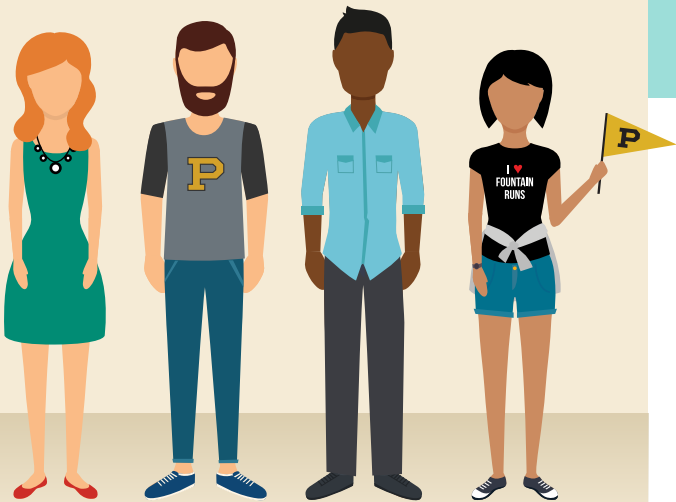


DELIVERING
DINNER

Purdue experts examine
the meal-kit phenomenon



You're part of the Boilermaker family,
500,000 STRONG.
What do we all have in common?
WE ALL LOVE PURDUE!



The Purdue Alumni Association exists to keep Purdue University a strong, vital part of your life. Your membership provides opportunities for career-building, networking, and to strengthen Purdue itself. Member benefits include:

- Subscription to the award-winning *Purdue Alumnus* magazine
- Exclusive discounts at retailers nationwide
- Access to alumni events in your area

PURDUEALUMNI.ORG/MEMBER

PURDUE **P** ALUMNI

MEMBERSHIP TYPE	INDIVIDUAL	JOINT*
NEW Annual Young Alumni (35 & under)	\$50 \$25	\$60 \$30
Annual Membership	\$50	\$60
Annual Loyal Boilermaker	\$125	\$150
Life Membership	\$1,000	\$1,250
Life Payment Plan (5 years)	\$200/yr.	\$250/yr.
Senior Life (60+)	\$500	\$625

*Spouses or domestic partners residing at same address.





04



08



14



25

04 LESSONS FROM THOSE WHO LIVE THE LONGEST

08 NOT TO BE FORGOTTEN

14 ADVANCING SUSTAINABLE TOURISM

18 BETTER BEGINNINGS

25 OUTDOOR LEARNING SPACE

30 MRI FACILITY OPENING NEW AVENUES OF RESEARCH

32 WHERE ARE THEY NOW?

16 ON THE COVER GROWTH OF THE BOXED-FOOD INDUSTRY

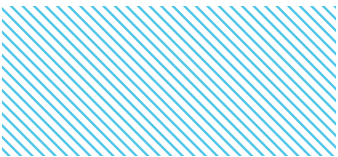


Christine Ladisch, dean of the College of Health and Human Sciences, is one of many who use a meal-kit delivery service. She and others within the college discuss the benefits and possible pitfalls of the trend. (Photo by Charles Jischke)

GENERATIONS, also known as "HHS class notes," is now online. Please join us at www.purdue.edu/hhs/life360 to stay up to date on alumni news and to share your own.

Opposite: Building the skill of self-control at an early age can help set the stage for success. Purdue experts explore innovations in early learning in Better Beginnings (page 18). (Photo by Charles Jischke)

FIRST IMPRESSIONS



If you have young children, you’ve most likely been asked, “What’s for dinner?” more than a few times. It was a common question in our household while our two children were growing up. Although they’re now adults and have been out of the house for a few years, the question is still being asked — my husband, Mike, and I ask it of each other. It’s a simple question, but one that can be difficult to answer unless you’ve planned your meals and shopped for the ingredients ahead of time. Our cover story (page 16)

takes a look at the “boxed-dinner” or “meal-kit” trend to explore its pros and cons and what it could mean for your health, your wallet, and the future of the food industry. As a regular subscriber (two times per month) to a meal-kit delivery service, I enjoy the convenience of having ingredients to prepare a delicious meal delivered right to my door. Plus, it’s fun to try new foods, seasonings and recipes.

Perhaps you’ve seen our new tagline, “Making Lives Better.” It describes precisely HHS’ learning, discovery and engagement programs as well as the work of our students and alumni. As you turn the pages of this issue, you’ll see stories of people who are indeed making lives better, like the HHS researchers who are

working to prevent, identify and treat various forms of dementia (page 8), and the generous donors who’ve made it possible for the Department of Speech, Language, and Hearing Sciences to build an outdoor learning space designed to investigate and enhance communication, social, and sensory-motor skills of children with communication challenges such as autism (page 25).

Of course, hospitality plays a key role in making lives better. We’re excited to introduce you to Paul Miller (HTM ’96), owner and operator of The Union Kitchen restaurant in Houston (page 29). Inspiration for Paul’s restaurant came from his memories of time spent in the Purdue Memorial Union. In just seven years, this impressive entrepreneur has expanded his hospitality business to include seven restaurants, a banquet hall and a food truck.

I am moved by the generosity of HHS alumni and friends and their commitment to helping make HHS a leader in health and human sciences education, research, and outreach through contributions to *Ever True: The Campaign for Purdue University*. Collectively, you have contributed an astounding \$66.9 million toward HHS’ \$77 million goal! Your support is making a difference in our quest to educate tomorrow’s health care, social sciences, business and education leaders; understand and treat current and emerging challenges to health and well-being; and achieve our overall mission to make lives better. Thank you!

Hail Purdue!

Chris Ladisch

Christine Ladisch
Dean

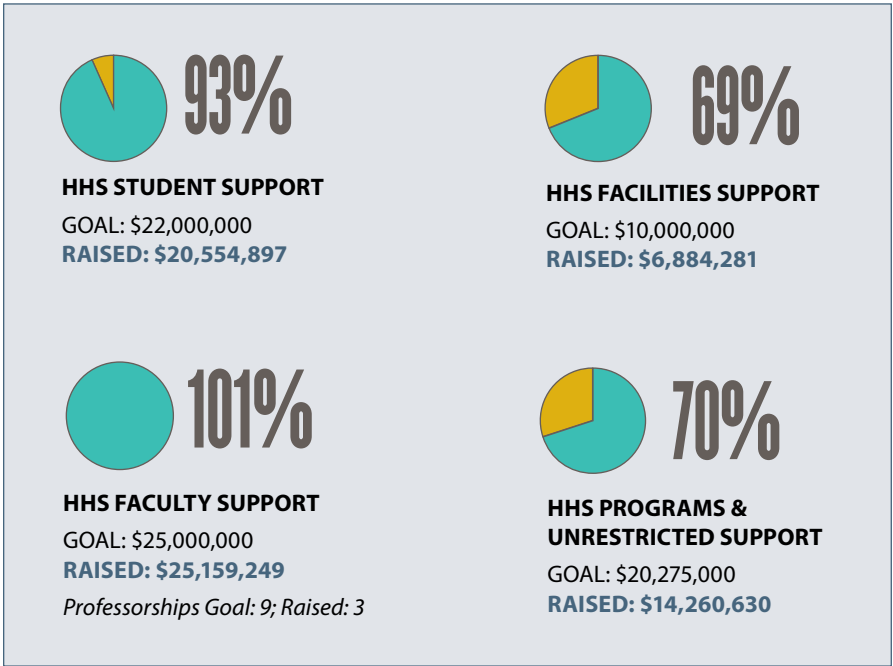


COLLEGE OF HEALTH AND HUMAN SCIENCES

THANKS to the generosity and continued enthusiasm of alumni and friends, contributions to *Ever True: The Campaign for Purdue University* — which concludes June 30, 2019, during the University’s 150th anniversary year — rose to \$1.514 billion toward its \$2.019 billion goal.

These gifts are expanding opportunities for students and faculty. However, there is more work to be done. Please consider partnering with us to support scholarships, study abroad, renovations and additions to our facilities, as well as world-changing programs including healthy aging, autism, and health and wellness.

With less than two years left in the campaign, HHS is accelerating toward the finish line with your support!



CREATE A LEGACY. YOUR PLANNED GIFT MIGHT INCLUDE:



For more information about how you can support the College of Health and Human Sciences, please contact the HHS Office of Advancement at 765-494-7890 or 800-535-7303 or hhsalums@purdue.edu.



LESSONS FROM THOSE WHO LIVE THE LONGEST

By Stephanie Woodcox and Christina Bautista Swathwood
Contributing writer: Stephanie Mouw

Hear the term “island life” and soon you’ll conjure up images of sandy beaches, clear water and beautiful sunsets. What if you could have all of this plus a promise of longevity? It certainly sounds too good to be true! But a small Greek island in the Aegean Sea is said to deliver on it all. We wanted to see for ourselves.

Land of the Living

Purdue University Extension Health and Human Sciences (HHS Extension) sought to gain a better understanding of what it means to age successfully, hoping to learn from other cultures. To do so, HHS Extension read Dan Buettner’s book *The Blue Zones*, which describes five geographic regions in the world with the greatest longevity. The Greek island of Ikaria was one such place, with nearly one out of three people living to age 90.

“Reading this book sparked interest in visiting a ‘blue zone’ to bring back lessons to share with communities statewide,” says Stephanie Woodcox, HHS Extension health and wellness specialist.

Drawing upon Extension’s partnership with the School of Nursing, Woodcox asked Nancy Edwards, associate professor of nursing and gerontology expert, and some nursing students to accompany a team of Extension educators to Ikaria.

“Blue zones have such success in healthy aging that it seemed like an amazing opportunity to experience how these individuals live and if their lifestyle could be translated to the U.S.,” Edwards says.

Nursing student Brandi Foree felt fortunate to study an aging population in another part of the world.

“It’s an often-forgotten group of people,” she says. “I think many simply look at older adults and think ‘They’ve lived their life.’ But there is so much more they can teach us.”



1 OUT OF 3 PEOPLE REACH AGE 90

Island Lessons

It did not take long to identify themes of Ikarian life that contributed to their health and longevity: socialization, fresh and natural foods, and a sense of purpose.

Socializing often disappears once American adults enter assisted living centers. In Ikaria, not only are there no senior centers, but socialization is at the center of their daily lives.

“While hiking the mountain, we met an 85-year-old who invited all 15 of us into his house. He brought out jugs of homemade wine while his wife served homemade cheese, goat meat and bread,” Edwards says. “These are people who can least afford it, but were the most welcoming.”

Being with and helping others is second nature to Ikarians. It was not uncommon to see men take a break from their labors to gather for a coffee or glass of wine with neighbors. Women would do the same, but often stayed longer to help with chores or meal preparation. Working and relaxing together is embedded in their culture. They rely on being physically present to stay connected in their relationships instead of depending upon telephones, cell phones or the internet — all of which were scarce on the island.

Local. Fresh. Homemade. Nearly all of the foods available and consumed by Ikarians can be described this way. “Every house had a garden with rows of vegetables and fruits planted,” Woodcox says. “Families purchased fresh fish or bread delivered daily by truck from nearby villages.”

