# 2018 IMPACT REPORT EDUCATION







## Together, We

Drive Inquiry + Lead Research +
Create Opportunity + Bridge Differences
+ Create Access + Deliver Resources + Shape Policy + Prepare Leaders + Support Community + Invigorate Economies Change Lives



# RESEARCH IMPACT IN EDUCATION +

**Physics** Architecture Engineering Medicine Social Work **Agriculture Computer Science Environmental Science Applied Health Science Information Science Psychology Big Data** Linguistics **Speech and Hearing Science Veterinary Medicine** Kinesiology **Gender and Women's Studies** 

And more...

20+

Active inter- and cross-disciplinary research projects

Advertising

New faculty hired in 2017-18

Snapshot of key active grant activity in 2017-18

25

National Science Foundation grants

18

U.S. Department of Education grants

12
State of Illinois

State of Illinois Agency grants

I O

Major foundation grants

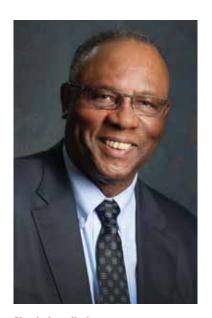


Photo by Larry Kanfer

Education leaders contribute critical expertise to every discipline. Whatever the field—science, business, law, or the arts—education is part of the solution.

And that is more evident than ever during a year in which our scholars were involved in nearly 70 grants, many of them funded by major sources. Our faculty joined together with their peers across campus and elsewhere to collaborate on cross-disciplinary studies centered on computer science, medicine, engineering, and other fields.

Our scholars are changing the notion that the aforementioned academic areas may not seem well-matched with the endeavors that take place in a college of education. On the contrary, the four departments in the College of Education at Illinois are spaces of learning and research that demonstrate both the groundwork and established scholarship of what we do is represented in all curricula and fields.

As you will see in the upcoming pages, College of Education scholars, students, and alumni are "taking education to new frontiers" in monumental ways. We are preparing the best teachers. We are providing crucial resources in the community and beyond. We are creating access for underrepresented students. And, ultimately, we are stimulating economies in Illinois and worldwide.

It feels good to change the world for the better. We think you will agree with that assessment after reading our 2018 Impact Report.

Yours in Orange and Blue,



#### **LEADERSHIP**

The College of Education includes four departments: Curriculum & Instruction; Education Policy, Organization & Leadership; Educational Psychology; and Special Education.

The Bureau of Educational Research, located within the College provides grant-proposal development and helps faculty secure external grant funding.

The Council on Teacher Education ensures program accreditation, supports field experiences, and provides the path to licensure.

And the Office of Advancement supports our 34,000-plus alumni, helps secure and steward valuable gifts, and hosts annual alumni and donor events.

2018 College Leadership L-R: Christopher Span,
Associate Dean for Graduate Programs; Nancy Latham,
Executive Director of the Council on Teacher Education;
Sarah McCarthey, Head of Curriculum & Instruction;
Lisa Denson-Rives, Assistant Dean for Advancement;
Gabrielle Allen, Associate Dean for Research; Timisha
Luster, Assistant Dean for Administration; Lisa MondaAmaya, Associate Dean for Undergraduate Programs
and Teacher Education; James D. Anderson, Dean;
Amanda Brown, Assistant Dean for Budget and
Resource Planning; Denice Ward-Hood, Director of
Online Programs; Daniel Morrow, Chair of Educational
Psychology; Yoon Pak, Interim Head of Education
Policy, Organization & Leadership; and Micki Ostrosky,
Head of Special Education



#### THE DISCOVERY PARTNERS INSTITUTE (DPI)

is an interdisciplinary public-private research institute located in Chicago and is a hub of the Illinois Innovation Network (IIN), a set of virtually connected clusters across the state. The DPI and IIN are the foundation for new partnerships and approaches that catalyze economic growth. World-class faculty, students, and companies will work side by side to develop solutions, promote entrepreneurship, and empower inventors of the future.



The College of Education is looking at developing strategies that will position us as the leader of Education & Workforce Development, one of the four cross-cutting areas of the DPI initiative. Education

& Workforce Development focuses on the development of Illinois students of different levels, including high schools, community colleges, and four-year universities. By offering multiple pathways to career readiness, Education & Workforce Development will offer career readiness preparation, training, and development at scale to support the economic development of the state of Illinois, and the retention of competitive talents."

-Jessica Yi, Chair, Education & Workforce **Development Task Force** 

#### WORLD-CLASS **PROGRAMS**

2019 U.S. News & World Report rankings for our departments and programs.

#8 Educational Psychology

**#9** Special Education

#13 Curriculum & Instruction

**#13** Elementary Teacher Education

#15 Secondary Teacher Education

**#18** Education Administration

#### **Curriculum & Instruction**

- Curriculum Aesthetics & Teacher Education
- Digital Environments for Learning, Teaching, & Agency
- Early Childhood Education Plus Teaching Licensure
- Elementary Education Plus Teaching Licensure
- Language & Literacy
- Mathematics, Science, & Engineering
- Secondary Education: English Plus Teaching Licensure Secondary Education: Mathematics Plus Teaching Licensure
- Secondary Education: Science Plus Teaching Licensure
- Secondary Education: Social Studies Plus Teaching Licensure

#### **Educational Psychology**

- Child Development
- Cognitive Science of Teaching & Learning
- Counseling Psychology
- Quantitative Methodology, Measurement & Evaluation

#### **Special Education**

- Infancy & Early Childhood Special Education
- Learning Behavior Specialist I
- Learning & Behavior Specialist II in Multiple Disabilities

#### **Education Policy, Organization & Leadership**

- Diversity & Equity in Education
- Educational Administration & Leadership/Principal Preparation
- Global Studies in Education
- **Higher Education** History of Education
- Human Resource Development
- Executive Human Resource Development
- Learning Design & Leadership
- Philosophy of Education
- School Executive Leadership | Superintendent Endorsement
- Social Sciences & Education Policy
- Teacher Leader Specialization

\*We offer Certificates of Advanced Study, Master of Arts, Doctorate of Education, and Doctorate of Philosophy degrees.

