade teacher questioned her need for intervention.

“Good behavior” is a classic case of a child with attention-deficit hyperactivity disorder: A first-grader who impulsively pinched, shoved, and even bit her classmates. She failed to follow her teacher’s instructions and rarely completed her work.

Luckily, her teacher was part of a research project run by Ohio University’s Julie Owens, a faculty member with expertise in interventions for children with ADHD.

The compelling proof of that power is coming from Owens and her colleagues in the Department of Psychology at Ohio University.

“Only one in five kids who need mental health services end up in a clinic,” says Owens, associate professor of psychology. “Our services can be integrated into where they’re struggling: in peer groups or in class.”

While counseling may help a child cope with having ADHD, the researchers say, it’s not as effective as behavior therapy, which is a set of techniques in which parents and teachers modify cues and reinforcements in the environment to produce behavior change.

“You don’t even have the same sense of what’s going on in the clinic—it’s based on what parents or kids tell you,” says Steven Evans, an Ohio University professor of psychology. “In school, you can watch kids in the hallway and cafeteria. It gives you the ability to appraise where they are and how they’re progressing.”
A NATIONAL PROBLEM

According to the U.S. Centers for Disease Control and Prevention, some 6 million children between the ages of 4 and 17 have ADHD. Many of them also suffer from other mental health issues, such as depression, anxiety, oppositional defiant disorder, or bipolar disorder. Almost 3 million take medication; millions more seek help from community mental health providers.

The effects on the lives of children and their families can be devastating. Like the girl in Owens’ study, students with ADHD may be offensive to others or even violent, making it hard for them to make and keep friends. Their behavior disrupts the class and absorbs a disproportionate share of the teacher’s attention. In the long term, children with ADHD are at higher risk of school failure, suspension, expulsion, and dropping out, as well as drug and alcohol abuse.

Under federal law, these children qualify for special services at school. But many teachers don’t know how to help those children, or are so overwhelmed by the various demands on their time that they don’t know where to start.

Julie Owens and Steven Evans direct one of the few centers in the country focused on research and training in school mental health.

In national surveys, nearly 50 percent of teachers say they didn’t get enough training in this area (behavior modification) in college,” Owens says. She and Evans are trying to change that by bridging the gap between counseling and teaching to give teachers the skills and support they need to more effectively guide students with ADHD.

One example is the Youth Experiencing Success in School (Y.E.S.S.) Program, launched after a Hocking County judge realized that he was seeing too many young people with behavioral issues in his court. In 2001, he contacted the Department of Psychology at Ohio University to ask for help. After consulting for a year with the judge and school personnel—and looking at clinical practices proven to help children with ADHD—Owens and her community partners developed Y.E.S.S., a school-based program to provide comprehensive support for elementary school children.

Y.E.S.S. puts mental health providers—Ohio University graduate students, professional school counselors, or school social workers—in each of the elementary schools in southeastern Ohio’s Logan-Hocking School District for at least 15 hours a week. They assess children with behavioral problems and develop individualized programs for use within the classroom. Parents and children alike meet with the clinicians individually, as well as in support groups; teachers get in-service training and meet with the clinicians on a bi-weekly basis for consultation and support.

The idea of linking clinicians directly to schools was (and to some extent remains) an unusual one; Y.E.S.S. was listed in the 2007 Registry of Innovative Practices maintained by the Annapolis Coalition on the Behavioral Health Workforce.

Based on her experience with Y.E.S.S., Owens is now collaborating with Evans and researchers at Florida International University to develop ways to help teachers better implement classroom interventions such as one known as the daily report card. It’s a technique in which a teacher identifies desired behaviors and goals for achieving those behaviors, and then gives feedback throughout the day on how well the student is doing in reaching those goals. Y.E.S.S. has shown that the report card works. But a variety of factors—demands on their time, amount of support from the school, lack of training—keep teachers from using it.

“We know there is variability in teachers’ implementation of interventions,” Owens says. “We’re trying to understand how we can better support teachers to help them overcome barriers to implementation.”