Breakfast included bread topped with fruit preserves, yogurt with honey, tea, and, occasionally, eggs. Lunch often consisted of heaps of greens and vegetables. Dinners were heartier, served with some fish or meat (usually goat), along with more vegetable dishes (cooked in olive oil), bread and wine.

Ikarians depend on the land to provide them what they need. When picking greens from the mountain that would soon become our lunch, an 85-year-old man noticed and quickly motioned us over to his lemon and orange trees. To our surprise, he climbed the trees and tossed down sweet-smelling fruits for us to enjoy.

Contrary to American culture, Ikaria has no fast-food restaurants, and grocery stores provide very few processed food options for purchase. With such fresh and healthy food choices in their diet,

SOCIALIZATION

FRESH AND NATURAL FOODS

A SENSE OF PURPOSE



it is not surprising that Ikarians do not suffer from many chronic diseases that plague Americans, such as heart disease, diabetes, obesity and cancer.

We often think one's purpose in life needs to be revolutionary to ensure our legacy. Yet, Ikarians proved that simple living is enough to lead a happy, fulfilling life.

One morning, the group watched as a 90-year-old shepherd hiked down the steep mountain to tend his animals. As he took a rest alongside the dirt road, he shared that caring for his wife and his flock is what gives him purpose each day. He attributes his longevity to these daily tasks and said bluntly, that without them, he would be dead. Another older woman we met shared that the reason she gets up each morning is to make breakfast for her family and care for her grandchildren after school.

Often, we try to protect our parents and elderly family members by taking away their daily chores to make life easier for them. The Ikarians taught us that it is often these tasks that give them reason — their purpose — to rise each day and remain active.

Lifelong Impact

When asked what it takes to live a long life, a doctor (one of only eight on the island) smirked and said, "Laugh a lot; dance a lot; fall in love; work a lot, but not too much; not to have stress; and not to eat too much."

Returning home, HHS Extension plans to incorporate what was learned into their educational programs (focused on food, family, money and health), which serves nearly 1 million individuals and families each year.

From a health care perspective, "Ikaria helped us learn not only how people live differently but how to listen better too," Edwards says, glad her students could share in this lesson. "Providing proper care requires that we listen to what the patient says and try to experience it from their point of view."

Despite the short time on the island, the impact of these experiences and relationships will be long-lived, in true Ikarian fashion. 🍷

This trip was made possible through generous support from the Monhaut Zmola Fellowship. To read more about the team's experiences in Ikaria, visit <https://www.purdue.edu/hhs/extension/culturalimmersion/ikaria2017>.

All photos courtesy of Stephanie Woodcox and Christina Bautista Swathwood

TIPS FOR AGING WELL

Researchers from the Department of Health and Kinesiology at Purdue University are working to gain insights into exactly how different activities can lengthen a life span.

Chad Carroll, assistant professor, works toward the development of effective treatments for tendon problems. His research has found that exercise can improve muscle and tendon health.

Tim Gavin, professor and head of the department, is a fellow of the American College of Sports Medicine who studies musculoskeletal health and aging.

Here Carroll and Gavin share their tips for aging well by using one of the greatest medicines — exercise.



EMBRACE EXERCISE THROUGHOUT LIFE.

Gavin says, "You can't 'store up' when you're young and think that's going to help when you're older. It doesn't." The earlier you start and the longer you continue, the better benefits you'll see.

Carroll says a sedentary lifestyle affects the tendons, and exercise throughout one's life will alleviate those problems. "There are some things that are exacerbated by (it), for example: obesity, diabetes. Those things are actually predisposing risk factors for ... rupture or tendon pain or poor healing."

GET CREATIVE THROUGHOUT YOUR DAY BECAUSE "SOME IS BETTER THAN NONE."

Gavin recommends thinking on the fly — what can I do to make this activity more active? Stand up more often if you sit at a computer all day. Take a walk during lunch. Because, he says, "some is better than none," but ...

GET MOTIVATED BY WHAT YOU LIKE, BECAUSE YOU HAVEN'T MISSED YOUR WINDOW.

Walk the dog. Ride bikes with your kids. An active lifestyle has benefits beyond just the muscles: cognitive function, blood vessel health and tendon sustainability, to name a few.

"Everything is easier for someone who exercises regularly," Gavin says. "So, it's never too late. But if you could start 'never' now, that would be ideal."

"MORE IS BETTER THAN SOME."

Exercise five days a week, even if you've been fairly active throughout the day.

Carroll says, "There's a push to have more steps, but having more sustained bouts of moderate- to vigorous-intensity exercise (is where you'll see the most benefits)."



By Maura Oprisko



NOT TO BE FORGOTTEN

HHS RESEARCHERS STRIVE TO IMPROVE CARE,
DEVELOP TREATMENTS FOR DEMENTIA

By Elizabeth Gardner

A new case of dementia is diagnosed every three seconds, according to the World Health Organization. Chances are you know someone whose life is touched by dementia, which is overwhelming physically, psychologically and economically for those who have it and also for their families and caregivers.

Dementia is a progressive deterioration in cognitive function that can affect memory, comprehension, learning capacity, language and judgment, and sometimes leads to personality changes. Damage to the brain from disease or stroke can lead to dementia, and some of the various forms include Alzheimer's disease, vascular dementia, dementia with Lewy bodies and frontotemporal dementia. Currently, there is no known treatment to stop or reverse its course.




**47 MILLION
PEOPLE
SUFFER FROM
DEMENTIA**

World Health Organization

1 IN 10 
PEOPLE 65-AND-OVER HAS
ALZHEIMER'S DEMENTIA

Alzheimer's Association

ALZHEIMER'S
DISEASE 
**6TH LEADING
CAUSE OF DEATH
IN THE U.S.**

Alzheimer's Association



\$818 BILLION PER YEAR
**COST OF DEMENTIA-
RELATED CARE**

World Health Organization

The risk of developing dementia increases with age, and a rising population of older individuals means a greater proportion of people will be touched by it. America's 65-and-over population is projected to nearly double over the next three decades, from 48 million to 88 million by 2050, according to a 2015 report by the U.S. Census Bureau.

The global estimate for this population in 2050 is 1.6 billion, and the World Health Organization (WHO), a specialized agency of the United Nations, has made dementia a public health priority.

"The WHO has endorsed a global action plan with goals of improving the lives of people with dementia, their families and the people who care for them, while decreasing the impact of dementia on communities and countries," says Richard Mattes, director of the Public Health Graduate Program at Purdue University. "Dementia poses a great challenge to individuals, but it also takes a broader toll on government and society, requiring support from the health, social, financial and legal systems. Action is needed to improve our quality of life as we age in terms of both our health and security."

For decades, Purdue University researchers within the College of Health and Human Sciences have pursued improved care for those with dementia and worked to develop methods for earlier detection and potential treatments.

Defining a difference

Nancy Edwards, an associate professor of nursing, has been working with individuals who have dementia since first becoming a nurse's aide more than 40 years ago. She received Sigma Theta Tau International's 2015 Amy J. Berman Geriatric Nursing Leadership Award in recognition of her significant research

contributions to the health care of older adults.

Edwards is currently working to differentiate by various types of dementia the needs of the caregivers and individuals with dementia. The project includes interviewing both patients and caregivers to hear directly from them the challenges they face and what needs are or are not being met with current treatment protocols.

"All dementia is not the same, and patients and caregivers have different needs depending on the type of dementia they face," Edwards says. "The impact of dementia can span from an 80-year-old with memory loss from Alzheimer's disease to a man in his 50s who lacks impulse control due to frontal temporal dementia to someone suffering from body-movement issues coupled with cognitive decline from Lewy bodies. Each of these individuals, their families and caregivers face unique pressures and difficulties, and the support and advice given need to reflect that."

Edwards has focused on three common forms of dementia: Alzheimer's, dementia with Lewy bodies and Parkinson's disease dementia.

She has worked for 20 years to better communicate to nurses the classifications of the different forms of dementia and the most effective care for each type. She and her students use the most recent edition of the Diagnostic and Statistical Manual of Mental Health Disorders to undergird the articles and presentations they create to educate the nursing and lay community.

Edwards' goal is to help nurses who work with patients at risk for dementia spot early signs in order to make a timely referral, better recognize the characteristics of the different types, and offer care tailored to the individual and family. This should, in

turn, improve the patient's quality of life and avoid unnecessary hospitalizations or institutionalizations. She also wants to remind the community that caregivers need care themselves.

"There is a great need to give caregivers tools to manage behaviors that can be associated with the various dementias and provide caregivers support to cope with the social stigma and isolation they can feel in addition to the emotional toll of a sick loved-one," she says. "This project isn't directly funded, so for myself and my team it is a labor of love."

Fish work swimmingly

Edwards has worked with Alan Beck, the Dorothy N. McAllister Professor of Animal Ecology and director of Purdue's Center for the Human-Animal Bond, to explore the effect of animals on patients in long-term care settings. Previous research has shown animal therapy to reduce blood pressure, promote relaxation and stimulate the healing process.

"With the growing population of older adults and subsequent rise in the number of individuals with dementia, it is imperative that we find nonchemical, cost-efficient ways to mitigate the challenging behaviors that occur," Edwards says. "It is better for the individuals with dementia and those who provide care for them."

For patients with dementia, spending time with a dog has been shown to increase social interactions, as well as decrease agitation and yelling, screaming or abusive behavior toward staff, she says. However, there are challenges as both patients and dogs must be supervised and contact time is limited for dog therapy. This inspired Edwards and Beck to explore the benefits of therapy through other types of animals.

Their research indicated that the presence of an aquarium in a main activity/dining area improved dementia unit residents' behaviors in the areas of cooperation, irrationality, sleep and inappropriate behaviors. The associated decrease in patients' negative behaviors also led to a reduction in the stress expressed by the staff and to an increase in their job satisfaction, which is critical to preventing burnout, staff turnover and improving quality of care, Edwards says.

The Purdue researchers also found that an aquarium placed in view of the dining tables improved the food intake of individuals with dementia.

"People with dementia often have trouble getting adequate nutrition because they get distracted when it is time to eat," Edwards says. "In our study, the feeding schedule of the fish was matched to the meal times of the residents, so that the fish would be active during the meals. Results showed it was both calming to those who would get agitated, as they would sit and watch the fish, and stimulating to those who were lethargic, as it captured their attention."

This decreased the weight loss that is commonly seen in individuals with dementia, she says.

Next best thing to man's best friend

Edwards and Beck also teamed with a psychologist and information science professors from the University of Washington to examine the use of a robotic dog, the Sony AIBO, as a potential companion for older and socially isolated adults. Although the study did not focus on individuals with dementia, Edwards believes the results could translate well to that group.

"A robotic dog isn't harmed if someone forgets to feed it or take it outside, and it could be a better option than a live animal for someone who suffers from dementia," she says. "The social and emotional benefits we've seen in animal therapy are there with the robotic dog too. It might not be as good as a live dog, but it is the next best thing."