## DEPARTMENTAL GOALS AND PRIORITIES+



#### **Curriculum & Instruction**

#### 2017-18 Milestones

- Launched the Technology Innovation in Educational Research and Design (TIER-ED) initiative.
- Developed new online Ed.M. in Curriculum & Instruction with an emphasis on digital learning.

#### Priorities for 2018-19

- Leverage innovative research of TIER-ED to facilitate collaborations across academic disciplines.
- Address the critical need for computer science education in schools through the Illinois Secondary Teacher Education and Computer Science (I-STECS) initiative.
- Create a new MOOC to recruit future master's degree students.



#### **Education Policy, Organization & Leadership**

#### 2017-18 Milestones

- Expanded access to educational opportunities through the launch of a MasterTrack™ Certificate Program in Instructional Design through Coursera and new online Ed.D. degree programs.
- Hired new faculty in the research areas of economics of education and educational technology.

#### Priorities for 2018-19

- Continue programmatic excellence that centers on diversity.
- Assist and recognize faculty in research, teaching, and service pursuits.
- Seek funding support for our students.



#### **Educational Psychology**

- Expanded the QUERIES division by hiring four faculty members and solidifying our reputation for expertise in research methods in educational science and practice.
- Increased our portfolio of interdisciplinary research in educational science and practice, with three new grants that support faculty collaboration with scholars in engineering, liberal arts and sciences, and others.
- The Counseling Psychology program received 10 years of accreditation from the American Psychological Association.

#### Priorities for 2018-19

- Rebuild the Developmental Sciences Division as part of our focus on lifespan resilience in education.
- Expand the Applied Learning Sciences concentration and link it more directly with other concentrations in the Learning and Education Studies major.
- Establish a Master's program in Counseling Psychology.



#### **Special Education**

#### 2017-18 Milestones

- Hired three new faculty members with expertise in communication disorders, the impact of toxic stress and poverty on children with disabilities, and the social relationships of adolescents and young adults with intellectual and developmental disabilities
- Collaborated with colleagues at the University of Birmingham, UK on the BRIDGES project.

#### Priorities for 2018-19

• Recuit a strong group of graduate students who can be funded on three new Office of Special Education Programs grants.

9

• Recuit an assistant professor in early childhood special education.

# EDUCATION LEADERS AND COMMUNITY—

We are committed to advancing educational opportunities through the development of new ideas, tools, and practices.

We share a commitment to certain ideals: a respect for diversity of ideas and social identities; a dedication to community outreach; and a responsibility to make the tools of learning accessible to everyone.

67
2017-18 tenure-track faculty

240/0

Tenure-track faculty from underrepresented populations

#### 2018 NEW FACULTY



NATHAN CASTILLO
Assistant Professor of Education Policy,
Organization & Leadership and
TIER-ED collaborator

Dr. Castillo received his doctorate from the University of Pennsylvania in 2017 in human development & quantitative methods and a master's degree in education from Harvard in international education policy in 2009. His dissertation research focused on literacy technologies in rural South Africa. Castillo was a postdoc at the University of Pennsylvania and continued his focus on international education and on how digital technologies can be used to address issues of equity. He has a passion for addressing worldwide literacy and utilizing novel uses of Web technologies to encourage practices of reading and writing that bridge home and school. His research has utilized learning analytics and associated metrics of learning and literacy with diverse populations, and has spanned numerous contexts including MOOCs, rural Africa, and Guatemala.



CYNTHIA D'ANGELO
Assistant Professor of Educational
Psychology and TIER-ED collaborator

Dr. D'Angelo received her doctorate in science education from Arizona State University in 2010. Her dissertation focused on student learning with a digital physics game called SURGE. She was a senior researcher at SRI International and held a two-year postdoc at the University of Wisconsin-Madison in the Epistemic Games Group, designing and studying the effects of a particular game to teach environmental science and urban planning. Her recent projects include a classroom VR study, a metaanalysis on the learning effects of games and simulations, and the application of learning analytics to novel educational technologies and student interactions. D'Angelo has been a primary investigator on a National Science Foundation award and has substantial experience doing interdisciplinary center-level work.



REBECCA HINZE-PIFER

Assistant Professor of Education Policy,
Organization & Leadership

A former postdoctoral fellow at Stanford, Dr. Hinze-Pifer earned her doctorate from the University of Chicago Harris School of Public Policy. She was a secondary teacher for seven years and a National Academy of Education/ Spencer Dissertation Fellow, with a dissertation that was supported by the AERA-MET Dissertation Fellowship in 2015 and the Institute of Education Sciences Predoctoral Interdisciplinary Research Training Program. Hinze-Pifer earned a master's degree in public policy at George Washington University and a bachelor's degree in astrophysics and computer science at the University of Wisconsin-Madison. Her research examines adolescent socioemotional and academic skill development, with a particular focus on the role of school discipline systems and classroom management practice.