In a three-year project funded by the U.S.
Department of Education, the Ohio University researchers and colleagues at Florida International University are working on ways to overcome those barriers. Last year, they consulted with teachers in southeastern Ohio and in Miami-Dade County to pinpoint roadblocks to implementation and steps to overcome them. This year, they are trying out those strategies in a pilot study. Next year, the Classroom Behavior Support Project will get a full clinical trial with 60 student-teacher pairs to see what works.

FOLLOWING ADHD TO MIDDLE SCHOOL

Owens’ work focuses primarily on young children, but ADHD and other emotional/behavioral problems are an issue for older kids, too. The American Academy of Child and Adolescent Psychiatry estimates that one or two teenagers in every classroom need help for ADHD. Some were never diagnosed as children; others continue to struggle.

Evans is one of the nation’s leading authorities on ADHD and other behavioral disorders in older children and teens. Owens recruited him to Ohio University in 2009 specifically to balance her expertise in younger children.

“The research questions are the same—it’s just different developmental stages,” she says.

Six months after arriving in Athens, Evans was awarded a $1.25 million.
is extremely valuable to both researchers and teachers, who can keep it going. And Y.E.S.S. trains school counselors and a teacher who used to oversee study hall. The second group got the organizational and academic skills help, but provided by teachers during the school day. The third group received community-based counseling or other assistance, but not the CHP enrichment activities at school.

The project wrapped in June, and Evans is still crunching the data. But as early as 2010, data from other studies showed that CHP interventions made a big dent in the failure rate in sixth- and seventh-grade students. And in June 2013, Evans presented a paper at a conference in Belgium that showed that the most progress was made by teens in the after-school program.

“Those in the mentoring program had lesser gains, but both groups improved more than the control group,” Evans says. “The strength and consistency of the data are very encouraging.”

In fact, Evans worked with school personnel in Cleveland to help them modify, implement, and adopt the Challenging Horizons Program as part of their curriculum. Instead of attending an after-school program, students will go to CHP class to learn the skills that have proven to be so effective.

“We teach kids to read, and it takes two or three years,” Evans says. “It’s important to have the same approach to behavior control. For kids with ADHD, organizing and behavior are subjects to learn, just like reading or math.”

Programs like Y.E.S.S. and Challenging Horizons are not only effective, but also easy to implement. The school district in Cleveland doesn’t need to hire new personnel for the CHP class; it will be led by a teacher who used to oversee study hall. And Y.E.S.S. trains school counselors and teachers, who can keep it going.

“The work that Steve and Julie are doing is extremely valuable to both researchers and practitioners in the psychology and education fields,” says George DuPaul, professor and chair of the Department of Education and Human Services at Lehigh University. “They are developing effective interventions that are feasible for school personnel to use even without the resources that come with research projects.”

MEETING THE NEEDS OF OLDER TEENS

Doctors used to think that children outgrew ADHD; now they know better. Increasing numbers of older teenagers and young adults are being diagnosed as psychologists and doctors learn more about the condition. Those who are diagnosed in adolescence often have greater hurdles to jump: They may be friendless, having alienated their peers, and be written off by teachers as lazy or unmotivated because of their lack of academic and organizational skills.

To help, Evans worked with colleagues to organize the Center for Adolescent Research in Schools, which targets high school teens and addresses a broad range of emotional and behavioral problems, not just ADHD. The program is a collaboration between Ohio University, Lehigh University, and the University of Missouri, with additional research support from Miami University of Ohio, the University of Kansas, University of Houston, and the University of South Carolina.

In this five-year project, funded by the U.S. Department of Education, a comprehensive intervention program for teens was developed and refined through trial testing at eight high schools in five states. During the last two school years, the program was implemented in 54 high schools, where 12 students per school were followed to see how the interventions affected their social, emotional, behavioral, and academic performance.

As with all of these projects, CARS takes a multipronged approach, incorporating support and training for teachers; academic, social, and behavioral counseling for students; and parent education. Because it has so many components—social, academic, emotional—it can’t be addressed in only one way.

“Quality care is not just, ‘Take this drug and use this intervention,’” Owens says. “It’s about how this intervention works for this kid, this family, this teacher.”

MAKING AN IMPACT

Both Ohio University researchers emphasize that their work is not intended to cure ADHD—it can’t be cured—but to help students, teachers, and families cope with it and be successful. And they recognize that even the best interventions may not help some kids. But when they work, school-based programs can make a tremendous difference.

