ForwardED

The latest news from the
Wisconsin Center for Education Research
UW–Madison School of Education
WINTER 2018

PRE-K THROUGH HIGHER EDUCATION

See the World Through Siftr

Field Day Lab's widely used citizen-science tool goes mobile

Think of the world as one big classroom. That is the concept behind Siftr, an online citizen-science platform created in 2015 by David Gagnon, director of Field Day Lab at the Wisconsin Center for Education Research, to help promote fieldwork in schools.

Siftr encourages people to learn more about the world by actually observing it, documenting discoveries through photographs and sharing their projects online at Siftr.org. "Siftr helps teachers engage students more in the learning process by blurring the line between school and not school," says Gagnon of this free digital teaching tool.

How does it work? Organizers set up projects on Siftr.org around a topic. Users then join the project and upload images which correspond to the topic. Then a map pops up on the screen to show where in the world the data collection has taken place. So far, more than 130,000 observations have been made by over 20,000 people worldwide, with categories and photos as disparate as those you'd find on Pinterest, such as wild grapes, play spaces, best coffee, urban wildlife, graffiti, sports cars and anatomy.

"On the one hand, we see Harvard University using Siftr to take various measurements of ponds in the Cambridge area," says Gagnon, contrasting this high-end Siftr project with one by third-graders categorizing different types of worms on the playground. Gagnon is thrilled. "We're seeing this huge range of how educators and organizations are using Siftr to help people re-engage with the world."

Inside

For an expanded version of this newsletter, visit wcer.wisc.edu/news/newsletter.

Siftr's new mobile app allows users to create citizen-science projects directly on their handheld devices.

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So, how many words do you know that describe snow? Thomas DuBois, the Halls-Bascom Professor of Scandinavian Folklore and Religion at UW–Madison, presented "Snow Challenge 2015" to students at three different universities to familiarize them with the Sámi people, the indigenous population of the Arctic regions of Scandinavia.

This dwelling, called a "goahti," is the traditional home of the Sámi people of Scandinavia, as seen on siftr.org under the project title, "Snow Challenge 2015."

"There are hundreds of words in Sámi for snow. There's actually a word for snow that sticks to objects! So students were challenged to go out and photograph samples of these words in the snowscapes of Madison, Minneapolis and Columbus, Ohio," says DuBois, who believes this unique Siftr project has livened up his teaching on Scandinavian culture. "Siftr turned what would have been a very abstract lecture on Sámi tradition into something students could relate to. And that's exciting."

For first-year social studies teacher Claire Lewandowski, Siftr helped her get better acquainted with her seventh-grade students at a middle school in Marshall, Wisconsin—a major priority for any new teacher. She asked 76 students to upload photos on Siftr of places they loved, places they wanted to go and places that they visited frequently. "I learned that one of my students really loves Pizza Ranch in Sun Prairie. And another loves Yosemite and can't wait to go back there."

Through Siftr, Lewandowski was reminded of a keen insight into middle-schoolers. "Kids are great b.s. detectors. They need to believe that whatever they are doing in class has some sort of meaning and effect on the outside world, and is not simply an exercise by a teacher to keep them busy." She said that a citizen-science platform, like Siftr.org, allows her to provide an authentic teaching experience for her students. She plans to continue using Siftr for a lesson on urban sprawl in the next school year. "It will be a great way for students to take a critical look at their community."

Just in time for Lewandowski's new fieldwork project, Siftr has gone mobile.

Last year, Field Day received a Baldwin Award to develop a Siftr phone app with UW–Madison's horticulture department that pairs with a new plant identification app. "As part of the award, we released a general purpose version of the Siftr app so anyone could create a citizen-science project on their phones, for free." Gagnon says this new mobile iteration of Siftr works for both Android and IOS. What's key to this mobile app is that it works offline, so people can go deep into the woods to explore and still work on their Siftr projects. "Plus, this new app lets you record more than just an image and a caption. Users can now respond to all kinds of prompts."