#### 2018 NEW FACULTY



RODNEY HOPSON
Professor of Educational Psychology

Rodney Hopson received his doctorate in educational evaluation from the University of Virginia in 1997 and was an NIDA postdoctoral research fellow at the Johns Hopkins Bloomberg School of Public Health the following year. He began his academic career as an assistant professor at Duquesne University, where he was successfully tenured and promoted to associate professor, served as department chair, and ultimately promoted to full professor. Hopson served as associate dean for research in the College of Education and Human Development at George Mason University (2017) and professor of the Division of Educational Psychology, Research Methods, Education Policy (2013). His research has focused on evaluation and comparative educational reform, with a focus on post-apartheid educational contexts.



GE (GABRIELLA) JIANG Assistant Professor of Educational Psychology

Ge Jiang completed her doctorate in 2018 in quantitative psychology from the University of Notre Dame and earned her master's degree in 2017 in applied and computational mathematics and statistics. Dr. Jiang's expertise is in structural equation modeling, statistical learning, and itemfactor analysis. She has done work on model-fit statistics. factor analysis, measurement invariance, equivalence testing, cluster analysis, feature selection, regularization, factor analysis with ordinal variables, estimation methods, and effect size and power analysis. Jiang has also worked on computer software development to implement her proposed methods.



JUSTIN KERN
Assistant Professor of Educational
Psychology

Justin Kern completed his doctorate in 2017 in quantitative psychology at Illinois and earned a master's degree in psychology and a master's degree in statistics. He was a visiting assistant professor at the University of California at Merced, and his research focuses on item-response theory, computerized adaptive testing, structural equation modeling, ideal point modeling, N-way component models, measurement equivalence, and model estimation techniques. Dr. Kern has also collaborated on applied projects as a statistical consultant.

#### 2018 NEW FACULTY



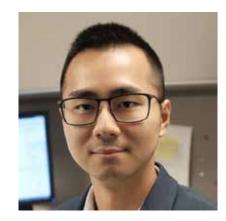
IDALIA NUNEZ
Assistant Professor of Curriculum
& Instruction

Idalia Nunez completed her doctorate at the University of Texas at Austin in May 2018, receiving her degree from the Department of Curriculum and Instruction in the area of bilingual-bicultural education. She had a prestigious Fellowship from UT-Austin to complete her dissertation and publish articles from her study. Her record of publications including peer-reviewed articles, book reviews, and manuscripts under review or in progress reflects academic distinction for a doctoral student at this point in her studies. She has also presented at the major conferences in the field of education specializing in literacy and bilingual education including American Education Research Association, Literacy Research Association, and the National Association for Bilingual Education.



MICHAEL TISSENBAUM
Assistant Professor of Curriculum &
Instruction and TIER-ED collaborator

Dr. Tissenbaum received his doctorate in 2014 from the University of Toronto, where he focused on the design of digital learning environments including multimodal classroom spaces. Prior to his tenure at Illinois, Tissenbaum was a learning research scientist at MIT, working with computer scientists and artificial intelligence researchers to design adaptive learning technologies. He also worked as a postdoctoral scholar at the University of Wisconsin-Madison on learning technologies in museum spaces that cultivated collaboration and computational thinking. His work centers on how to design "transformational" learning environments that combine interactive physical spaces, digital information, and collaboration between learners. He is interested in developing children's computational literacies and also has an interest in teacher training.



YAN XIA Assistant Professor of Educational Psychology

Yan Xia completed his doctorate in 2016 in educational psychology and learning systems from Florida State University and was a postdoctoral research fellow in the Measurement and Statistical Analysis School of Social and Family dynamics at Arizona State University. Dr. Xia's scholarship centers on methods for ordered categorical data as well as incomplete, non-normal, and contaminated data in the context of structural equations modeling and item-response theory. He has published work in this area, specifically on goodness-of-fit statistics and bias correction.



Computer science and programming and coding are going to become the 'fourth 'R.' Why do you need to be literate? Why do you need to learn math? It's for the same reasons. Computer science education is the new frontier of school curriculum."

-Mark Dressman, professor in Curriculum & Instruction and lead author and project coordinator of I-STECS.

Currently, there aren't enough high school teachers who are certified or endorsed to teach computer science—but an initiative by the College of Education will change that.

The Illinois Secondary Teacher Education and Computer Science (I-STECS) Initiative will establish an undergraduate program to certify high school computer science teachers, says Mark Dressman. It will also create an online or hybrid program through which current secondary teachers can earn an endorsement for computer science education. Dressman, a professor in Curriculum & Instruction at the College of Education, is the lead author and project coordinator of the initiative.

> **NEW INITIATIVE: Illinois Secondary Teacher Education and Computer** Science (I-STECS)

#### **I-STECS Fulfilling Many Needs**

I-STECS is a collaborative effort involving faculty and administrators from the College of Education, the College of Engineering (the Department of Computer Science), and the Council on Teacher Education. This effort is coming at the right time, Dressman says.

Computers are an integral part of everyday life and their digital finger-print is on almost every industry. "To live in the 21st century, everything you do is going to be digital," he says. "There's a real need for people to know how that stuff works."

