

# New insights, advances for communities

## Getting a Head Start to success



Head Start preschoolers in the Delaware Early Reading First project are exposed to quality storybook reading, instruction, and play-based literacy activities.

The first Head Start preschoolers to experience the Delaware Early Reading First (DERF) project have “graduated,” and researchers say their astonishing success in kindergarten clearly demonstrates the value of early language arts intervention in improving the academic outlook of children from impoverished circumstances.

“The results of the follow-up study indicate that the DERF project graduates performed as well as or better than the general population of children their age,” says Myae Han, assistant professor of human development and family studies. “The children’s performance is particularly impressive on these measures when one remembers that the majority of the children were not only from low-income families but also came from homes where English was not the primary language spoken.”

The project began in 2005 with a competitive \$3.3 million grant awarded by the U.S. Department of Education to faculty in the College of Education and Public Policy, in cooperation with New Castle County (Del.) Head Start.

Children in Head Start preschool programs are considered at risk for academic challenges and failure due to economic circumstances, home language, or disability. Without interven-

tion, these youngsters often start formal schooling lagging behind their peers.

“Head Start provides each family with a case manager who helps ensure that basic needs for food, shelter and clothing are being met,” says Martha Buell, professor of human development and family studies. “Our project provides additional enrichment and resources to support their language and literacy development — something that their home environment often lacks.”

For the last four years, DERF has assisted three Head Start preschools in New Castle County with services and materials based on recent research that has clarified exactly how children learn to read. The project provides literacy materials, ongoing professional development, and on-site coaching to support teachers’ use of research-based reading strategies and developmentally appropriate literacy instruction.

Each day in the classroom, the children are exposed to quality storybook reading, instruction, and play-based literacy activities. Master’s-level teachers trained in reading and literacy provide coaching, while UD graduate students tutor the students one-on-one and assist with data collection.



UD AROUND THE  
**World**

## EXTREME 2008

### Students dive in to deep-sea adventure



Craig Cary, professor of marine biosciences, was chief scientist for the Extreme expedition.

Excited middle and high school classrooms around the world “took the plunge” last November as participants in UD’s “Extreme 2008: A Deep-Sea Adventure,” a multimedia educational program to explore hydrothermal vent sites in the Pacific Ocean. The program was sponsored by the National Science Foundation.

Over 21,000 students from 350 schools in 7 countries participated, including Aruba, Australia, Canada, Costa Rica, Great Britain, New Zealand, and the United States.

The students followed an actual 21-day expedition at sea, led by UD scientists and involving researchers from the University of Colorado, University of North Carolina, University of Southern California, the J. Craig Venter Institute, Universidad Nacional Autónoma de México, and the University of Waikato, New Zealand. The international team lived aboard the 274-foot Navy research vessel *Atlantis* and dived to the depths in the famous submersible *Alvin*.

The centerpiece for the classrooms’ virtual field trip, developed by the UD Office of Communications & Marketing, was an interac-

tive Web site that immersed students in the geology and biology of the vents and the high-tech tools used to explore these structures where super-heated water rockets from the Earth’s crust. Curricula, study guides, and videos also were available on the site.

Every day during the mission, the scientists blogged from the ocean, posted photos and video of their discoveries, and answered questions from the students, who also could participate in a virtual science fair and other activities.

The capstone experience for 50 selected classrooms was a “Phone Call to the Deep,” with scientists working live in the sub at hydrothermal vent sites more than a mile beneath the ocean’s surface.



The researchers followed 97 of their project's 2007 Head Start graduates into kindergarten in Delaware's Colonial School District in the spring of 2008 and found that, in general, the children who had participated in DERF produced higher scores on various parts of standardized literacy assessments than would be expected of the average population beginning first grade, including letter-word identification, story recall, understanding directions, decoding words, and receptive vocabulary. Their teachers judged all but 14 of the 97 children to be in the intermediate to proficient stage of development on each rated skill.

"We were delighted with the children's performance on these measures," says Carol Vukelich, director of UD's Delaware Center for Teacher Education and Hammonds Professor in Teacher Education. "Our Early Reading First project, including New Castle County Head Start and Colonial School District kindergarten teachers, can take great pride in how well prepared these children are for success today and in the future."

