

Welcome to the spring 2009 issue of *Ball State University Research Notes*, our new midterm update on research and creativity at Ball State University. I am pleased to introduce this companion to the larger fall publication, *Ball State University Research: Innovation+Creativity*.



As you can see by the projects displayed in *Research Notes*, scholarly inquiry and creative endeavor know no season! Nor is innovative activity bound by the borders of campus or classroom: From a geological study of volcanic activity in New Caledonia, to the Bowen Center examination of the impact of voting centers on the polling process, to a student project considering red dwarf stars, exemplary work is on the move at Ball State.

We extend warm congratulations to all project directors of sponsored programs, and we trust that the readers of *Research Notes* will catch the excitement as we glimpse into the creative work of our Ball State researchers.

Robert J. Morris
Associate Provost for Research and Dean of the Graduate School

IN THE NEWS

HPL Releases Results of NASA Research

The latest NASA-sponsored research from Ball State's Human Performance Lab was featured in the April 2009 issue of *The Journal of Applied Physiology*. The research suggests that changes are needed to optimize the in-flight exercise regimen for astronauts to improve their muscle performance while in space for extended stays.

Student Research Focus at Symposium

The scholarly and creative endeavors of our graduate and undergraduate students were the focus of the 14th annual Student Symposium on March 24. From the more than 110 project displays representing diverse disciplines, six students were recognized for their outstanding presentations. Winning projects included a study of red dwarf stars, research on the effect of treadmill training on stroke patients, and an analysis of the water quality of two river basins.

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Focus on Emerging Media

In December 2008, Ball State announced a \$17.7 million Emerging Media Initiative, which focuses the university's historic strengths in this area, accelerating benefits to the state of Indiana by developing media-savvy human capital. The initiative, funded through combined institutional and new private resources, gives our students access to innovative and entrepreneurial opportunities in emerging media across the curriculum and provides the support faculty members need to bring their ideas to market. Learn more at www.bsu.edu/emergingmedia.

Equal Opportunity to Succeed

A three-year, \$427,000 grant from the U.S. Department of Education will enable Ball State to enhance the programs available to students with disabilities by increasing the number of faculty mentoring and tutoring programs, bringing guest lecturers to campus, and creating an outreach program for high school students. "The creation and expansion of these programs and services will allow every student equal opportunity to succeed at Ball State," says Larry Markle, director of Disabled Student Development.



NENA Relationship Furthers Crisis Communications Project

Ball State has formed a working relationship with the National Emergency Number Association (NENA), one of the nation's leading emergency service associations, to improve 911 communications. The U.S. Department of Homeland Security's Federal Emergency Management Agency (FEMA) awarded Ball State a \$2.5 million grant to create innovative on-site and online training courses for supervisors in 911 call centers nationwide. The relationship with NENA will assist in the research phase of the project.

Second Life Course Honored

The Institute for Digital Intermedia Arts and Animation (IDIAA) earned the 2009 Institutional Excellence in Information Communications Technology Award from ACUTA, the Association for Information Communications Technology Professionals in Higher Education. The award recognized IDIAA, which was created as part of the \$20 million Digital Exchange initiative funded by Lilly Endowment Inc., for its Aesthetic Camera filmmaking course offered through the online world of Second Life and integrated Blackboard course management custom software.

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Local Schoolchildren Learning Well



With a grant from the Ball Brothers Foundation, graduate students in the Fisher Institute for Wellness and Gerontology are working with Delaware County, Indiana, schools to help improve the health and wellness of students and staff. In addition to helping the schools implement wellness-related activities, the students in the institute help schools develop Health Advisory Councils, present health fairs and family night programs, and assist with writing grants.

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Inside This Issue

- Analyzing voting systems
- Tracking a declining bird species
- Making art accessible to the world
- Landmark study tracks daily video exposure

Chirping for Victory

Chirp! Chirp! Ball State Cardinal fans are showing their school spirit through an emerging media application developed by students in Ball State's Digital Corps. The team of professional and media software experts created the Chirper—an app for the Apple iPod touch and iPhone that replicates the call of a cardinal—enabling fans to cheer on their team from anywhere. “Development for the iPhone is a really exciting area that fits well into Ball State's strengths in emerging media and emerging technologies,” says Jonathan Huer, director of the Digital Corps. The corps was formed as a result of a second \$20 million Lilly Endowment award for enhancement of Ball State's Digital Exchange initiative.



Fans cheer on the Cardinals with an app developed by Ball State students.

Improving Elections

Ball State's Bowen Center for Public Affairs is part of a major national initiative to examine and improve U.S. elections. The center is assessing the impact vote centers—large, conveniently located polling facilities—have on voter turnout, cost, and efficiency on Election Day compared with traditional neighborhood precincts. The initiative is funded by the Pew Charitable Trust and is part of a national movement to find innovative solutions to perceived shortcomings in the election system and to improve accuracy, efficiency, and security for voters.

With the Indiana Secretary of State's office, the center also is conducting a thorough review of Indiana's voting systems in an effort to improve the election process. The center is bringing together a Ball State team with expertise in elections, computer systems, and training to assess the current voting systems and machines used around the state, establish a standardized set of criteria for certifying voting machines, and recommend best practices for training poll workers. The results may impact the way voters in Indiana and around the country cast their ballots.



The works of art in Ball State's Museum of Art will soon be available online.