"The University of Illinois, the
College of Education, the College of
Engineering, are perfectly situated
to help students become literate in
computer science," Dressman says.

"Illinois is a land-grant institution and
has one of the top engineering schools
in not just the country, but the world."

Most importantly, Dressman adds, the state of Illinois is emphasizing the need for such education. Chicago Public Schools are now mandating that to graduate, a student must take a computer science class—driving the need for teachers with certifications or endorsements. The state finds itself in a vicious cycle of having few high school computer science classes offered because there are few teachers who are certified in the subject. And teachers aren't getting certified because... well, most schools don't offer computer science classes. Why get certified in something you aren't going to teach?

"How do you break that cycle?" asks Luc Paquette, assistant professor in Curriculum & Instruction and project co-coordinator. "You break it by exposing students to computer science, which will increase the number of students who are interested in studying computer science or a related field at the university level."

In other words, you break the cycle with I-STECS. The five-year initiative (one year each for feasibility and curriculum development, three years for implementation) will begin to produce the certified and endorsed teachers that the state needs to educate high school students in computer science.

Computer science is about more than building software. It's about solving problems.

 Luc Paquette, assistant professor, Curriculum & Instruction

And those students can eventually help revive the state's flagging economy.

"The College of Education and the College of Engineering are at the center of that huge part of the rejuvenation of the state's economy," Dressman says. "I see this connecting the College of Education to the university's emerging role as this engine of science and technology. It's always been there, but it's that on steroids now."

#### "Investment for Growth" Funding

I-STECS is one of 14 proposed projects selected by campus to receive

Investment for Growth funding. Now in its second year, the Investment for Growth program generates new sources of revenue while continuing to invest in the university's missions of education, research, and public engagement.

I-STECS is the second Investment for Growth project selected by campus for the College of Education. The College's TIER-ED initiative was chosen for funding last year.

"The Investment for Growth program enables the College to expand our mission," says College of Education Dean James Anderson. "I-STECS responds directly to recent, urgent calls from politicians, business leaders, educational policymakers, and school administrators, especially in Chicago, for the establishment of programs of computer science throughout secondary schools in the state of Illinois and nationally."

#### Creating Buzz, Changing Thinking

Before any economy is rejuvenated and before the state of Illinois improves its standing in computer science education, entrenched ways of thinking need to be uprooted.

"We are lucky in that most local schools already offer introductory courses in CS and one school offers an AP class," Dressman says. "Our role, we hope, will be to help build on those foundations and to build capacity by developing a secondary teacher education program in CS and an endorsement program for teachers locally, across the state, and nationally. In these programs teachers and preservice teachers will acquire content knowledge in computer science as



well as knowledge of how to teach this content to students in K-12 and, possibly, community college settings."

Raya Hegeman-Davis, the school-university research coordinator for the Bureau of Educational Research, has begun establishing connections with local schools, Dressman says. He hopes to have many schools in Champaign County who are already offering introductory classes in computer science begin offering more advanced classes, and have the high schools that are offering AP classes to expand their offerings.

Most of the teachers currently teaching these courses are math teachers who are not yet endorsed in computer science education. "We need to begin helping teachers in those high schools, probably in math and physics, move toward teaching these courses," he says. "They will need to learn how to program and how to teach

programming and computer science."

To that end, I-STECS is developing summer institutes where teachers can receive credit and supervise students who take their courses.

The I-STECS team is also discussing the student-recruitment plan. Likely candidates for the program include incoming freshmen in math and physics, students already in computer science, and education students who are interested in incorporating technology in their classrooms.

#### I-STECS: It's a Team Effort

"I think it's absolutely critical that we are teaching students not just a basic literacy in using computers but the skills they need to be able to innovate with computers—to create and implement new algorithms, new mobile apps, new medical devices, new entertainment media, new digital learning materials, and so on," says

Gabrielle Allen, associate dean for research in the College of Education and a professor of astronomy. "It's important for our children to have the skills they need to be successful in their own careers, and for the state and nation to develop a workforce that is going to be competitive in the global economy."

"In the last decade or so, interest in teaching computer science to K-12 learners has rapidly increased," adds Chad Lane, associate professor in Educational Psychology. "That has led to important questions such as 'What should be taught. At what grade levels?' and 'What certifications should be in place for K-12 computer science educators?"' Those questions are being tackled by the I-STECS team.

"Between the College of Education and Department of Computer Science at Illinois, the expertise and experience are in place to develop a very strong

## I think I-STECS is going to make a really meaningful and long-term contribution in helping to prepare the teachers needed for our future workforce. —Gabrielle Allen, Associate Dean for Research

program and help Illinois excel in this area," says Lane. "It will also open up new possibilities for developing and deploying innovative methods for teaching computer science that are more age-appropriate and engaging for younger learners."

Allen and Lane are contributing to the overall effort in I-STECS to expand computer science education in K-12 and prepare teachers to teach the subject.