Vukelich added, "Research clearly shows that building young children's oral language skills; their knowledge of the alphabet letter names and sounds; print awareness such as reading from left to right; what authors and illustrators do; the differences between a picture, a word, and a letter; and phonological awareness or knowledge of the sound structure of our oral language are all key to children's later success as readers."

## Weaving sustainability into apparel industry

UD's *FIBER* journal ([www.udel.edu/fiber](http://www.udel.edu/fiber)) is connecting the global fashion and apparel industry to timely research, insights from business leaders, and educational resources on issues ranging from finding and engaging suppliers, known as "sourcing," to environmental sustainability.



The journal is the centerpiece of the Fashion International Business Education and Response (FIBER) project, funded by the U.S. Department of Education and led by Hye-Shin Kim, associate professor of fashion and apparel studies. A series of audio programs broadcast live over the Internet from UD, called "FIBERcasts," also has been launched, linking academic and industry experts with listeners worldwide.

"A major goal of these efforts is to assist the fashion and apparel industry, including U.S. small businesses, in learning more about emerging world markets and to share best practices for working internationally," Kim says.

The guide *Creating a More Environmentally Sustainable Apparel Business: Policies for Apparel Brands and Retailers* also recently was released. It is part of the UD Sustainable Apparel Initiative (UDSAI), established by the Department of Fashion and Apparel Studies, with the American Apparel and Footwear Association, Bureau Veritas, Nike, and Under Armour. It is co-directed by Huantian Cao, associate professor, and Marsha Dickson, chair of fashion and apparel studies.

Here is a sampling of the recommendations in the guide:

- ◆ Eliminate waste in all points of the supply chain.
- ◆ Eliminate excess product manufacturing by balancing supply to demand.
- ◆ Develop and implement advertising and marketing strategies that avoid greenwashing — that is, unspecific and unsupported claims about a product's environmental impact.
- ◆ Consider and implement end-of-life strategies (recycle, renew, or reuse) when choosing materials, designing, and producing apparel.

For more information about UDSA, visit the Web site at [www.sai.udel.edu](http://www.sai.udel.edu).



Teacher Gioya DeSouza-Fennelly and her students at I.S./143M Eleanor Roosevelt Junior High School in New York City stand by for the "Phone Call to the Deep," a conference call with scientists working in the submersible *Alvin* at vent sites on the ocean floor.

Viruses and bacteria in a water sample from Chesapeake Bay.

Associate professor K. Eric Wommack (seated) led the *Extreme 2008* study of marine viruses with postdoctoral researchers Bekki Helton and Shawn Polson. "As a group, viruses are the most abundant biological entities on Earth and contain its largest reservoir of unknown genes," Wommack says.

### Extreme Impacts

*Extreme 2008* involved 21,224 students at 358 schools in 7 countries.

99% of students surveyed said the study of science has become more "real life" to them thanks to UD's *Extreme* program.

97% of teachers surveyed said they would recommend the program to other teachers for their science curriculum.

Learn more at [www.expeditions.udel.edu](http://www.expeditions.udel.edu)

"I have never seen my students so engaged and excited. This was the greatest real-world experience my students have ever had."

— Teacher, Johannesburg-Lewiston High School, Johannesburg, Mich.

"This makes me realize that science isn't just a subject I have to learn in school, it could be a job for me someday."

— Student, Granville High School, Granville, N.D.

"The phone call to the scientists was really cool. I can't believe that we were actually having a conversation with someone who was underneath the sea in a submarine. I will probably remember that forever."

— Student, Scarborough Middle School, Scarborough, Maine

# Joining forces to improve hurricane evacuations



*Satellite image of Hurricane Katrina taken at 1:15 p.m. EDT, Aug. 29, 2005, as the Category Five storm churned in the Gulf of Mexico with sustained winds near 175 miles per hour. The storm made landfall on the U.S. Gulf Coast the next day. Courtesy of National Oceanic and Atmospheric Administration*

When Hurricane Katrina struck New Orleans on Aug. 29, 2005, many residents ignored the mayor's mandatory evacuation order. Some had no access to cars, while others believed they would be safe in their homes or needed to stay behind to protect their property. Even the date was a factor in some people's reluctance to leave: it was the end of the month, and many were waiting for much-needed paychecks.