To help familiarize educators with how the new Siftr mobile app can inspire fieldwork in the classroom, Field Day is offering fellowships to all Wisconsin teachers, in all subject areas and grade levels. Selected fellows will attend a one-day workshop at the University of Wisconsin–Madison, develop and implement a fieldwork project through an ongoing partnership with Field Day, and receive a $100 stipend. "We want people to surprise us with unique and creative ways that they use Siftr," says Gagnon, adding that his group is looking for teachers who want to be "pioneers." (To apply, go to fielddaylab.wisc.edu/fellowships.)

But as far as the Field Day founder is concerned, the current Siftr platform has just scratched the surface. He says a whole category of questions can be answered only by many people being observers. "If we can secure the funding, I would like to develop Siftr into a general crowdsourcing platform," explains Gagnon. "Our end game is in learning about how media like Siftr allows people to learn, and do science, in new ways."

Publications/Findings From WCER Researchers

The Wisconsin Center for Education Research continues to make an impact on education in Wisconsin and nationwide. Here are the latest findings from WCER's highly respected researchers:

MENTORING

"A New Approach to Mentoring for Research Careers"
Director of WCER's Center for the Improvement of Mentored Experiences in Research, **Christine Pfund,** co-authored this article published in *BMC Proceedings.* It focuses on the National Research Mentoring Network, a nationwide effort to use and disseminate best practices for mentorship training. The article also discusses networking and professional development for mentees across different career stages.

KINDERGARTEN

"Kindergarten Readiness in Wisconsin"
In this collaborative working paper, WCER researcher **Eric Grodsky** and colleagues show that in Wisconsin, about two-thirds of children of color begin kindergarten with weaker literacy skills than the typical non-Hispanic white child. Differences in family income account for half or more of the children with this literacy disadvantage. Although beginning literacy skills vary across school and districts, most variation in literacy skills among children is within, rather than between, schools.

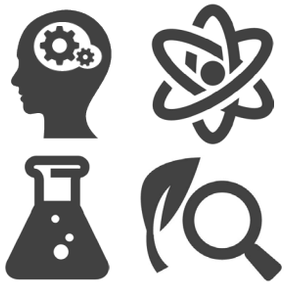
"Madison Metropolitan School District 4-Year-Old Kindergarten Program: Patterns of Enrollment"
In a study on 4K enrollment, the Madison Education Partnership—a collaboration between WCER and Madison Metropolitan School District—found that MMSD's 4-year-old kindergarten program enhances educational equity. Students from traditionally disadvantaged racial and ethnic groups, and children from families with lower income and education, enroll in MMSD 4K at higher rates than more advantaged peers. In addition, compared to eight similar districts, MMSD 4K enrolls English language learners at higher rates than other districts.

LABOR MARKET

"Hiring as Cultural Gatekeeping Into Occupational Communities: Implications for College Students, Faculty and Career Advisors"
In this study of 42 manufacturing firms, WCER researcher **Matthew Hora** examines how cultural fit plays an important role in hiring decisions. Results indicate 74 percent of employers hire for cultural fit—matching personality, attitudes and competencies to existing staff. This working paper discusses implications for college students, faculty and career advisors, in light of the demand for non-cognitive skills and potential discriminatory practices during the hiring process.

"The Role of Place: Labor Market Dynamics in Rural and Non-Rural School Districts"
Why do teachers in Wisconsin prefer to work in certain school districts? Is there really a teacher shortage in rural schools? In this working paper, WCER researcher **Peter Goff** and **Ellie Bruecker** of UW–Madison's Educational Leadership & Policy Analysis studied how teacher applicants differ in education, experience and geographic preferences in 311 Wisconsin districts. While they found no evidence of a teacher shortage in rural areas, applicants had a "modest aversion" to rural districts.