Other team members include:
College of Education: Mark Dressman,
Luc Paquette, Elizabeth Niswander,
director of strategic initiatives in the
Bureau of Educational Research,
and George Reese, director of the
Office for Mathematics, Science, and
Technology Education (MSTE)
College of Engineering: Craig Zilles,
associate professor of Computer
Science and project co-coordinator;
and Leonard Pitt, associate Computer
Science Department head
Council on Teacher Education:
Nancy Latham, executive director

"This is a project I am very excited about," says Allen. "My own research is in astrophysics in developing software to model black holes and gravitational waves, and I know very well how important it is for students to have computer science skills to be effective researchers and to be competitive for jobs outside of academia. Students who already know how to write their

own software programs, how to manipulate data and how to visualize data have a big advantage. I would like to see I-STECS help provide this advantage to all high school students."

#### **Solving Problems**

Luc Paquette says that high school students will be taught computer science basics: how programs are executed, how to build algorithms to solve problems, how to break problems down into sub-problems and solve and combine those solutions to arrive at a complete solution for the larger problem.

"Computer science is about more than building software," he says. "It's about solving problems. How do you look at a problem and what is this problem really about? How do I find a way to solve this problem?

Computer science teaches us a way to think that's not necessarily covered by other disciplines. I think having studied computer science I approach solving problems differently than other people. It doesn't mean that that's the right way to think about every problem, but it is a tool, and if you have that tool when you encounter a problem, you can think about it from a computational perspective and see if it would help you solve that problem."

#### **Computer Science is for Everyone**

"Too many people, when thinking of a computer scientist, conjure up a picture of a white male who is socially awkward and into video games, says Paquette.

There is nothing about computer science that makes it inherently the domain of only white males, he says. "There's been a lot of effort to break down those barriers and show that computer science is for everyone."

And, he adds, as the diversity of those who engage in computer science increases, that expands the ways computer science is used and who the software is designed for. "Computer science is making its way into almost every field that exists," Paquette says. "Computational biology, computational physics, computational social science. You name it."

#### **Discovering Passions**

At the end of the five-year initiative, what does Paquette hope to see? "I want to raise the interest in computer science in populations of students that might not have traditionally been interested. I want to see increased enrollment, both in overall numbers and in those who do not traditionally enroll in computer science programs. I want to see high school students who are more computer-science literate.

"I want to expose more students to this type of activity and see them discover a passion that they might not have otherwise discovered."

#### Expanding Boundaries, Thinking Across Borders

At the end of five years, Mark Dressman hopes I-STECS is operating on all cylinders: students in schools starting the program, the first core class graduated and beginning to teach in high schools, and online courses leading to endorsements in computer science education for current teachers. "I hope by then we have a functional undergraduate program that's enrolling 25 students a year," he says, "and an online program with significant numbers of teachers. And the faculty we have with computer science degrees in the College of Education are busy teaching lots of classes, with maybe some new lines: computer science and social studies. Computer science and bilingual education. Computer science and early childhood education, and so on. This is a growing trend in the field of curriculum and instruction, along with trends in diversity and inclusion and other areas responding to our changing demographics and economic needs."

#### **Computer Science: It's Elementary**

George Reese has long witnessed what can happen when pairing kids with computer science education.

Reese, director of the Office for Mathematics, Science, and Technology Education (MSTE) in the College of Education, first met Kathleen Harness, then an elementary school teacher in Champaign, in 2004. Harness had become excited about the Squeak Etoys programming environment and brought her ideas to MSTE.

"This led to her work with MSTE and local schools to create the



etoysillinois.org site that has over two thousand programs written by both students and adults," Reese says. "It also has a variety of teacher resources created by Kathleen."

MSTE has developed curriculum resources for use in elementary schools, including those close to home, such as Kenwood Elementary in Champaign. "I and others from the University of Illinois have worked with teachers at Kenwood to make computational thinking a magnet theme," Reese says. "As a result of this effort, Kenwood is significantly more sought-after in the schools-of-choice system in Champaign."

Indeed, Kenwood is the only school in its district that offers computational thinking, a problem-solving process that involves analyzing data and using algorithms to solve problems, and coding, on a school-wide basis.

"During the past 15 years, I have also come to know the work of Lenny Pitt in the Computer Science Department, who has been working to make computer science for all a reality long before it had its current visibility," Reese says. "Dr. Pitt, along with my MSTE colleagues, Judy Rocke and Jana Sebestik, have published three curriculum manuals introducing youth to computer science and programming through Scratch with National 4-H." Reese is a writer for the K-12 Computer Science Framework, which guides states, districts, and organizations in creating their own computer science education standards and in implementing computer science education for all students. "There's an obvious need for computer-science certified teachers, and the I-STECS program is designed to address that need," says Reese. ■



### #TIER ED #ED TECH

THE ED TECH TOOLS OF TOMORROW ARE BEING DESIGNED TODAY ON THE UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN CAMPUS.

And those tools, says Robb Lindgren, can have a global impact. The tools are being developed through a new initiative called Technology Innovation in Educational Research and Design (TIER-ED). Lindgren, an associate professor in Curriculum & Instruction at the College of Education, is the director of TIER-ED.

TIER-ED brings together experts from various disciplines from within the College and across campus who work with a variety of technologiesaugmented reality, virtual reality, data analytics, multitouch and other interfaces, and online learning platforms-to enhance their uses as technological tools in classrooms, museums, and other educational settings. Lindgren ticks off College of Education professors H. Chad Lane (gaming and entertainment technologies); Emma Mercier, Michael Tissenbaum, and himself (augmented and room-sized technologies); and Luc Paquette and Cynthia D'Angelo (data analytics) among the many faculty who are researching ways to better use technology in education.