In the case of Hurricane Rita, which hit Louisiana and Texas less than a month later, the evacuation process proved to be more deadly than the hurricane: seven people died as a direct result of the storm, but many more perished in hot cars stalled on gridlocked highways.

Civil engineer Rachel Davidson and sociologist Tricia Wachtendorf are leading a multidisciplinary team that is developing mathematical models to optimize the full range of sheltering and evacuation decisions. The three-year, \$750,000 project was awarded last fall by the National Science Foundation and is being coordinated by UD's Disaster Research Center, the world's first social science research institute devoted to the study of disasters. Wachtendorf is the center's associate director.

Davidson points out that evacuation is a battle between the time required to get everyone to safety and the lead time provided by hurricane forecasting. "This is an area where there's a lot of uncertainty," she says. "If a decision to evacuate is delayed for too long, lives can be lost. On the other hand, making that decision too soon, when the hurricane track and

intensity are still unknown, can result in the expense and danger of unnecessary evacuations."

In addition, recent demographic, cultural, and technological shifts suggest that evacuation behavior may be changing, with implications for the way it is managed. For example, there are now more single-person, single-parent, and elderly households. Cell phones, the Internet, in-vehicle GPS and other technologies have changed the way people receive and disseminate information.

"Overcoming these daunting challenges requires a fundamentally new, holistic approach to decision support for hurricane evacuation and sheltering," Davidson says. "We plan to adopt a broad decision frame and use mathematical programming to optimize the full range of sheltering and evacuation decisions."

Wachtendorf emphasizes the importance of respect for the realities of individual and organizational behavior in developing effective hurricane evacuation and sheltering plans.

"For example," she says, "only about 15 percent of people typically use public shelters. It's important for us to know that, if we want to develop a model that will really be useful to planners and stakeholders."

The project will include the input of focus groups of evacuation and sheltering decision-makers, as well as case studies from North Carolina to ground the theory in real examples, calibrate and validate the models, and illustrate how the final models can be used. Emergency planning and management officials in the state are acting as consultants.

"By providing a substantive example of truly interdisciplinary disaster research, this project will help facilitate the transformation of UD's well-known Disaster Research Center, historically based in sociology, into an interdisciplinary center," notes Sue McNeil, professor of civil and environmental engineering and urban planning and public affairs, who is the director of the center. The project also will launch the center's new interdisciplinary graduate program in disaster science and management, McNeil says.

## Online gamers play against stereotypes



*Scott Caplan*

The stereotype of online gamers may be wrong. They are by and large not obese teenage boys. Instead, they're older and fitter than the U.S. general population and a surprising number are female, says Scott Caplan, UD associate professor of communication.

Along with colleagues from the University of Southern California and the Palo Alto Research Center, Caplan studied 7,000 players of the online game EverQuest 2. EverQuest2 is a massively multiplayer online game (MMO), with a virtual world where players create characters and interact with other players. The researchers found the average player is 31 years old.

"I would have expected it to be college age," Caplan says, noting that counter to even his own stereotype, most players are 30-somethings. And, almost 20 percent are female.

"Although there's not as many women playing," he says, "they play more than the men, which goes against the stereotype of the adolescent male who's the compulsive gamer."

Researchers gathered the data through a survey that appeared inside the game. Sony Online Entertainment gave researchers access to proprietary information about its customers. Caplan and his colleagues believe Sony is the first major game company to share public data for outside research.

Armed with those numbers, the social scientists calculated gamers' body mass index, a measure of fitness. The average BMI for the U.S. general population is 28. The gamers' average BMI is 25.1.

That surprised researchers. The gamers' mental health, however, did not startle Caplan. They reported higher-than-average rates of substance abuse and depression. Caplan says the question now is "Why?"

"Why are people going to the games, and what are they getting out of the games," Caplan wonders.

The stereotypical response might be that gaming is responsible for their poor mental health. But what if you consider the flip side of that argument?

"If gaming actually helps people who have mental health problems, and they are turning to it because of the benefits," Caplan says, "then knowing that gives us a way to look at games as having therapeutic value."

These questions, he says, are a good starting point for more research.