



- **The Next Generation Science Standards (NGSS) succeed in preparing students to use data in the real world—but could do even better, says the Oceans of Data Institute's (ODI) new white paper.**

The ODI examined how well the data-usage expectations in the NGSS align with the “big data-enabled specialist” (BDES) occupational profile the organization compiled last year. A BDES analyzes large or complex data sets and uses the results to make discoveries or improve outcomes in various fields. The profile ODI created represents the knowledge and skills needed for these kinds of jobs.

The good news, states the white paper, is that the NGSS do emphasize skills necessary for using big data, such as developing an analysis plan and evaluating results. But the NGSS don't stress three key areas: tasks related to data management, data quality, and data ethics. Read more at <http://bit.ly/1h5Ies2>.

- **Oregon State University (OSU) has launched the first-ever endowed professorship in humanitarian engineering—an emerging field that seeks to improve the human condition and increase access to basic human needs, such as clean water or renewable energy.**

OSU alumni Richard and Gretchen Evans of Northern California donated funds to establish the program two years ago in response to a growing number of engineering students who wanted to make a positive impact on the world. OSU's program—and the new professorship—focus on disadvantaged communities in the Pacific Northwest and worldwide.

“The technical skills of engineering are essential, but so are abilities we might call human skills—such as communication, problem-solving, leadership, and the ability to work across cultures,” says Richard Evans, an OSU College of Engineering alumnus who was president and CEO of Alcan, a Fortune-100 mining company. “The

humanitarian engineering curriculum is a structured way for engineers to practice those human skills in challenging, real-world settings.”

Kendra Sharp, an OSU mechanical engineering professor who heads the humanitarian engineering program, will be the first to hold the new professorship. “One of the things that's most exciting about humanitarian engineering is that it captures the interest of a more diverse group of prospective students than we typically see in engineering, including a significant number of women,” she says. Read more at <http://bit.ly/1I2GbOb>.

- **University of Wisconsin (UW)—Madison faculty have created virtual internships that help students develop metacognition, or “reflection in action.”**

David Williamson Shaffer, a UW—Madison learning sciences professor, and researcher Naomi Chesler, a professor in the College of Engineering,

found metacognition a common trait among successful professionals. Their digital internships simulate science, technology, engineering, and math (STEM) jobs and help students think and make decisions intuitively, as well as make that thinking visible for students and their potential employers. So far, the internships have placed students in hypothetical engineering jobs in biomedical and mechanical device design. More than 800 students at four U.S. universities, one U.S. high school, and the Munich University of Applied Sciences have completed a virtual internship.

“In many ways, businesses want the same thing as middle schools and high schools: tools to develop and assess complex thinking,” Shaffer says. The digital internships use Epistemic Network Analysis (ENA), which the researchers created to measure the development of complex thinking. ENA monitors changes in students' thinking by examining their notebook entries and digital conversations with peers and mentors.

The internships also seem to encourage female participants' interest in and commitment to STEM careers. “It's extremely exciting that these virtual internships could have that effect and could do so at a national scale,”

observes Chesler. The pair plans to create additional internships in medicine, architecture, and law. Learn more at <http://bit.ly/1KkpXlr>.

- **A new science podcast can teach you something and make you laugh. Boston's WBUR-FM's new series, *You're the Expert*, is hosted by comedian Chris Duffy.**

Each episode features a guest expert in a specialized field; guests have included a doctor who studies Neanderthal DNA and a researcher who examines bacteria from the New York Transit System. The series' regular panel of comedians uses questions and games to try to guess the experts' fields and why those fields are important.

The program highlights “some of the groundbreaking work being done by the brightest minds in science—research most people would never hear or know about otherwise,” says WBUR General Manager Charlie Kravetz. *You're the Expert* airs on WBUR (90.9 FM) on Wednesdays at 9 p.m. and Saturdays at 6 p.m. Eastern Time. Listeners everywhere can also stream or download the podcast for free on iTunes. Learn more at [www.theexpertshow.com](http://www.theexpertshow.com). ●

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