It was apparent as soon as I started that it was in the DNA of this University to take on big challenges and to do so in interdisciplinary fashion, particularly in the area of new technology development. – TIER-ED DIRECTOR ROBB LINDGREN

"We are fortunate to have faculty members working across the spectrum, thinking about the ways the technologies we use—for example, at home or in museum environmentscultivate interest in STEM or other areas and help people to learn," Lindgren says. And it goes beyond simply being conversant with the latest technologies, he adds. "In the case of augmented reality and virtual reality, it's not just getting the latest off-the-shelf technology, but thinking about how we can use data and proven design methodologies to help us better address specific educational problems through these tools."

Older or simpler technologies can prove useful as well in the quest to design cutting-edge educational environments. "Even with simpler technologies, such as mobile phones and tablet devices, we can use data analytics and machine learning techniques to unveil better ways to configure them and use them to personalize the learning experience for diverse learners," Lindgren says.

#### COLLABORATING TO SOLVE SOCIETY'S PRESSING PROBLEMS

When Lindgren came to campus five years ago, he immediately noticed a distinction from previous institutions where he had worked. "It was apparent as soon as I started that it was in the DNA of this university to take on big challenges and to do so in an interdisciplinary fashion, particularly in the area of new technology development," he says. There was a focused effort to use technological innovations to solve the most pressing problems in society, and that excited him. It excites him even more now as he sees those collaborative efforts ramped up on campus, particularly empowered through TIER-ED.

Since the TIER-ED initiative was

approved in fall 2017 by Illinois' Investment for Growth Program, the College of Education has reached out to-and been contacted by-numerous units on campus to collaborate on technological innovation research, including the College of Engineering, various departments in the College of Liberal Arts & Sciences, the College of Veterinary Medicine, the Center for Innovation in Teaching & Learning, the College of Applied Health Sciences, and the College of Fine and Applied Arts. Lindgren cites one of his own projects as an example of the crossdisciplinary collaboration that typifies the campus efforts in this educational technology innovation research. He is working with faculty at the National Center for Supercomputing Applications and in the Department

of Computer Science to build sophisticated gesture-recognition systems that involve computer vision and artificial intelligence, with the goal of helping people understand challenging science and mathematics concepts through computer simulations that allow students to interact physically with the ideas by making gestures and movements.

Large-scale interdisciplinary research is one of the core activities of TIER-ED, Lindgren says, but he emphasizes that such research is not new to Illinois. Rather, Lindgren says, "the goal is to make that research more of a coordinated effort" and use TIER-ED as infrastructure to do so. "Often, such interdisciplinary initiatives are serendipitous," he says. "With a bit more attention to those possibilities, TIER-ED will attract people in different disciplines to collaborate. And those collaborations will happen more frequently."

#### NEW HIRES FUEL TIER-ED'S EFFORTS

Though the funding of \$900,000

from the Investment for Growth Program supports the initiative for three years, Lindgren sees TIER-ED as being sustained far beyond that. "Our proposal was based on a 10-year vision," he says. "With the injection of new talent and new resources, we aim to generate revenues through grants and through student tuition that can fuel the initiative well beyond 10 years." Lindgren and TIER-ED's steering committee have used a portion of that funding to make new faculty hires specifically with TIER-ED in mind. After a cluster search that resulted in 160 applicants, the College added Nathan Castillo, Cynthia D'Angelo, and Michael Tissenbaum to TIER-ED's efforts.

"Mike is interested in new learning spaces, in how multiple surfaces and multiple components are synergistic in how they coordinate learning activities," Lindgren says. "Cynthia is interested in simulation and game technologies as a way to facilitate engagement and interactivity with science and engineering content.

She's been using data analytics and artificial intelligence techniques

to gain a better understanding of how students collaborate and work with technological tools. Nathan is interested in areas of literacy and the ways that tablets or laptops can be used in powerful ways to cultivate literate practices among diverse and underserved populations, both here in the U.S. and internationally."

#### MAKING EDUCATION MORE ACCESSIBLE AND EQUITABLE

Nathan Castillo's efforts in the area of literacy dovetail with the College's focus on addressing issues of equity and access for diverse learners.

"There's generally recognition that there's a lot of work that still needs to be done here," Lindgren says.

"We need to design educational environments that appeal to diverse learners, whether that's learners from underrepresented populations, whether it's making the traditionally male-centered content areas more appealing and empowering to females, whether it's allowing people with disabilities to engage with these

Students in Robb Lindgren's DELTA Graduate Seminar exploring an augmented reality project.

topics. It is understanding what it means to design technologies for diverse learners."

#### THE GO-TO PLACE FOR INNOVATIONS

The University of Illinois was the birthplace of PLATO, the first computer-assisted learning environment. Its reputation as a place of innovation in education and in other fields is well established and earned. TIER-ED is cut from that same innovative mold.

"Innovating in the space of educational technology is something that Illinois is accustomed to," Lindgren says. But we needed a burst of momentum to keep that going. "I think TIER-ED is going to have a real ripple effect in terms of people across the nation, and frankly across the world, thinking of the University of Illinois as a place to go for these innovations, as a place to go for where the latest research is coming out, as a place to partner or to solve a particular problem."

#### THE TIER-ED VISION

Lindgren has great hopes for TIER-ED and what it can do. "In five- or 10-years' time, I want the natural instincts of this campus to be to turn to Education and the people who are part of the TIER-ED initiative to help solve problems where technology can provide a solution," he says.