Evans recalls an eighth-grader he worked with, a young man who was on the verge of being expelled from school. In addition to his behavior problems, the boy was failing academically. “He had no binder; his locker was empty,” Evans says. “When he got a paper from a teacher, he put it in his pocket and then threw it away at the end of the day.”

By coordinating assistance with the boy’s teachers and his mother, Evans worked what might be termed a miracle. “By the beginning of the second semester, he had all his materials together and he was doing his school work,” he says.

Without the boy’s knowledge, Evans asked the principal to introduce a Most Improved Student award in the end-of-year assembly. And so the student who just months before was at risk of becoming a dropout statistic took his place on the stage next to athletes and star pupils.

“It was one of the biggest turnaround cases I’ve seen,” Evans says. “It took patience and persistence.”

BY ANDREA GIBSON

"Two teachers from an elementary school in Westerville, Ohio, asked me to collaborate with them on their own fear project that they were going to do with 175 first- and second-graders," Elman says. "This included a performance and an installation piece about all of their fears. The teachers rounded up all the fears of their students and sent them to me in a spreadsheet. I was able to include all of their fears in this single piece. The teachers said they'd be framing the print I sent to them and hanging it in their school."
These are the things that scare us most together and through expression, we don’t have to be afraid.

First and Second Graders at McVay/Whittier Elementary School in Westerville, Ohio
I did not know the person who sent me this fear," Elman says. "I was touched by how honest—and how young—she was."

FEAR OF WHEELCHAIRS

"I did not know the person who sent me this fear," Elman says. "I was touched by how honest—and how young—she was."
“Mary talked for quite a long time about her fear of fish,” Elman says. “When she was finished telling me about her fear, she asked that I not send her my final illustration, as she thought the drawing alone would freak her out.”

Fear of Fish

“The person struggling with this fear was dealing with a court issue at the time,” Elman says. “The idea of injustice was very much on his front burner.”
"I haven't yet categorized all the fears I've received over the past two years, but being alone, I think, would be one that shows up more frequently than others," Elman says. "What's interesting to me is that this fear is shared by people of all ages—and people express this fear in a variety of ways."
For some viewers, the project validates what might have been considered an unusual concern. You’re not the only one who dreads the cloying scent of bananas, the sight of lotus seed pods, or the possibility of emitting a sonorous belch while public speaking.

“The fears are pretty varied,” Elman notes. “After the NPR story appeared, I started receiving more fears about the purpose of life and loneliness. But people often express those ideas in different ways.”

Although the illustrator began the project by interviewing family members, friends, and colleagues about their anxieties, dozens of perfect strangers now message her with stories of their deep disquiet or phobias. She respects any requests for anonymity.

And while she’s humbled by the fact that so many people seem eager and ready to share their most fundamental concerns, she is quick to point out that she’s not a therapist.

In fact, the Fear Project started out as a creative exercise for the former photojournalist and newspaper designer. Her current role teaching publication design frequently finds her seated behind an illuminated computer screen.

At first, Elman needed to doodle with pen, paper, and ink. Inspired by Oregon artist Kate Bingaman-Burt, she decided to bring structure to her creative process by setting simple rules for herself. After deciding to draw fears—using her background in journalism to reach out to others, instead of only rehashing her own apprehensions—she chose a routine: Work on the pieces fast, never re-do them, and post them online promptly for public consumption.

“I don’t labor over these pieces. Usually I take one afternoon or night. It helps me not think about it too much so that my inner critic doesn’t come out and start to question whether people will hate it or find that it doesn’t communicate the fear very well,” she says. “I plow through it, post it, move on to the next one.”

The images resonate with a wide variety of audiences. Other artists may take note of the techniques, the materials. English professors and those who work with at-risk juveniles have responded to this form of journaling to express emotion and tell stories. Professionals in the mental health and health care industry have pointed out the healing aspects of visualizing anguish.

What everyone agrees on, Elman says, is that they can’t wait for the Fear Project book. The illustrator is now seeking a publisher for the series. And if she ever gets a little anxious about the prospect of finding one?

She knows a good outlet for her worries.
The digital age is prompting big changes in the news media. Three journalism scholars weigh in on what’s next.