The study examined the influence of robotic dogs on depressive symptoms, morale and life satisfaction on older adults living in community residential settings. Of the 12 participants in the study, all said they talked with AIBO and that the dog was fun and entertaining; 10 participants said AIBO would be a good companion and that they confided in the robotic dog. When asked, "If you were alone in your room, would you feel better if AIBO was with you?" all 12 answered yes. All participants said they liked to talk with AIBO, hold and pet it and show it to others.

The results of the study indicated an improvement in life satisfaction and depressive symptoms and also suggested robotic-dog companionship led to increased socialization with other individuals, increased morale and increased physical activity, Edwards says.

"Having the unusual dog led to more conversations with other people, and the participants engaged in physical play with the dog," she says. "I think it is a good option for those with a mobility issue, who live in areas that prohibit dogs, or who have dementia and perhaps can't handle a living dog or animal, but who are interested in this type of therapy."

Heavy metal research

Wei Zheng, professor and former head of Purdue's School of Health Sciences and fellow of the Academy of Toxicological Sciences, has been studying Alzheimer's disease for 15 years. Alzheimer's is the most common form of dementia, accounting for 60 to 80 percent of all cases. Zheng leads teams of scientists on projects pursuing biomarkers, identification of increased risk factors and potential treatments.

This summer the National Institutes of Health awarded a team led by Zheng \$2.3 million to pursue research that could help develop new strategies for diagnosis, treatment and prevention of Alzheimer's.

The project builds on the correlation between the damaged blood-brain barrier system and increased incidence of Alzheimer's disease to investigate the processes that lead to the disease. Exposure to lead, a toxic heavy metal, is one known cause of such damage.

Accumulation of a protein called beta-amyloid is known to foster the development of senile plaques in the brain typical of a person with Alzheimer's. However, scientists do not know for certain how beta-amyloid is deposited in the brain, Zheng says.

"By looking into the molecular mechanisms that lead to an accumulation of beta-amyloid and, in turn, the development of senile plaques, we hope to find a way to stop Alzheimer's disease in its tracks," Zheng says. "We hope to prove our theory that compromised structure and function of the blood-brain barrier system, for example owing to exposure to the toxic metal lead in our daily life, may increase levels of beta-amyloid in the brain. That, in turn, leads to the buildup of senile plaques."

Zheng and his colleagues focus on changes to the permeability of the blood-brain barrier, which controls the transport of

molecules to and from the brain, after lead exposure. They theorize that these changes are key to Alzheimer's disease onset, development and progression.

"Our theory is that exposure to lead damages the tiny blood vessels embedded in brain tissue in ways that allow more beta-amyloid in and also hinder the barrier's ability to take it back out of the brain," Zheng says. "If a blood vessel is damaged, it may leak and allow contact between brain cells and molecules previously kept out. A damaged blood vessel also reduces the blood flow to that area, such that normal cleanup mechanisms aren't available. This progressively causes trouble."

Through the NIH-funded project, Zheng's team hopes to establish the relationship between lead exposure and changes in the permeability of the blood-brain barrier to beta-amyloid and to show that the barrier and blood vessels play a key role in regulating lead-induced beta-amyloid plaques in the brain.

Wine, exercise and chess

"Lead exposure and its correlation to Alzheimer's disease development is in itself a significant problem, as those born in the sixties and seventies have likely been exposed through leaded gasoline – the prevalence of Alzheimer's among this group of Americans is estimated to be between 8.4 and 13.8 million in the next several decades," Zheng says. "But if we can understand the specifics of how lead acts on the body and what changes trigger the path to Alzheimer's, it will not only give us a better understanding of the disease in general, but also allow us to find potential targets for treatment."

If blood circulation within the smallest blood vessels in the vasculature of the brain is key, it could explain why certain activities have been correlated with a decrease in risk of dementia, Zheng says.

"Exercising, drinking wine and playing chess all increase microcirculation in the brain at the time of the activity, which could maintain the health of blood-brain barriers and increase the rate of removal of beta-amyloid," he says.

Few studies have been done on the role of the blood-brain barrier in Alzheimer's disease development and progression, Zheng says.

"If the microcirculation is indeed critical, it offers the potential for early intervention," he says. "Perhaps a diet to improve cardiovascular health and therapies to improve local brain microcirculation could help prevent Alzheimer's."

Future findings

Zheng and his collaborator Yansheng Du at Indiana University School of Medicine designed an antibody therapy approach that has been shown in the blood-brain barrier model to pull beta-amyloid protein from cerebral spinal fluid and return it to general circulation. The team plans to extend the experiment to animal models with Alzheimer's disease, he says.

"Beta-amyloid has no known function in the brain, and the hope is that it could be removed without causing any harmful side effects," Zheng says. "Although this wouldn't be able to reverse any existing plaques, it could greatly slow or halt their progression."

The team also is investigating whether or not there is a correlation between a high concentration of lead found in one's bones and the development of Alzheimer's.

Zheng works with Linda Nie, a health physicist and associate professor in the School of Health Sciences at Purdue, to measure lead accumulation in bones and compare it with changes in the brain. The team uses a hand-held detection device based on the ability to identify lead concentrations through an X-ray fluorescence technique.

"Perhaps lead deposition in bone could be linked to amyloid accumulation in the brain," Zheng says. "A noninvasive scan of a bone could then be used to assess risk for development of the disease."

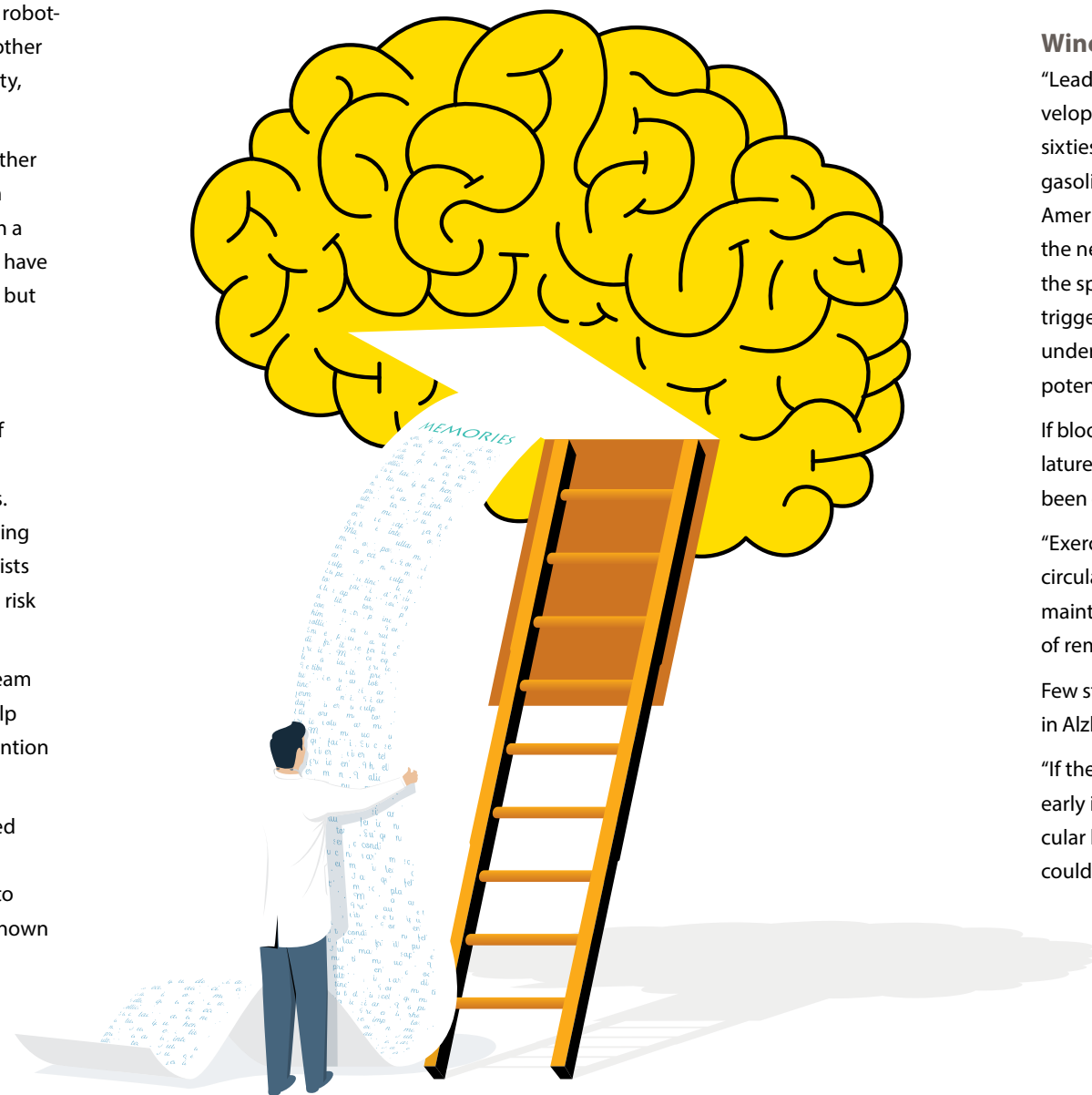
Early experience

Both Zheng and Edwards point to the importance of meeting with the individuals who suffer from the disease and the families and communities affected by it.

"It is very important as a researcher to get out of the lab and meet the patients your work could benefit," Zheng says. "I encourage my students to do this as well, so that they know their work is not isolated from the rest of the world — that they can make a difference in the world. That is the heart of any public health program. They need to see the real value of what they are doing and whom they may help."

Before her career began, Edwards helped elderly neighbors as a child.

"I was raised to respect and assist our elderly neighbors who needed help, and it was wonderful to interact with them and enjoy the stories they shared," she says. "When I worked with patients, and in my research today, I think of how I would want to be treated or how I want my parents to be treated. That is my motivation. We must remember to treat these people with the dignity we all deserve." 🌟



HTM PROFESSOR LEADS GLOBAL TREND IN ADVANCING SUSTAINABLE TOURISM

By Phillip Fiorini

The vast Orinoquia region of Colombia, home to incredible biodiversity, the cowboys of the Los Llanos and unexplored national parks, is awakening after 50 years of conflict and preparing to welcome new visitors.

Jonathon Day, an associate professor of hospitality and tourism management, and a team of Purdue HTM undergraduate and graduate students are working with the people of the Orinoquia to ensure the benefits of tourism are spread across the region — especially to small towns and microbusinesses — where people are building new, post-conflict lives. The Purdue team also is advising how to avoid the potential negative impacts that tourism can bring to small communities.

“In working with the people of the Orinoquia, we are applying principles of ‘sustainable tourism’ to ensure the best possible outcomes from the growing opportunity,” says Day, who teaches Purdue’s Sustainable Tourism and Responsible Travel (START) class each spring and is leading a host of global research and development projects focused on sustainable tourism. “Sustainable tourism is about making sure we look after the environment and our societies and people, while we are growing the economy.”

Day and his students are a part of a global effort. The United Nations General Assembly declared 2017 as the International Year of Sustainable Tourism for Development, citing the potential of tourism to advance the universal 2030 Agenda for Sustainable Development and the 17 Sustainable Development Goals. Day also has authored the 2016 book *An Introduction to Sustainable Tourism and Responsible Travel*.