"I want to see a fairly seamless process for brainstorming and designing for those solutions, something that's relatively speedy and impactful to produce a real solution and potentially a design that can be carried into the real world. I also hope this ultimately includes having a dedicated collaboration space on this campus where people naturally gravitate toward to do this type of interdisciplinary work."

TIER-ED investigates how augmented reality, virtual reality, data analytics, multitouch and other interfaces, and online learning platforms can enhance learning in classrooms, museums, and other educational settings.

Lindgren sees a highly integrated system where students are working with faculty members across campus—bucking the norm of one student to one faculty member. "I think the model in the future will be for an undergraduate student to work with faculty across campus, doing the work they're likely going to do once they graduate and enter the workplace or go to graduate school," he says.

And Lindgren has another goal, one that would sustain TIER-ED far into the future. "By the end of this year, as we officially move into the second year of TIER-ED, we will begin thinking more aggressively about making TIER-ED into a center-like entity," he says. "By that time we will have a functional infrastructure for doing large-scale research and design, and we think we can gain external funding for our work."

But what excites Lindgren the most is the opportunity to build effective and practical tools that educators can use to open up new worlds to their students.

"To put it in casual terms, what's cool about TIER-ED is it's giving us an opportunity to build stuff," he says.

"At a College of Education, we have produced a lot of important research.



We will continue to do that, but at the same time we can also be at the forefront of creating tools that can be implemented in classrooms, that can be installed in museums. I was in the Bay Area this past summer where, my team and I installed a museum exhibit that was created at Illinois and is being used by children right now on the museum floor. To be able to actually make things, to put them out in the world and see what happens, to study the impacts, the learning and social effects of doing those things, is awesome."

TIER-ED is helping the College of

Education and the University of Illinois position themselves as leaders in designing cutting-edge educational tools that allow for equitable access to impactful educational experiences. "We've created a fair amount of buzz," Lindgren says. "I was at an international conference over the summer," Lindgren says, "and a number of people came up to me and congratulated me on the hiring of the new faculty. People are noticing we are interested in doing bold new things. They're taking notice of what's happening on our campus."

25



## HOW IS HIGHER EDUCATION MAKING COLLEGE DEGREES MORE ATTAINABLE?

**Eboni Zamani-Gallaher** is the director of the Office of Community College Research and Leadership and associate dean of the Graduate College at the University of Illinois. Zamani-Gallaher spoke with News Bureau education editor Sharita Forrest about the University of Chicago's decision to no longer require applicants to take the ACT or SAT and Facebook's partnership with community colleges.

Q. The University of Chicago recently announced that it will no longer require applicants to submit SAT/ACT scores. Will this potentially make postsecondary education attainable to a broader population of students?

I was pleased to see the University of Chicago's announcement. ACT/SAT scores are not the best predictor of persistence, and they reduce students' merit to a narrow numeric score. These scores can be used inappropriately to evaluate applicants, denying opportunities for many capable students.

Many students from underserved communities cannot afford the costly college prep courses that enable more affluent students to navigate the ACTs/SATs and improve their scores. And due to familial and employment obligations, many students don't have the luxury of focusing on acing these tests.

The University of Chicago's decision recognizes that a student's academic performance throughout high school, civic and community engagement, and myriad other factors are more significant than performance on a four-hour test. Holistic admissions processes take the whole student into account, providing a more balanced and individualized assessment of experiences, capabilities, and potential contributions.

Q. Facebook is partnering with 15 community colleges to offer a digital marketing certificate—and perhaps a full degree—using a curriculum that Facebook developed. Is this a viable alternative for community college students and a potential model for other postsecondary institutions?

Facebook's partnership with community colleges reflects what the two-year sector has always been responsive to, which is industry needs and workforce development. In today's market, businesses' bottom lines are greatly impacted by social media. Hence, it is not surprising that Facebook would develop and offer postsecondary credentials in digital marketing and advertising.

This has been going on for years. Soon after Facebook's announcement, Google announced it was partnering with Jobs for the Future and more than two dozen community colleges—in California, Illinois, Michigan, New York, Ohio, Texas and Wisconsin—to launch an information technology certificate. This is the latest wave of companies collaborating with community colleges to provide professional certificate programs in high-tech, high-demand fields.

# ON-THE-SPOT ASSESSMENT, FEEDBACK, AND SCALABLE METRICS TRANSFORM LEARNING

The real-world results of a two-year National Science Foundation-funded study are starting to emerge through an analytics tool called **Common Ground Scholar**, which aims to end the traditional division between learning and assessment.

The project is a collaboration among several U of I professors including Bill Cope and Mary Kalantzis in the College of Education, as well as ChengXiang Zhai (Department of Computer Science) and Duncan Ferguson (College of Veterinary Medicine).

Cope, a professor in the Department of Education Policy, Organization & Leadership, is the principal investigator on the "Assessing Complex Epistemic

Performance in Online Learning
Environments" project and the lead
designer of CGScholar, which offers
structured feedback from students'
peers as well as computer feedback. In
Cope's view, this new way of learning
could bring about the end of the
traditional division between instruction
and assessment.

"This learning environment creates a community of learners rather than just individual learners, and learners have more control over learning outcomes, with a very precise view of progress at any time," Cope said.