Bringing Art to the World

The nearly 11,000 works of art in the Ball State University Museum of Art's collection, including well-known paintings and sculptures by Winslow Homer, Edgar Degas, Childe Hassam, and Lee Krasner, will soon be online and accessible to people around the world. Through the Digital Images Delivered Online project, which was funded by a grant from the Institute of Museum and Library Services, the extensive collection, representing artwork from six continents and 5,000 years of culture, is being photographed and cataloged in a searchable online database. Users can learn about the history of the piece and the artist, compare works of art, and search for similar pieces. While just a fraction of the collection currently is available online, additional images are being added regularly. An additional award from the National Endowment for the Arts will enable a full-color catalog of the museum's permanent collection.

Landmark Media Research Tracks Video Use

Which age group is the largest consumer of video media? The results might surprise you. It isn't young people or retirees; instead consumers ages 45–54 average the most daily screen time—just over nine-and-one-half hours.

A pioneering study conducted on behalf of the Nielsen-funded Council for Research Excellence (CRE) by Ball State's Center for Media Design (CMD) and Sequent Partners released in March revealed how consumers access video content within their daily lives. In the \$3.5 million yearlong Video Consumer Mapping (VCM) study, CMD researchers directly observed participants throughout the day.

Using handheld smart keyboards equipped with a custom media collector program developed by Ball State, observers recorded—in 10-second increments—consumer exposure to visual content presented on any of four categories of screens: traditional television; computer; mobile devices, such as a Blackberry or iPhone; and “all other screens,” such as in-cinema movies, other messaging, and GPS navigation units. All told, the VCM study generated data covering more than three-quarters of a million minutes or a total of 952 observed days, making it the largest and most extensive observational study of media usage ever conducted.

“What differentiates this study from all other attempts to measure video exposure at the consumer level is its scale, the range of media covered, and

Media Use by the Numbers

- 9.5: Average hours of screen time for ages 45-54
- 8.5: Average hours of screen time for all other age groups
- 99: Percent of screen time devoted to TV

the fact that it is focused on consumers first and the media second. It's not a study about TV or the Web or any other medium—it's about how, where, how often, and for how long consumers are exposed to all media,” says Mike Bloxham, director of insight and research for CMD.

Past studies had employed self-reporting by participants, which lead to questionable data as some media was overreported and some underreported. The direct observation method employed during the VCM study produced

unusually precise data, and the quality of that information enabled a type of analysis of media behavior in the U.S. that has never been achieved before.



“Direct observation of consumers' use of media enables us to better

understand their concurrent exposure to multiple media, often in the context of other life activities,” says Jim Spaeth cofounder of Sequent Partners. “Winning this ‘competition for attention’ is the most significant challenge media and advertising face today and having accurate information is a prerequisite for success.”

This landmark research makes a significant contribution to understanding how consumers access video across all platforms within their daily lives. The results, which were widely reported by The *New York Times*, National Public Radio, and *USA Today*, will benefit the industry for years to come.

- 72: Minutes the average TV user spends watching ads and promos daily
- 952: Number of days of data collected in the study
- 2: Computing's rank in media activity, displacing radio to number 3

Protecting a Declining Species

For nearly a decade, Kamal Islam has been observing a small blue-streaked bird that makes its summer home in the treetops of southern Indiana's hardwood forests. Deep blue with white bars on its wings and white tail spots, the cerulean warbler is indigenous to the eastern and Midwestern United States and winters on the slopes of the Andes in northern South America. Over the years, the population has declined, and the species is currently listed on the Audubon Watchlist.



With binoculars, students search the treetops for cerulean warbler nests.

Islam, an associate professor of biology, and his students are tracking the number and the habits of cerulean warblers that live in the forests of southern Indiana. In previous research on the habitat preferences of the birds, they found that cerulean warblers prefer to sing from certain trees and at certain heights. With funding from various organizations, including U.S. Fish and Wildlife Service, now they are studying the foraging habits of the birds, determining whether they prefer the same or different trees and heights for feeding as for singing. They are also researching the effects of various timber harvest practices on the birds' abundance. From the research, Islam hopes to provide information that will guide forest management decisions to protect the breeding habitat of this vulnerable species in Indiana.

Examining Volcanic Activity in Oceania

What type of tectonic movement formed the Noumea Basin in New Caledonia thousands of years ago? Associate Professor of Geology Kirsten Nicholson and her students, in cooperation with colleagues from New Caledonia, France, and New Zealand, are researching the volcanic history of



Students map flow directions in the basalt flows of an ancient volcano.

the basin, located in the South Pacific Ocean. By combining basic geologic mapping techniques with modern geochemical analyses, the team will determine the past volcanic activity of the basin. Their work, which is funded by the National Science Foundation, will identify the nature, style, extent, and age of the volcanic history in the area. The results will then be used to investigate the possible effects of volcanic hazards on the region during the late Cretaceous period when the basin was formed, including possible extinctions and climate changes, allowing researchers to further understand the geological history of the region.

Teaching Environmental Lessons

A Ball State faculty member is creating an online course to teach technology education teachers about environmental issues. Assistant Professor of Technology Annette Rose is developing EnviroTech, which focuses on environmental processes and systems and helps teachers evaluate the impact technology has on the environment. Partially funded by the Environmental Protection Agency (EPA), the course is taught through a series of five webinars, Web-based meetings, and encourages teachers to implement the lessons with the students at their local schools, allowing students to examine environmental issues that affect their community.