“The work we do in sustainable tourism is designed to increase the economic side of things and also ensure a location is as appealing tomorrow as it is today,” says Day, whose students also



are supporting similar sustainable tourism projects in Nepal and Malaysia. “Consumers are asking for authentic experiences. And by good fortune, those are the same sorts of experiences that often have the most benefit for the destination as well.”

Every day, more than 3 million tourists cross international borders, and every year, almost 1.2 billion people travel abroad, according to U.N. Secretary-General António Guterres. “Tourism has become a pillar of economies, a passport to prosperity and a transformative force for improving millions of lives,” Guterres said in a January 2017 news release.



Filza Armadita, an HTM graduate student from Indonesia, spent 10 days with Professor Day in Nepal in May as part of a program supported by the Moving Mountains Trust, visiting the villages of Bumburi, Bupsa and Kharikhola where tourism visits have advanced

their economic prosperity and assisted in the development of a hydropower plant, a monastery and eco-friendly stoves. In a different part of Nepal, the Purdue HTM teams have partnered with the Hands-On Institute and its Homestay Program. The Dalit community near the Pokhara region has welcomed visitors from all around the world, and runs this homestay program together with the institute.

“Consumers are asking for authentic experiences. And by good fortune, those are the same sorts of experiences that often have the most benefit for the destination as well.”

Jonathon Day, professor of hospitality and tourism management

Purdue HTM alum Shawn Johnson, director of national account sales at luxury travel firm Abercrombie & Kent (A&K), says his company has been a part of the sustainable tourism movement, in effect, since its launch as a small safari operator in 1962, offering “authentic experiences.” Currently, A&K supports 20 global projects — the majority in Africa, Antarctica and Southeast Asia — that range from supporting schools and health clinics and helping locals to start a business to providing scientific research equipment to Palmer Station on the Antarctic Peninsula studying climate change.

“Our small groups and tailor-made itineraries allow us to ‘be a part’ of local events, versus being on the outside as a large group often might be,” Johnson says. “We have an entire philanthropy division that focuses on education, conservation, health care and enterprise development with our partner communities. Guest visits to our philanthropy project investments have become an integral part of an A&K journey — and often, one of the most memorable parts.”

Of course, while tourism providers must plan for sustainability — travelers themselves must choose to travel more responsibly. Day is spearheading a national program to encourage better travel



behavior. The Travel Care Code project works with a network of universities and travel industry companies. More information about the project can be found at <http://travelcarecode.org>.

“Tourists must make the decision to choose the option that is less harmful to the environment, helps preserve the culture of the community and contributes to the economy of the community,” HTM graduate student Armadita says. “Choosing activities that have a community approach — such as the homestay program — can contribute a substantial impact for all stakeholders both socially and economically.”

Johnson at A&K echoes that sentiment, saying A&K Philanthropy focuses on having an impact at the “household level,” with projects that deliver clean water, maternal health or literacy.

“We believe for tourism to be truly sustainable, the communities who host international travelers need to benefit from improved lives and livelihoods in tangible ways,” he says. “Very often a photo from a guest’s visit to a school or health clinic becomes a favorite memento, and the photo will hang on their refrigerator next to one of the kids’ report cards.”

Above: HTM Professor Jonathon Day is leading several global sustainable tourism projects. Day (center) participated in a welcome ceremony in Nepal with villagers and Purdue HTM graduate student Filza Armadita (fifth from left) in May.

Above left: Image from Day’s tourism efforts in Colombia. (Photos courtesy of Jonathon Day)



Photo provided by Blue Apron

CONVENIENCE, HEALTH FUEL GROWTH IN BOXED-FOOD DELIVERY INDUSTRY

By Greg McClure

Meal delivery services are very popular these days. The desire for convenient, fresh meals has made boxed food deliveries a \$1.5 billion industry in just a few years, according to market research firm Packaged Facts.

“People with less time and more disposable income are the key driver of this industry,” says Richard Feinberg, professor of consumer science at Purdue University. “They also want to eat healthier, which is hard to do when you go to the supermarket. Much of our buying behavior is influenced by the stimuli around us. Even when consumers intend to buy healthy, once they see the cupcakes and ice cream, a response activates that makes their hands move toward those products. There are dozens of products like this in the supermarket.”

Those are among the reasons Christine Ladisch enjoys her meal service.

“Number one, I don’t have to spend a lot of time thinking about ‘what are we going to have for dinner tonight,’” says Ladisch, the dean of Purdue’s College of Health and Human Sciences. “You don’t have to spend time at the grocery store looking for what you need, and then going back to the store to get what you forgot.”

“I like the menus. They have introduced me to foods that I have never eaten before. Honestly, if I had looked at some of these recipes before, I would probably not have cooked them. We have liked 95 percent of the meals that have come to us. There’s very little waste, and it’s just the right amount of food.”

Most of the meals also feature fresh ingredients, which provide better nutrition.

“Purchasing foods this way, instead of prepackaged, reduces the processing of food that can include addition of sodium and other preservatives,” says Regan Bailey, associate professor of nutrition science at Purdue.

“The recipes provide an opportunity to try new herbs and spices with which consumers may not be familiar. Using herbs and spices in place of fats and oils is a healthier way to add flavor, and many herbs and spices have bioactive compounds that can be beneficial for health.”

Most of the services require subscribers to prepare meals.

“They are tailored to foodies who like to cook, but suffer from decisional fatigue on what meals to make or do not have the time to shop or plan ahead for meals,” Bailey says. “They offer a



“Number one, I don’t have to spend a lot of time thinking about ‘what are we going to have for dinner tonight?’ You don’t have to spend time at the grocery store looking for what you need, and then going back to the store to get what you forgot.”

CHRISTINE LADISCH
Dean of Purdue’s College of
Health and Human Sciences

healthy alternative to takeout or restaurant foods that tend to be higher in calories, fat and energy and have larger portion sizes than home-prepared meals.”

Ladisch likes to prepare the meals.

“It’s enjoyable cooking,” she says.

But these services are probably not for everybody, particularly those on tight budgets.

“It’s very expensive — \$9 to \$10, or even more — a meal. That’s too expensive for me, long-term!” says Lalatendu Acharya, assistant professor of consumer science at Purdue. “Cooking Simplified is a boxed food service for the budget conscious. It’s \$2 to \$4.50 a meal, and it’s the only company I know of that’s targeting the low-budget market.”

Acharya also worries about the effects of food delivery services on the culture of food.

“A lot of memories about Thanksgiving, Christmas and other occasions are built around food,” he says. “It’s the same way in India where I grew up. It will be fascinating to see if boxed meals create new family traditions. We don’t have many food memories anymore. Kids are very busy with activities, and adults are busy with work and parenting.”

Feinberg and Acharya say food delivery services have an interesting future.

“They will teach people how to cook,” Acharya says. “And after a while, many people may say, ‘I don’t want to pay \$10 for this box of food. I want to go buy the food myself and cook it.’ That’s a positive effect over time.”

Feinberg sees a more crowded playing field.

“Millennials will continue to have little time and more disposable income, so it will continue to grow, but so will the number of companies serving that market,” he says. “Amazon and Walmart are getting ready to get into it and expanding the market.”

“My opinion is many of the companies are not making money. The challenge is to stay around long enough to make money. The key will be getting the grocery store business, which has been struggling, involved. It’s something that supermarkets can do to help consumers, and it can help their profit margins.”

Above: Christine Ladisch, dean of the College of Health and Human Sciences, prepares a meal with her husband, Michael Ladisch, Distinguished Professor of Agricultural and Biological Engineering with a joint appointment in the Weldon School of Biomedical Engineering. (Photo by Charles Jischke)



Photo by Charles Jischke

BETTER BEGINNINGS

HOW INNOVATIONS IN EARLY LEARNING AND IMPROVING SELF-CONTROL CAN HELP SET A COURSE FOR LIFELONG SUCCESS

By William Meiners

The proud parent of most any high school valedictorian has surely been asked about the secret to his or her educational success. From Mozart in the womb to vocabulary flashcards before kindergarten, that perfect GPA may have been the end road of myriad paths. For several Purdue University researchers, particularly those from the Department of Human Development and Family Studies, the exploration in early learning is about seeking the smarter starts that can pay lifelong dividends.

Though there's not one magical formula to transform today's toddlers into the Renaissance thinkers of 2035, there is much research that points to the benefits of building the skills of self-control and focus, and learning built on play, adult modeling and a supportive environment. As parents hope to unleash their offspring's full potential, an effective interaction of these elements is critical in the foundational work for any of the good things to come.

Throughout the College of Health and Human Sciences, faculty researchers are now understanding more about how children learn. Their work, increasingly cross-disciplinary, continues to shape the future of early care and education.

Longitudinal studies explore how the best-equipped child care environments with enthusiastic teachers can lead to better scores on standardized tests in third grade. They discover the interactive teaching strategies that can help override the disadvantages of lower socio-economics. And they're designing new curricula that could lead to those desired outcomes.

The building blocks of play

For more than two decades at Purdue, Jim Elicker, professor of human development and family studies, has helped to measure the preschool settings where children can thrive. Ten years ago, he began working with state leaders on an independent evaluation of Indiana's Paths to QUALITY, the quality rating and improvement system for child care early education programs. Elicker, colleagues and students have traveled throughout the state to observe and measure the validity of the rating system, which, like hotel and restaurant reviews, uses a four-star system.

In 2015, Elicker and faculty colleagues Sara Schmitt and David Purpura applied a similar research design to a longitudinal study to follow children's outcomes from preschool through third grade. That research team is specifically reviewing Indiana's On My Way Pre-K, the government-funded early learning program for 4-year-olds from low-income families. The assessments, completed with children in preschool and kindergarten, Elicker says, focus on learning trajectories along the way, but culminate with the students' first standardized tests in grade three.

With the goal of helping children realize their full educational potential, Elicker knows that it's precisely those high-quality early learning settings that could detour any children from a "pre-terminated course" associated with the cycle of poverty. Previous research has cited a "30 million-word gap," which references the

language children may be missing from homes without books or rich and frequent parent-child interactions, and possibly with too much television.

One longstanding debate between early childhood educators and grade school teachers revolves around the role of play versus rote instruction, as well as the right balance of play and instruction for young children. Elicker's research could be characterized by the discovery of those optimal experiences that could lead to a formula for success.

"Children's brain structures are organized based on their early experiences," he says. "We used to think that brain development unfolded automatically according to a genetic map. But it really doesn't. The brain grows and organizes itself based on what the child is doing, so early experience is really important."

Young children are apt to opt into fun experiences. "We've always thought play was an important part of early childhood," Elicker says. "Kids all over the world play, and no one tells them how to. They just do it. It's biological and part of what it means to be human."

Not surprisingly, some of the highest-rated early programs try to optimize learning through play. Elicker, however, points to the critical role of adults in helping to guide play.

"Sometimes it's putting words to what they're doing, such as telling a child he might be designing a new doorway," he says,

"Sometimes it's putting words to what they're doing, such as telling a child he might be designing a new doorway."

JIM ELICKER
Professor of human development and family studies



"On average, the kids who watched the Cookie Monster clip waited about 12 1/2 minutes before eating the cookie."