**DIGITAL GIVES RISE TO MORE INDEPENDENT, ENTREPRENEURIAL ONLINE JOURNALISTS**

Many newspapers and radio and television news outlets are owned by larger media companies concerned with the bottom line. As digital disrupts traditional forms of media, corporations are seeking a viable business model. Some are cutting back—or chopping entirely—print editions of newspapers or magazines.

Some journalists have decided to venture out on their own. Dissatisfied with media coverage in their area, two ex-journalists started The West Seattle Blog to provide hyper-focused news stories covering the span of just a few neighborhoods, says Hans Meyer, an assistant professor of journalism who studies community journalism. Apparently, it’s a recipe for success. In May 2011, the blog won Best Online Community Engagement from the Pacific Northwest Society of Professional Journalists.

“I think great independent journalists will be able to tap into all the information that’s available to provide the audience with a picture that is just as nuanced, just as complete, and thankfully more independent and transparent than the news now provides,” Meyer says. “Without the overhead of a huge news organization and the obligations that go along with it, they might be able to provide us an even clearer, more personal, and ultimately objective picture of the world around us.”

To prepare future journalists for this independent, entrepreneurial brand of journalism, Meyer is teaching students the basics of HTML and CSS so they can manage their own news sites.
AUDIENCES CAN GET THE SAME STORY IN MULTIPLE WAYS

As news consumers grow accustomed to the fast-paced 24/7 nature of digital journalism, expect to see more media outlets reporting the news in multiple ways. Reporters are being trained to juggle many roles—not only writing, but taking photos, recording audio and video, and communicating directly with audiences via Twitter or Facebook, says Tom Hodson, the Joe Berman Professor of Communication.

News consumers are demanding stories that are compatible with multiple devices, including smart phones and tablet computers. Could Google Glass be next?

“People aren’t sitting down in front of the television every time we broadcast,” says Hodson, who manages WOUB Public Media at Ohio University. “We have to extend our audience. The younger the demographic, the more different ways people are getting information.”

:: THE EXPERTS
1. HANS MEYER
2. TOM HODSON
3. HUGH MARTIN

NEWS MOVES FROM A CONVERSATION TO AN INTERACTIVE EXPERIENCE

News sites and social media outlets such as Facebook and Twitter have turned even simple news stories from a solitary monologue into a conversation among users, Hodson says.

“We went from a monologue to a conversation—and it’s never going back,” he notes. “I predict the next level to be experiencing the news. At the base of it all you still need writing. That will never change. But now journalism is becoming a matter of ‘How do I put my audience into the story?’”

Right now that might mean accessing audio or video clips with your text stories. In the future, holographic television could amplify the audience experience while connecting with a younger generation turned off by traditional media but plugged into video gaming.

“In the next era we will be able to gain a bit of experience of what it is like in a hurricane or in a war zone, in a global environment during the Arab Spring, or as quarterback in the Super Bowl,” Hodson says.

SOME OF YOUR NEWS MAY BE GENERATED BY A COMPUTER

“Computers writing stories is inevitable,” says Hugh Martin, an associate professor of journalism. “The cost advantages of automation are so great across the board in professions like journalism, law, and education.”

The Big 10 Network already uses a computer program called Quill to write short recaps of baseball and softball games. Quill creator Narrative Science touts it as a writing machine that actually “gives voice” to ideas as it discovers them in data.

But a computer can’t do everything, Martin is quick to point out.

“Something as basic as news about local government still requires the work of knowledgeable journalists,” he says. “Human effort and judgment will always be required to produce news that critically examines the subject at hand.”

YOU’LL STILL NEED TO PAY FOR NEWS TO KEEP MEDIA OUTLETS AFLOAT

The revenue from online advertising is much less than what media outlets earned from print advertising, putting some news organizations in a financial dilemma. More are launching or returning to the concept of pay walls to keep the virtual lights on. But some are offering consumers choices for how and what they pay for.

“Digital subscriptions represent a positive step toward stabilizing revenue declines,” Martin says. “Tiered pricing plans allow these organizations to charge groups of consumers different prices based on how much each group values the news. These plans start to put news organizations back in the game on an equal footing with their new media competition.”
Rewriting life stories

How young adult literature can help us understand adolescent development

What do the characters Pi, Ponyboy, and Holden Caulfield have in common? Besides being the protagonists of three popular novels, they’re also the subject of Spencer Smith’s student thesis.