STEM

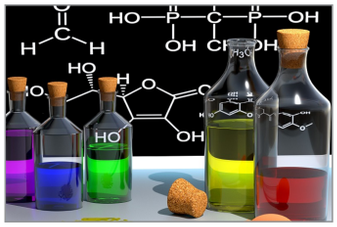


"Momentum Through Course-Completion Patterns Among Two-Year College Students Beginning in STEM"
This study, led by WCER researchers **Hsun-Yu Chan** and **Xueli Wang,** examined course-completion patterns among 1,668 first-time students at public two-year colleges. Researchers concluded that students persisting in the transfer and vocational patterns in the first two semesters of college are more likely to retain their interest in STEM fields. Published in *Research in Higher Education.*

COMMUNICATION

"Gaining Insight by Transforming Between Temporal Representations of Human Interaction"
In a recent article in the *Journal of Learning Analytics,* WCER researcher **David Williamson Shaffer** and colleagues at the University of Lyon present a novel method for analyzing conversations. Using a conversation analysis toolkit developed by Shaffer and WCER colleagues, researchers measured and visualized emotional interaction in conversations over time.

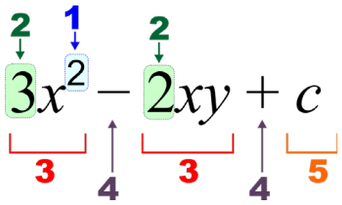
TEACHING PRACTICE



"How Do Sense-Making Skills and Perceptual Fluency Relate to Learning Chemistry?"
STEM instruction often uses multiple visual representations to illustrate abstract content. In two experiments with 196 undergrad chemistry students, WCER's **Martina Rau** investigated whether instructional activities focused on connection-making among visuals enhance students' learning. Results, published in *Instructional Science,* show these activities are effective only for advanced students. Students need a preliminary understanding of content and visuals before making connections among visual representations.

MATH

"An Emoji is Worth a Thousand Variables"
In *The Mathematics Teacher,* WCER researcher **Percival Matthews** and teacher Tony McCaffrey explore how different ways of presenting algebra equations can help promote student learning. McCaffrey began this action research when a 10th-grader presented a puzzle called "Emoji Math," which used the emoji in place of algebraic variables to represent equations. McCaffrey found that students typically had an easier time solving the emoji version.



"Implementing a Framework for Early Algebra"
WCER researcher **Ana Stephens** and colleagues discuss their framework to improve early algebraic thinking in elementary school students. This study was published as a chapter in *Teaching and Learning Algebraic Thinking with 5- to 12-Year-Olds: The Global Evolution of an Emerging Field of Research and Practice.* This book builds on the work of the ICME-13 Topic Study Group 10 on Early Algebra that met in Hamburg, Germany, in July of 2016.

HEALTH & MEDICINE

"Modeling Operative Competency With Multimodal Epistemic Network Analysis"
In *The American Journal of Surgery,* WCER researchers and UW–Madison Department of Surgery collaborators show that *how* surgeons respond to their errors is more important than the number or type of errors made. Authors used epistemic network analysis, a novel technique developed by WCER researcher **David Williamson Shaffer** and colleagues.

"Tracking Health Inequalities From High School to Midlife"
Can challenging courses in high school lead to better adult health? In this study in *Social Forces,* WCER researcher **Eric Grodsky** and colleagues draw on new data from the midlife follow-up of the High School and Beyond Sophomore Cohort, on which Grodsky is co-investigator. Students who took a medium- to high-level course of study in high school have better self-reported health and physical functioning in midlife, regardless of family background, adolescent health, baseline skills and school characteristics.

For more findings, news and events, visit: wcer.wisc.edu/news/newsletter.

Wisconsin Center for Education Research
SCHOOL OF EDUCATION
UNIVERSITY OF WISCONSIN–MADISON

1025 West Johnson Street, Suite 785, Madison, Wisconsin 53706
608.263.4210 | wcer.wisc.edu
Media inquiries: Janet.Kelly@wisc.edu | Contact the editor: armitage2@wisc.edu