DEBORAH NICHOLS
Associate professor of human development and family studies



"Or it's the simple encouragement of not doing it for them, but helping them puzzle something out or try something different."

In another study, Elicker and Zack Gold, a PhD student in human development and family studies, are observing how kids build confidence by building the toys they play on. Earning the Ann Hancock Award from the Purdue Cooperative Extension Specialists Association, the researchers observed how kids learn through building and play with various play materials that include big foam blocks. Kids engage in physical, social and mental play as they climb over and connect the large blue blocks provided by the toy company Imagination Playground to make structures of their own design. Through a collaboration with Sean Brophy, associate professor of engineering education, the researchers are identifying those early pathways to science, technology, engineering and math, or STEM, learning.

"If you look at block building as engineering, you can also see how it relates to early learning skills in math, social and physical skills," Elicker says. "Because really successful engineers, just like young children at play, are creative people who come up with ideas using a design process. They question, brainstorm and build prototypes. And when something doesn't work, they go back to the drawing board."

Self-regulation and Cookie Monster modeling

Another aspect that determines how successful early learners might be in years to come centers on the concept of self-regulation. Professors Deborah Nichols and Sara Schmitt have zeroed in on what this skill is and how it can be improved.

An important component of self-regulation, referred to as executive function, has three aspects, according to these experts. It's about working memory, or how a child holds and manipulates information in his or her mind. Secondly, there's cognitive flexibility, which refers to maintaining or shifting focus as environments change. And finally, it's about a child's ability to inhibit impulses in order to finish a less desirable task.

"Executive function is sometimes referred to as the air traffic control system of our brains," says Schmitt, assistant professor of human development and family studies, "because it allows us to focus, filter distractions, multitask, remember and follow a set of instructions, and persist on challenging tasks."

In a world with lots of moving parts and distractions galore, self-regulation is foundational in educational success. This skill is rapidly developing during the preschool years, and it is a hot topic among early childhood researchers. The good news, at least for parents who may lack the resources or knowledge to effectively teach it, is that executive function is malleable, Schmitt says, "If a child doesn't have a strong set of self-regulation skills as they enter preschool or kindergarten, they can still learn them through intervention and effective instruction."

For her part, Schmitt incorporates games to challenge children to use and develop executive function in early child care settings. Most are based in music and movement, teaching children to stop, think and then act. The games increase in difficulty, perhaps asking kids to dance fast to fast songs and slow to slow songs before stopping on the silence. Then kids are told to dance slow to the fast songs and fast to the slow songs. As verified by two

different published studies, Schmitt says, children participating in eight weeks of these games have shown significant improvement in self-regulation and controlling their impulses.

Nichols, associate professor of human development and family studies, examines the benefits of educational media offered by the likes of the Public Broadcasting System. In one study, she brought the Cookie Monster into the research mix in a classic test of self-regulation. One group of children watches a video of Cookie Monster using several different self-control attempts to resist cookies, while another group watches a video unrelated to practicing self-control. With some hands-on assistance by the “Waiting Game Singers,” Cookie Monster runs through a series of self-regulation strategies that include singing, pretending the cookies are fake and other distraction techniques. Then, a tray with two cookies on one side and one cookie on the other side is placed in front of the children. They’re told that if they can wait until the adult returns to the room, they can have two cookies. If they don’t want to wait, they can have only one cookie.

“On average, the kids who watched the Cookie Monster clip waited about 12 ½ minutes before eating the cookie,” Nichols says. “The other kids waited only about eight minutes, which is a pretty sizable effect.”

In her recent book, *Media Exposure During Infancy and Early Childhood: The Effects of Content and Context on Learning and Development*, Nichols and co-author Rachel Barr, a Georgetown University psychology professor, share some best-practice

advice on what children between 6 months and 8 years old should be watching.

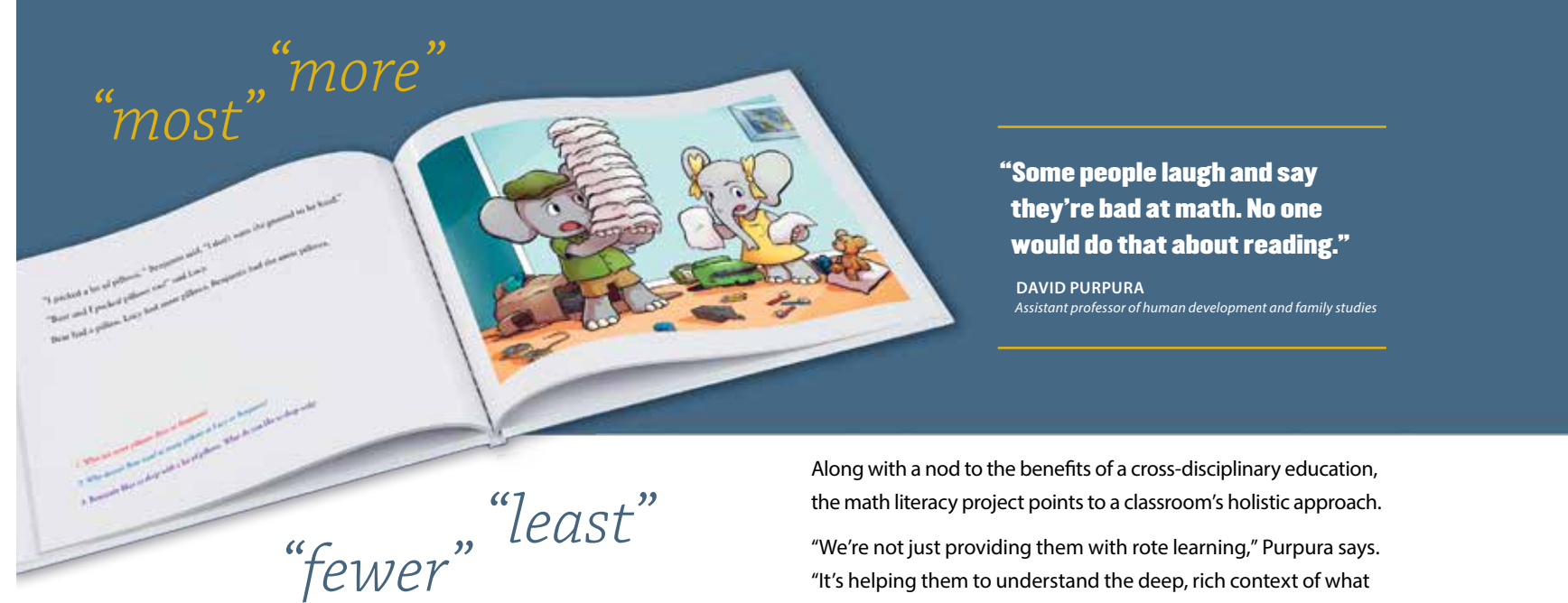
“In general, we advocate using media in moderation,” says Nichols, who is now shifting focus to the dangers of background television, or television programming not designed for the child who happens to be in the same room. “The average child under 8 uses screen media 90 minutes a day, however, they are exposed to background television for nearly four hours a day. Kids under 2 are exposed to five and half hours per day. We have very clear evidence of the disruption to a child’s executive function because the noises and sound effects from the TV are pulling their attention away from whatever they were doing or playing with. Also, parents talk less when the TV is on, and this talk tends to be of lower quality.”

Nichols says the “noise pollution” of a nonstop background television, which effectively pulls children away from deep levels of sustained attention, is potentially more problematic than programs they might sit down to watch intentionally — just by the sheer volume of exposure.

Taking math literally

Could parents unwittingly be putting a fear of math into their children? David Purpura, assistant professor of human development and family studies, thinks so.

“We often stigmatize math,” he says. “Some people laugh and say they’re bad at math. No one would do that about reading. There’s



“Some people laugh and say they’re bad at math. No one would do that about reading.”

DAVID PURPURA
Assistant professor of human development and family studies

a growing body of research on math anxiety that suggests it’s something likely transferred from adults to children.”

Purpura, who trained in graduate school as a reading researcher, has sharpened his focus in recent years to gain a better understanding of how math and language are related. In a 2016 study, the researchers worked with 47 Head Start preschool children, who were divided into small reading groups. Over the course of eight weeks, graduate students met with the groups three times per week, reading from books that emphasized the quantitative and spatial language concepts within the pages (words such as “more,” “most,” “fewer,” “least,” “before,” and “after.”). About half of the children proceeded with their regular curriculum. Though the first group of books did not teach general math skills, the children who were read the books outperformed their counterparts on tested math skills.

Along with a nod to the benefits of a cross-disciplinary education, the math literacy project points to a classroom’s holistic approach.

“We’re not just providing them with rote learning,” Purpura says. “It’s helping them to understand the deep, rich context of what math is and how these numbers are related and build into each other to solve problems. Math really is a complex language, giving kids a vehicle to understand their world.”

The next stage in the math literacy project came to fruition this past academic year as Purpura and Schmitt worked with a professional children’s book author and an illustrator to create three books that have an engaging storyline when it comes to math language. The new books, written in both English and Spanish, also feature prompts that allow parents and teachers to engage with kids about the math concepts.

Though the jury is still out on why kids may struggle in their first classrooms, the HDFS colleagues can be optimistic about how experiential learning at the earliest levels can make for greater trajectories. And for every 4-year-old entering pre-school, these researchers hope to unlock ways for all to realize their full potential. ■■■



DEVELOPING A CHILD CARE CURRICULUM FOR THE DEPARTMENT OF DEFENSE

The U.S. Department of Defense operates the largest employer-sponsored child care system in the world, serving more than 200,000 children and military families worldwide. In 2013, the DOD provided a five-year grant and selected Purdue University’s Department of Human Development and Family Studies (HDFS) to develop a curriculum for child development centers.

Douglas Powell, a distinguished professor in HDFS, and Shelley MacDermid Wadsworth, a professor in HDFS and director of Purdue’s Military Family Research Institute, welcomed that tall order. They are leading a team of early childhood professionals and content experts that include other faculty members in HDFS, including Jim Elicker, David Purpura, Sara Schmitt, and Megan Purcell, plus Youli Mantzicopoulos-James, professor of education. Through this fall, the team is conducting a pilot program of curriculum materials in child development centers at eight military installations. After revising the curriculum based on consulta-

tions with and feedback from the center participants, they will make the updated curriculum available in spring 2018.

The curriculum is building on child development research to promote children’s growth in all areas of development. Powell reports that pilot center participants are especially enthusiastic about the curriculum’s use of active learning strategies to support children’s skills in mathematics, language and literacy, and in self-regulation. All of these areas received research attention in recent years.

There are many challenges in developing curriculum on a world-wide scale. “There is considerable variation in the educational backgrounds and levels of early childhood experience of classroom staff,” Powell says. “The curriculum resources seek to support classroom staff who are new to the field, as well as experienced staff. Fortunately, the DOD also sponsors extensive training resources for this program.”

Military families face their own challenges, not the least of which is the likelihood of frequent moves, often to faraway places. Powell says the curriculum pays particular attention to child and family moves, as well as to the mobility and turnover of staff, who are often married to military personnel. Children gain a better understanding of moves — from the logistics, which includes packing and traveling, to the accompanying emotional challenges of sadness, apprehension and excitement.