Smith, an English major in the Honors Tutorial College, examined narrative psychology in young adult literature.

The relatively new field of narrative psychology views our lives as stories that can be rewritten, Smith explains. “You can imagine a boy who thinks of himself as lazy and doesn’t do work in school,” he says. “What a narrative therapist would do is find times in his life when he hasn’t been lazy, and then start connecting those instances and rewriting a narrative in which the boy is no longer lazy, but productive.”

Smith’s thesis discusses how adolescents, specifically males, develop their identities and the way they narrate their lives. He examined three classic young adult books, *Life of Pi*, *The Outsiders*, and *The Catcher in the Rye*, and compares the psychological development of the protagonists to the development of adolescents.

*The Outsiders* and *The Catcher in the Rye* often are assigned reading in junior high and high school, and *Life of Pi*—although written for adults—is generally popular among adolescents. Smith chose books with a similar style, but with enough differences to generate discussion.

“Although they’re all told in first-person by male protagonists, the narrators differ quite a bit,” he says.
A journey for justice

Ellen Hamrick raises awareness about the first genocide of the 20th century

Few may have heard of the first genocide of the 20th century, but Ellen Hamrick, an undergraduate anthropology major in the Honors Tutorial College, is working to change that.

In her senior thesis, she raised awareness about the Herero and Namaqua genocide that occurred in present-day Namibia and the ongoing fight by the victims’ ancestors for reparations.

When Germany colonized southwest Africa in 1904, about 80 percent of the indigenous Herero people and 60 percent of indigenous Nama people were killed. Today the descendants of the survivors are pushing Germany to pay reparations, but face political obstacles with the German and Namibian government.

Hamrick decided to focus on the Herero and Nama genocide after conducting initial research on global genocides and the reparations movement, she said. Her work has received funding from the Ohio University Student Enhancement Award, the Provost’s Undergraduate Research Fund, and the Honors Tutorial College Dean’s Discretionary Fund.

Hamrick’s thesis critiques the German government, which does not recognize the Herero and Nama people as a state. The Namibian government is hesitant to push Germany too hard, however, because it is such a major supplier of foreign aid.

“There’s an embedded critique within (the reparations movement) about the Namibian state and its failure to protect the interests of minority ethnic groups in its own country,” she says.

What makes the genocide even more heartbreakingly for the descendants of the victims is how it affects their everyday lives. The Herero and Nama people lost possession of the land on which their ancestors are buried. New funerals on these sites can occur only with the permission of the current landowner, and often face restrictions on length and attendance.

These groups have lost cattle, a sacred and vital part of their culture, as well as their native language and other traditions.

“The people who I talked to—it wasn’t a history debate that they were having. It was a real thing that affected their lives every single day,” Hamrick says. “They were passionate about what had happened to their ancestors and also about the land issue, cattle dispossession, and political disenfranchisement.”

Reparations activists are seeking land reform, funding for schools and clinics, repatriation of human remains, memorials, a formal acknowledgement and apology, as well as exchange programs between German and Herero and Nama youth.

Hamrick, who graduated in May, would like to work in genocide prevention and response advocacy. She hopes to be able to return to Namibia to continue her work with the Herero and Nama people. In the meantime, she’s working with Duschinski to publish a scholarly article based on her thesis.

story by :: JESSICA SALERNO

Ellen Hamrick attends the commemoration of the Battle of Ohamakari in the Herero-German War during her trip to Namibia.

PHOTO: COURTESY OF ELLEN HAMRICK
Advanced bioenergy crops are actively being developed as a replacement for fossil fuels and are expected to reduce greenhouse gas emissions from the energy sector. Sarah Davis, assistant professor at the Voinovich School of Leadership and Public Affairs, is investigating the potential of several species, including sorghum (shown above), to become environmentally sustainable bioenergy crops in southeastern Ohio. Graduate student Jon Grennell (above) works in Davis’s lab, measuring the uptake of atmospheric carbon dioxide in trial plots of sorghum planted on old pasture land in the Land Lab on The Ridges of the Ohio University campus.