The curriculum developers also are sensitive to the various settings of the military child development centers. “The differences in the cultures and customs of the people and settings are a continuing theme in the curriculum,” Powell says. “Foods and family celebrations are a prominent part of this attention.”



DEFINING THE FIELD FOR 80 YEARS

Historical account depicts early days of the Purdue Industrial-Organizational Psychology program, which continues to shape the discipline

By Amy Raley



“Joe, from now on, you are an industrial psychologist. Purdue is the hub of industrial psychology, and your job is to prove that I’m not a liar.”

With those words in 1938, F.B. Knight, the head of Purdue’s new Division of Education and Applied Psychology, told his colleague Joseph Tiffin to put Purdue’s fledgling industrial psychology program on the map. Tiffin, an applied psychologist, accepted the challenge, and went about “figuring out what an industrial psychologist is supposed to do.”

The quotations come from the “History of Industrial-Organizational Psychology at Purdue University,” co-written by Howard Weiss, former head of the Purdue Department of Psychological Sciences, and the late professor and administrator Charles Lawshe.

From 1939 to 1970, Purdue granted 229 doctorates in industrial psychology — 40 percent of all the doctoral degrees awarded in psychology at Purdue to that point. The writers end their account with this: “The Purdue program has been blessed with scholars and practitioners whose ideas and efforts helped shape not only Purdue I-O psychology, but I-O psychology generally.”

That trend continues. Purdue’s program has graduated more PhDs and produced more fellows of the Society for Industrial and Organizational Psychology than any other. Faculty and alumni with I-O masters’ and doctoral degrees are shaping the field. Among many noteworthy alumni is Bill Byham (PhD ’62).

Byham is co-founder and executive chairman of the global leadership consultancy DDI (Development Dimensions International, Inc.). Early in his career, he garnered widespread attention when he wrote a Harvard Business Review article about the assessment-center method of identifying leadership talent and its use. Byham invented Behavioral Interviewing, which has become the gold standard of selection interviewing throughout the world.

Byham has written two books on leadership psychology topics.

“I am very proud to have co-founded DDI because it has been repeatedly named one of the best middle-sized companies to work for in America and has pioneered more important industrial-organizational psychology methodologies than any other organization,” Byham says. “My biggest pride comes from the impact of our programs on people’s lives, which has led to our motto, ‘DDI changes lives.’ Currently my main activity is working with teams of DDI associates to come up with and try new ideas and methodologies.”

Byham has generously established the William C. Byham Chair in Industrial-Organizational Psychology to help ensure that Purdue’s work in the field remains preeminent.

Deborah Rupp is the first faculty member to hold the chair.

“I see the establishment of the Byham chair as the start of an exciting new era for the Industrial-Organizational Psychology program at Purdue,” Rupp says. “In addition to continuing to grow and expand our excellence in advanced psychological statistics and methodology, we have been developing and cultivating a unique collective program identity centered around employee and organizational well-being through good science.”

Rupp also says that Purdue’s I-O psychology program is unlike others not only because it pushes the boundaries of what is typically researched, but also in its approach to that research.

“Our program is unique in that we contribute to both science and practice through advanced research methods and integrative research that considers issues such as employee engagement, organizational justice and corporate social responsibility, as well as personnel practices that simultaneously advance organizational and employee goals and interests. It is an exciting time to be an I-O psychologist — especially at Purdue.”

Above: Purdue Industrial-Organizational Psychology faculty conduct research with a graduate student in the early 1950s.

OUTDOOR LEARNING SPACE

TO AID TREATMENT, RESEARCH OF CHILDREN’S COMMUNICATION CHALLENGES

By Greg McClure

The new Bob L. and Joyce Beery Miles Outdoor Learning Space at Purdue’s Lyles-Porter Hall is designed to enhance treatment and research of children’s communication, sensory and motor skills as they play.

“Play is an important part of a child’s development. When you’re engaging children with communication issues, it’s even more important,” says Keith Kluender, professor and head of the Department of Speech, Language, and Hearing Sciences. “Like communication, real play is not done alone. This area will help students and staff, and be an important part of improving communication.”

The space looks like an inviting playground, but the equipment was carefully selected to fulfill the needs of the children and researchers. Frequently, children with communication, sensory and motor skills issues will play alone, but the space was designed to encourage interaction.

“The area incentivizes children to invite other children to use it and make it fully operative,” says Emily Studebaker, clinical assistant professor of speech, language, and hearing sciences. “They have a need for imaginative play and peer interactions. The learning space will provide opportunities for social development.”

Every station is designed to accomplish several purposes.

“Each piece of equipment meets multiple needs,” says Hope Gulker, clinical associate professor of speech, language, and hearing sciences. “All children learn best in active settings, and the design offers opportunity for vigorous, self-directed play in a safe environment. Many children with communication challenges require motivation and practice to use and improve social skills, and several structures place peers and adult play partners face-to-face to facilitate relationship building and conversation.”

The area has a soft, smooth, almost bouncy ground surfacing, which allows all children access, and makes it less likely for them to be hurt if they fall. It is fenced and also is shaded to prevent sun or heat exposure. At least 25 children will use the space daily, says Claudia Mornout, director of clinical education in speech-language pathology.

“The space provides ways to investigate and treat children’s communication skills in ways not possible within traditional therapy rooms and classrooms,” she says. “It’s also a teaching opportunity for our students. They’re responsible for assessing what each child needs and finding the right equipment.”

The outdoor learning area is made possible by a gift from alumni Bob and Joyce Miles. Bob earned a civil engineering degree in 1963 and Joyce received a degree in family and consumer sciences in 1965. Joyce worked for 30 years as a teacher and supervisor in home economic sciences in Jacksonville, Florida, public schools.

“Our hopes are that this outdoor learning area enhances the experiences of the children it serves,” Joyce Miles says. “An unintended benefit we are hoping for is that the area becomes a window into what goes on in Lyles-Porter Hall. Seeing the children in the outdoor learning space invites others to wonder why they are there.”

Kluender says Susan Erler, former director of Northwestern University’s Doctor of Audiology Program, also played a key role in making the space a reality. She served on the SLHS Advisory Council and led the fundraising campaign for the space. In addition, Susan and Bryan Erler were among the first to contribute to the campaign.

“Susan’s passion is how this outdoor learning space moves the research ahead,” he says. “If we can use this space to better understand communication disorders and develop new treatments for those disorders, that would be big.”

THE BOB L. AND JOYCE BEERY MILES OUTDOOR LEARNING SPACE
LYLES-PORTER HALL

1



CLIMBING STRUCTURE: Exercises large muscles and requires children to master complex plans. The marble panel provides a fun tactile experience.

2



ROLLER SLIDE: Provides sensory input, and its surface helps avoid static electricity buildup, which allows children with cochlear implants to use it.

3



DOMES: Up to five children at once climb, hide and chat through the openings and holes. An overwhelmed child may find sanctuary inside the dome, providing much-needed protection and peace.

4



OODLE SWING: Four children may swing together, socializing and cooperating. Provides vestibular stimulation, which calms and organizes the sensory system.

5



COMMUNICATION BOARD: Removable pictures represent playground equipment options. Empowers nonverbal and/or language-delayed children to effectively communicate their choices to adults.

Source: Hope Gulker
Photos by Charles Jischke



By Chris Adam

COMPASSION COMES FULL CIRCLE

Life came full circle for **ELIZABETH CARTER** (NURS '12) when she graduated from Purdue University. With her nursing degree, she landed a job in the neonatal intensive care unit at Riley Hospital for Children in Indianapolis.

Returning home

Two decades earlier, Carter and her three sisters — a set of fraternal quadruplet sisters — were born prematurely in the NICU at Riley. Her brother also was born prematurely there the following year but passed away shortly after birth due to medical complications.

Her family is grateful for the kind and compassionate support they received from the staff at Riley, Carter says. "Riley has a very special place in our hearts, and we have been involved in various events throughout the years."

Carter says she knew from an early age she wanted to be a nurse. She volunteered in a hospital throughout her high school years and discovered she really enjoyed helping people during stressful times in their lives.

"Nursing is a very hands-on career and very relational," she says. "It is extremely rewarding to be so intimately involved in families' lives. There are many options and different career paths as a nurse. That was an incentive for me, as there would always be some different area to experience and further my learning."

Carter landed her dream job in the Riley NICU right after

graduating from Purdue in 2012. Her sister Abigail also returned to Riley as a certified child life specialist and works in the NICU to support children and families with physical and emotional development.

"It was a great experience to return to the unit where our life began and reconnect with many of the nurses who took care of my sisters and me," Carter says. "Those nurses are the true heroes. They have devoted so much of their time and energy into bettering little babies' lives throughout Indiana and nearby states.

"The best part of working at Riley is the people. From the staff to the families, it is an incredibly rewarding job. We see miracles every day, and I thank God for the opportunity to witness those moments."

On the road

Carter became a traveling nurse in 2015. She works approximately three months at a time in the NICU of various hospitals across the country.

"Travel nursing is a unique opportunity to explore the United States and get paid to do so! It has been an incredible experience to visit other NICU units, meet some of the most amazing people and adventure wherever I am," she says.

Though Carter enjoys the thrill of traveling, she does not plan to do it for the rest of her career. She remains supplemental in the Riley NICU, with plans to possibly return full-time when she's ready.

"It's a joy to return every once in a while and see my NICU friends," Carter says. "I know that wherever my future leads me, the Lord has been so incredibly faithful, and He will continue to guide me each and every day."

Elizabeth Carter (NURS '12) hikes in the Central Cascades of Washington state. (Photo courtesy of Elizabeth Carter)



PURDUE MEMORIAL UNION INSPIRES HOUSTON-BASED RESTAURATEUR

By Marti LaChance

Spend just a few minutes with Houston-based restaurateur **PAUL MILLER** (HTM '96), and you sense he was born for the industry. "Our business is hospitality," he says. "I want to introduce something new to somebody every day."

It was at Purdue that Miller recognized his natural passion for the industry.

The idea for his Union Kitchen restaurant came to Miller when he was a student at Purdue, where friends and teammates would meet up at the Purdue Memorial Union. "To me, 'union' means the place where friends and family come together," he says.

Since 2010, Miller has opened seven restaurants and a 450-seat banquet hall. He also runs a food truck called The Rollin' Kitchen, and for catering events, he has a 35-foot smoker, tricked out with a crawfish boiler and a full-blown stereo system. "It's a lot of fun," he says.

Ask his mom, and she'll say it's no surprise. Paul was always the kid arranging the fun. Whether it was a trip to the beach or a party at home, he was the organizer. He'd collect the money, buy the burgers and beverages and set up the grill. "I've always been that guy," he says.

An athlete, Miller came to Purdue with a pro football career in mind. He played noseguard for the Boilermakers. "But in a very short period of time, I figured out I had really better focus on studies," he says with a laugh.

By his junior year, he was focused on business and the restaurant industry. He learned from professors like Richard Vine, Purdue's first enologist. "Taking Dr. Vine's class on wine taught me how, at a fine restaurant, wine complements a meal. His class was an eye-opening experience." Today, Miller is a Wine & Spirit Education



Trust, or WSET, Level 2 sommelier, a notable qualification for professionals in the hospitality industry.

"I like introducing people to things they haven't experienced before. If somebody hasn't tasted caviar or oyster mushrooms or a particular type of wine — that motivates me more than anything.

"Seeing the response from someone, feeling that energy," he says. "I want to experience that every day. Whether it's a staff member or a guest. It doesn't matter. That's what really drives me."

As a businessman hoping to introduce Houston's some 6 million denizens to new dining experiences, Miller has developed a scattergun approach to concepts. His restaurants serve what he calls "Texas-American" cuisine — from étouffée and carnitas to chicken-fried chicken and rib-eye steaks — at diverse venues and price points. His Union Kitchen is somewhat upscale, at \$35 to \$40 per dinner, whereas his Jax Grill is a counter-service restaurant with a \$10-to-\$12 average ticket. And the Merrill House banquet hall serves a completely different hospitality niche.

"There are a lot of moving parts," Miller says of his business, called GR8 Plates Hospitality.

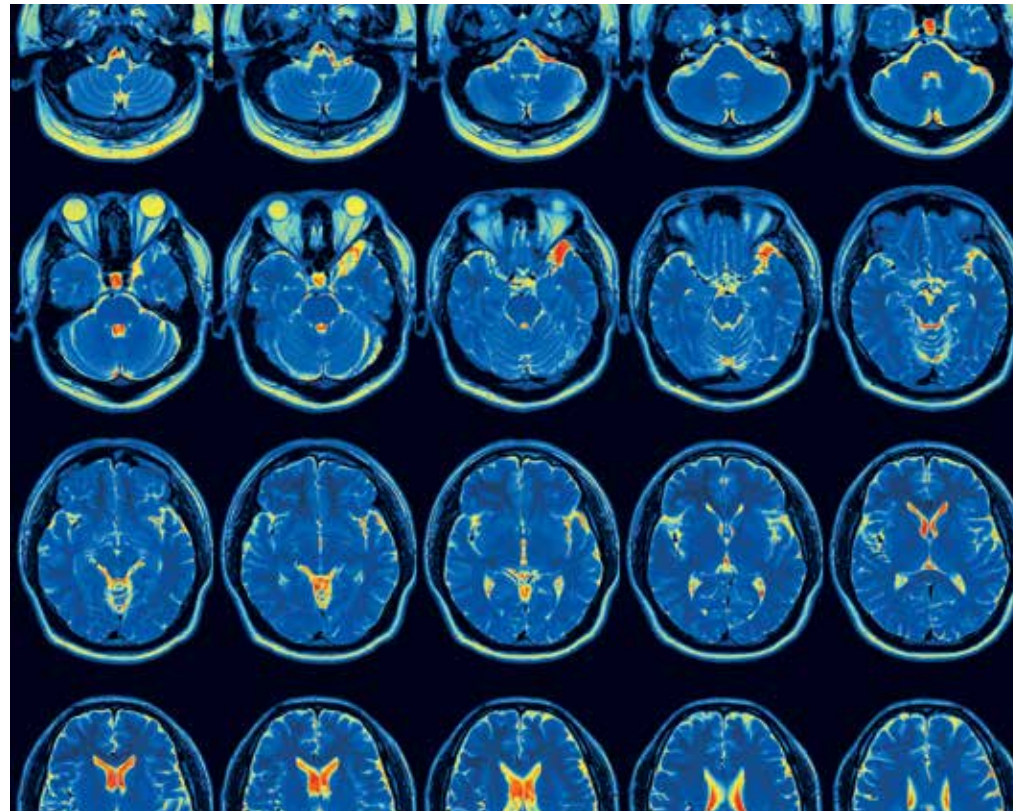
He depends heavily on his trusted management team. As part of his hospitable mindset, he wants to take care of all the individuals working for him. "I try to create a great work environment, to make sure everybody's enjoying what they're doing, to treat everybody with the same hospitality I'd like," he says, adding, "I try to model hospitality in everything I do."

Top: The Union Kitchen restaurant (Photo courtesy of Paul Miller)

Above: Paul Miller (HTM '96) and his wife, Doris Miller (Photo courtesy of Paul Miller)

MRI FACILITY OPENING NEW AVENUES OF RESEARCH

By Brian Wallheimer



“For the first time,
we’re able to measure
this in the whole brain
instead of just one
single brain region.
This technology
opens possibilities
that we have never
had before.”

ULRIKE DYDAK
Director of the Purdue
Life Science MRI Facility



Photo by Charles Jischke

Sebastien Hélie wants to know what’s happening in a student’s brain when he or she really “gets it,” and just how educators can replicate that time and again.

He believes that when a lesson is taught in two different ways — one in which the learner can pass a simple test on the information, and another in which the learner can apply the lesson in other situations — different parts of the brain will be in play.

“We hope that we can look at a learner and how his or her brain is processing information,” says Hélie, an associate professor of psychological sciences at Purdue University. “If you see your teaching method activates the wrong brain patterns, you can change how you teach.”

Hélie monitors brain activity through functional magnetic resonance imaging, or fMRI, and he waited 18 months to start his research project so that he could take advantage of Purdue’s new Life Science MRI Facility, which came into being last fall with the purchase of the 3T Siemens MAGNETOM Prisma scanner. Before that, Hélie and others were using an MRI off campus, contracted with a private radiology center to be used by Purdue during evening and weekend hours.

The facility houses two MRI machines that focus on human science research for the College of Health and Human Sciences and

the College of Engineering. The College of Health and Human Sciences received a \$2 million grant to support the project.

The new facility, Hélie and others say, has improved not only their hours but also the quality of the data they can collect. The MRI facility also was able to hire Debra Patterson, who works with the faculty as a half-time magnetic resonance technologist and assists every study.

Purdue’s new MRI has around three times better spatial resolution. And it’s faster, taking a full brain measurement every 720 milliseconds, rather than one every 2 seconds.

“Your brain does a lot in a second, and in 2 seconds, it does almost everything,” Hélie says. “If I can see your brain only every 2 seconds, I might miss things.”

Heather Leidy, an associate professor of nutrition science, has used the new scanner to expand research into how breakfast affects food cravings later in the day in teens. She scans the neural activity of subjects who have eaten and subjects who have skipped breakfast to compare the portions of the brains associated with cravings.

Leidy’s research has shown that even after breakfast-skippers do finally eat a meal at lunch, their craving centers are more active

later in the day than those who started the day with breakfast. Breakfast eaters crave even less if their breakfast is high in protein.

“It debunks the idea that breakfast is not ‘the most important meal of the day,’” Leidy said. “It tells us that breakfast has a long-lasting effect on eating behavior later in the day.”

Because the Life Science MRI Facility is available any day, any time, Leidy is able to run scans on weekends, early mornings and in the evening.

Now Leidy is testing these breakfast effects over the long-term in teens who habitually skip breakfast. She is also trying to see if there are differences in the effect among types of protein, such as plant-based vs. animal-based.

Another diet-based study is exploring how diet affects sodium retention in muscle, skin and bones. The project, led by Connie Weaver, Distinguished Professor of Nutrition Science, has implications for understanding how diets can lead to different blood pressure issues in children of different races.

“This is totally novel,” says Ulrike Dydak, director of the Purdue Life Science MRI Facility. “We hadn’t been able to do any sodium imaging at Purdue at all before the new MRI facility became available.”

That’s because most scanners can only detect hydrogen nuclei. Detecting other elements requires special coils for the scanner, which the Purdue Life Science MRI facility has.

Dydak, herself, who is an associate professor of health sciences, has several studies made possible by the new state-of-the-art technology, specifically looking at the connection between GABA, which is a neurotransmitter, and cognitive function.

She is collaborating with Brandon Keehn, an assistant professor of speech, language, and hearing sciences, on a study of GABA levels in autistic children who excel in visual search speed and efficiency. Dydak also is looking at GABA concentration in welders who are exposed to high levels of heavy metals such as manganese.

The new scanner has software capable of visualizing GABA in the entire brain. The scanner Purdue researchers used to contract with may have been capable of a similar scan, but Dydak said it would have taken years to develop software to do so — a costly endeavor.

“For the first time, we’re able to measure this in the whole brain instead of just one single brain region,” Dydak says. “This technology opens possibilities that we have never had before.”

WHERE ARE THEY NOW

By Becky Brown

Promoting an iconic clothing line. Changing the course of health care. Traveling the world as a nurse. Caring for infants and mothers. It hasn't taken these four HHS alumni — all previously featured in Life 360 as students — long to make their mark on the world.



From Purdue plaid to Polo

When we met **KRIZIA PHILLIPS (CSR '13)** in the Fall 2013 issue, this designing woman had just won a competition to create Purdue's official tartan plaid. Her goal then? Head to New York City to work for a designer or as a magazine stylist.

That's exactly where you'll find Phillips today, although she's switched focus from fashion design to marketing. As a global marketing associate for Ralph Lauren, she promotes the brand's iconic women's Polo line and supports its Pink Pony philanthropy to raise global awareness of breast cancer.

"In marketing, I still get to be creative," Phillips says. "The retail industry is always changing, and it's fascinating to work with clientele in different parts of the world."

Though she's put down her needle and thread for now, Phillips still puts her apparel design and technology degree to good use.

"Knowing how to use various design programs is helpful as I assist in creating content for campaigns and social media," she says. "Understanding textiles, fit and what's going to look best on our consumer — I thank my Purdue professors every day for what they taught me."



Leading the charge for change

As a student, **ELI MANSFIELD (HK '13)** put his athletic training skills to work helping members of the Purdue men's basketball team enhance their performance on the court. Today, he's working to enhance the performance of the U.S. health care system.

Mansfield, who was featured in the Fall 2013 issue as part of Purdue's "5 Students Who" campaign, moved to Minneapolis after graduation. While earning a master's degree in public health administration and policy at the University of Minnesota, he served as an athletic trainer for the Golden Gophers baseball team.

Since then, he's taken on a series of roles for Park Nicollet Health Services — first as a quality improvement specialist, then earning a one-year administrative fellowship and now leading business development efforts for TRIA Orthopaedic Center.

"What I'm doing today would not be possible without the education I received and connections I made at Purdue," Mansfield says, crediting the University's competitive athletic training program for preparing him to push toward his goal.

"I want to help change the course of health care as a system," he says, "and the drive cultivated in me at Purdue is what's going to lead me in that direction."



Have nursing degree, will travel

A passion for photography, nature and nursing has taken **JOHN SCHERSCHEL (NUR '11)** a long way — from West Lafayette to Melbourne, Australia.

Scherschel was the subject of a Winter 2012 article about his undergraduate research exploring the effects of nature photography on patients with chronic diseases. After graduation, he began nursing in a New Jersey emergency department, then moved to Colorado to work in a cardiac intensive care unit.

Today, you'll find him on the other side of the world. In 2016, Scherschel and his girlfriend — a fellow ICU nurse — applied for working holiday visas. This January, they landed in Melbourne, where Scherschel is an RN at a leading research hospital.

"There were an astonishing number of hoops to jump through, but I was able to transfer my nursing license without examination due to the quality of Purdue's program," he says. "It's impossible to describe the prestige associated with this diploma."

Scherschel plans to pursue a Doctor of Nursing Practice degree on his return to the U.S., but for now he's enjoying exploring Australia and New Zealand with his camera in tow.

"I haven't pursued any additional research with photography," he says, "but I do enjoy taking photos in my leisure time and sharing my outdoor adventures with my patients."



Finding focus and balance in the delivery room


LYDIA LOCHAMIRE BONTRAGER (HDFS '14, NUR '16) also appeared in the Fall 2013 issue's "5 Students Who" article. At the time, she had plans to become a doctor of osteopathic medicine. Not long after, she began caring for her grandfather at the end of his life — and that led her to rethink her goals.

"I originally thought I'd go to med school," Bontrager says. "But certain experiences made me realize I'm meant to be a nurse. I need to be at the bedside delivering hands-on care."

Returning to Purdue, she completed the 15-month accelerated nursing program and was immediately hired as a labor and delivery nurse by Parkview Health in Kendallville, Indiana, where her duties also include postpartum and newborn care — areas she found herself gravitating toward while pursuing her original human development and family studies degree.

"I participated on a research team studying mom-baby relationships," Bontrager says. "At the time, I had no idea that was preparing me for a future in nursing. Purdue offered me so many opportunities."

Though she may someday transition to a career in midwifery, Bontrager currently is focused on gaining experience and her own growing family. Married in October 2016, she's expecting her first baby this November.

"Family is so important to me," she says, "and I'm happy to have found a career that provides the perfect work-life balance." 

All photos provided

HHS ANNOUNCES NEW APPOINTMENTS AND SEARCHES



ANGIE ABBOTT of HHS Extension recently completed a doctorate in education. Her title has now changed from “Program Leader and Associate Director of HHS Extension” to “Program Leader and Assistant Dean of HHS Extension.” Abbott also serves as associate director of Purdue Extension, a position she’s held since August 2014.

On Jan. 1, Nutrition Science welcomed **MICHELE FORMAN** as professor and department head. Forman, who was previously the David Bruton Jr. Centennial Professor in Nutrition at The University of Texas at Austin, holds degrees from the University of North Carolina at Chapel Hill. Her research focuses on women’s health throughout the life course. Forman succeeds Connie Weaver, who remains on faculty after serving 25 years as department head.

RICH GHISELLI, professor and head of the School of Hospitality and Tourism Management, has assumed the additional role of interim head for the Department of Consumer Science. Richard Feinberg, who previously served as the department’s interim head, remains on faculty.

JANE KIRKPATRICK retired as professor and head of the School of Nursing in July 2017. This fall, Kirkpatrick returned to the school as professor emeritus and interim head while a national search for the new head is underway.

Psychological Sciences welcomed **DAVID ROLLOCK** as department head on July 1. Rollock, who continues to serve as professor of clinical psychology, joined the Purdue faculty in 1988. With a doctorate from Yale University, his research interests include adjustment to American mainstream contact and cultural transition among ethnocultural minority group members. Rollock succeeds **CHRIS AGNEW**, who remains on the social psychology faculty after serving for eight years as department head. In July, Agnew was selected to serve as the associate vice president for research, regulatory affairs at Purdue University.

This fall, a search was launched for the new head of the School of Health Sciences. **CHARLES SANTERRE**, professor of nutrition science, will serve as interim head of Health Sciences during the search. Wei Zheng served as head of the school from 2008-17. He remains on faculty.

A FOND FAREWELL: Teresa Eloff retires after 42 years at Purdue



By Chris Adam

Teresa Eloff has retired after 42 years at Purdue. She most recently served as associate director of student services and director of recruitment for HHS. Eloff’s previous positions include academic advisor, director of undergraduate recruitment and alumni activities, and graduate teaching assistant.

Recruiting was in its infancy in 1975 when Eloff began her career, and since then, she has talked with thousands of prospective students and their families, introducing them to the many programs of study and other opportunities offered, citing examples of alumni success. She comes from a true Boilermaker family — she earned her bachelor’s and master’s degrees from Purdue, and her son, Jimmie, and daughter, Michelle, also graduated from Purdue.

“It has been my privilege and honor to work for Purdue University and especially for the College of Health and Human Sciences and the College of Consumer and Family Sciences,” Eloff says. “My career path has allowed me to meet and work with so many wonderful individuals who have enriched my life. I will miss my colleagues and the opportunity of working with HHS/CFS Ambassadors.”

Scott Haner (HTM ’79), a retired vice president of YUM! Brands, remembers Eloff as one of the very first people he met when he came to Purdue as a freshman in 1976.

“I came in, like so many freshmen, thinking that I knew everything and what was going on,” Haner says. “But I obviously didn’t. And Teresa was right there being so wonderful and welcoming. She was like a shadow of joy within this very large university, making sure that I felt at home and felt special, even among so many students.”

Throughout his time at Purdue, Haner kept in regular contact with Eloff. Their friendship continues to this day, and Haner says she remains one of the lasting impacts Purdue has had on his life.

“I never sensed she looked at her job as a job,” he says. “It was more like what she was meant to do. And when she worked with the student ambassadors, she would tell them they need to present the joy of Purdue to everyone they meet. And that’s truly what she did to everyone she met along the way here at Purdue.”

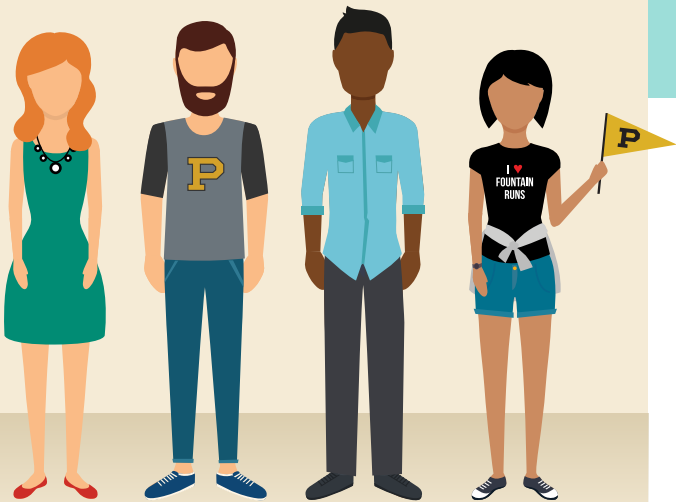
PLEASE JOIN the College of Health and Human Sciences in recognizing Teresa Eloff’s decades-long service to Purdue University by contributing to the establishment of a scholarship fund in her name. The Teresa Evans Eloff Scholarship Fund will serve to recruit the best and brightest students to the College of Health and Human Sciences. To make a contribution to the scholarship fund, please visit <https://tinyurl.com/y7sa6z8z>.

DELIVERING
DINNER

Purdue experts examine
the meal-kit phenomenon



You're part of the Boilermaker family,
500,000 STRONG.
What do we all have in common?
WE ALL LOVE PURDUE!



The Purdue Alumni Association exists to keep Purdue University a strong, vital part of your life. Your membership provides opportunities for career-building, networking, and to strengthen Purdue itself. Member benefits include:

- Subscription to the award-winning *Purdue Alumnus* magazine
- Exclusive discounts at retailers nationwide
- Access to alumni events in your area

PURDUEALUMNI.ORG/MEMBER

PURDUE **P** ALUMNI

MEMBERSHIP TYPE	INDIVIDUAL	JOINT*
NEW Annual Young Alumni (35 & under)	\$50 \$25	\$60 \$30
Annual Membership	\$50	\$60
Annual Loyal Boilermaker	\$125	\$150
Life Membership	\$1,000	\$1,250
Life Payment Plan (5 years)	\$200/yr.	\$250/yr.
Senior Life (60+)	\$500	\$625

*Spouses or domestic partners residing at same address.

ADMINISTRATION

Christine Ladisch, Dean

Thomas Berndt, Senior Associate Dean for Academic Affairs and Administration

Liping Cai, Associate Dean for Diversity and International Programs

Dorothy Teegarden, Associate Dean for Research and Graduate Programs

Angie Abbott, Program Leader and Assistant Dean of HHS Extension

DIRECTORS

Denise Buhrmester, Director of Communications

Shane Hawkins-Wilding, Director of Student Services

Mona Holdcraft, Director of Financial Affairs

Richard Mattes, Director of Public Health Graduate Program

Judy Schumaker, Director of Advancement

Anita Tuttle, Director of Information Technology

UNIT HEADS

David Rollock, Psychological Sciences

Rich Ghiselli, Consumer Science (Interim)

Doran French, Human Development and Family Studies

Timothy Gavin, Health and Kinesiology

Rich Ghiselli, Hospitality and Tourism Management

Jane Kirkpatrick, Nursing (Interim)

Keith Kluender, Speech, Language, and Hearing Sciences

Michele Forman, Nutrition Science

Charles Santerre, Health Sciences (Interim)

Comments? Contact Denise Buhrmester, Director of Communications, dmbuhrmester@purdue.edu, 765-496-3663.

Moving? Send change-of-address notices to Development and Alumni Information Services, Purdue University, 403 W. Wood St., West Lafayette, IN 47907. Or email us at hhsalums@purdue.edu.

PRODUCTION STAFF

Elizabeth Gardner, Managing Editor

Olivia Sarault, Graphic Designer

Charles Jischke, Photographer

Dan Howell, **Rex Marrs**, **Paula McKinney**, Copy Editors

Chris Adam, **Becky Brown**, **Phillip Fiorini**, **Marti LaChance**, **Greg McClure**, **William Meiners**, **Stephanie Mouw**, **Amy Patterson Neubert**, **Amy Raley**, **Christina Bautista Swathwood**, **Brian Wallheimer**, **Stephanie Woodcox**, Contributing Writers

© 2017 by the Purdue University College of Health and Human Sciences. Please request permission before reprinting any portion of this publication.

An equal access/equal opportunity university

Produced by Purdue Marketing and Media | HHS.17.8578



Ice cream.



Home-made bread — but all varieties. Why? Bread is “the staff of life.”



Red raspberries! They’re a perfect combination of a sweet and sharp taste. They’re loaded with fiber, vitamin C and phytochemicals— so I can enjoy the taste while benefiting from their nutrition package!



Pepperoni pizza. I pretty much eat it every day already.



Coffee or Cabernet ... both sustain me.



Books: I devour them.



Greek yogurt. It is highly nutritious, a good source of protein, and is available mixed with nuts, chocolate, caramel, fruit, dill and other great ingredients. This food is not boring! The texture is yummy and when mixed with flavors can be exceptional.



Eggs— because you can cook them as many ways as there are folds in a toque (100 ways).



Whey protein powder (chocolate). Just add water; easily prepared, portable, nutritionally viable.



Honey-chipotle chicken fingers. I enjoy the sweet, yet slightly spicy, taste of the sauce.

While the “health side” of us knows a healthy diet includes a variety of nutritious foods every day, our “human side” thought it would be interesting to hear responses to the question:

If you could only eat one food for an entire month, what would it be and why?

See the rest of our responses and share your own at www.purdue.edu/hhs/life360.