Cope referred to a colorfully charted
Aster plot that revealed the progress
assessment of 97 students who had
mostly completed an eight-week
educational psychology course. The
chart is the result of almost two million
data points and nearly 10,000 pieces
of meaningful feedback that have
contributed constructively to learning

during the class, including the effort students put in and the value of the peer collaboration they have given and received.

Cope said the students have continuous access to their own Aster plots, making progress and assessment more transparent and affording them more responsibility for outcomes.

The NSF study is centered on medical and veterinary medicine students who write analyses of specific cases of sick people and animals, as well as organize evidence and make diagnoses.



Through CGScholar, peers offer their views and revisions about the cases, providing learners with a combination of human and machine feedback. The upshot is that students put together their own case studies rather than having information fed to them.

Cope said the ultimate goal of the program is to produce better doctors by increasing their exposure to real-life situations in the medical field and peer reviews.

■ This study was supported by the National Science Foundation.



Why do some people seem locked in a lifelong battle for self-control while others are so self-disciplined—impervious to overeating, overspending, or binge-watching TV shows when they feel pressured?

Americans believe they have less stamina for strenuous mental activity than their European counterparts—an indication that people in the U.S. perceive their willpower or selfcontrol as being in limited supply, a new study suggests.

More than 1,100 Americans and 1,600 Europeans—including 775 Swiss and 871 German-speaking adults—participated in the study, which tested the validity of a widely used psychological assessment tool called the Implicit Theory of Willpower for Strenuous Mental Activities Scale.

People taking the assessment are

RESEARCH BRIEF

asked to rate their level of agreement with statements such as, "After a strenuous mental activity, your energy is depleted, and you must rest to get it refueled again."

Americans in the study were more likely to indicate that they needed breaks to rest and recover after performing mentally taxing activities, while their European counterparts reported feeling more invigorated and ready to jump into the next challenging task immediately.

"What matters most is what we think about our willpower," said the study's lead author, University of Illinois educational psychology professor Christopher Napolitano. "When we view our willpower as limited, it's similar to a muscle that gets tired and needs rest. If we believe it is a finite resource, we act that way, feeling exhausted and needing breaks

between demanding mental tasks, while people who view their willpower as a limitless resource get energized instead."

Napolitano and co-author Veronika
Job of the University of Zurich sought
to test whether the ITW-M measured
the concept of willpower consistently
across sexes and different cultures.
Participants' scores on the ITW-M
questionnaire were compared with
their scores on similar assessments
that explored their beliefs about
intelligence, life satisfaction, and trait
self-control, which relates to their
ability to rein in their impulses.

The secret to having ironclad willpower lies in believing that you have an unlimited supply of it, Napolitano said.

This study was supported by the Swiss National Science Foundation.

## IMPROVING HEALTH CARE OUTCOMES FOR UNDERSERVED POPULATIONS

Culturally Responsive Evaluation and Assessment (CREA) partnership with NSF's Engineering Research Center integrates research and assessment with technology

Dr. Stafford Hood, director of the Center for Culturally Responsive Evaluation and Assessment (CREA), is the lead evaluator on the PATHS-UP ERC project, which seeks to alter the health standard of underserved populations. It does this, according to its mission statement, by developing "transformative, robust, and affordable technologies and systems to improve health care access, enhance the quality of service and life, and reduce the cost of health care in underserved populations."

Hood has been preparing for the evaluation project for more than a year with **Dr. Denice Ward Hood**, a teaching associate professor in the Department of Education Policy, Organization & Leadership, and Marlon Mitchell, a doctoral student in the Department of Curriculum & Instruction and graduate research assistant at CREA.

"This is an incredibly important project and one that strongly resonates with the core values of CREA and its community," said Stafford Hood.

Members of this CREA team have served as evaluators on current and past NSF-funded projects and grant-funded projects by other organizations, but this marks the first CREA collaboration with an NSF Engineering Research Center, which integrates engineering research





and education with technological innovation to transform prosperity, health, and security in the U.S.

As the project develops, Denice Ward Hood said her team will provide the necessary guidance to achieve the project objectives through the lens of culturally responsive evaluation.

"The formative evaluation will be reflective of the project team's shared commitment to increase the participation of underrepresented populations in STEM disciplines," she said.

Dr. Olatokunbo Fashola, a research professor at American University (and CREA affiliate researcher), is collaborating with the Hoods and Mitchell as an evaluator. The PATHS-UP team is headed by Dr. Gerard L. Coté, a recipient of the Charles H. and Bettye Barclay Professorship in Engineering and James J. Cain Professorship in Biomedical Engineering at Texas A&M University. Other project collaborators

include partners from the University of California at Los Angeles, Florida International University, and Rice University.

Stafford Hood and Denice Ward Hood have significant experience conducting multiyear, large-scale evaluations and managing project workflow. Toward the end of 2017, they began the role of external evaluators of the University of Chicago's NSF-funded Diversifying Future Leadership in the Professoriate grant. The goal of that project is to increase the diversity in computing at research universities by increasing the diversity of Ph.D. graduates from the top producers of computing faculty.

This study was supported by the National Science Foundation and Texas A&M University.



#### **Practices Integrated across Mathematics, Engineering** and Science (PrIMES)

PrIMES will facilitate the unification of new standards and effective pedagogy with a focus on developing a deep understanding of the math and science/engineering practices using the context of engineering. Project partners include the College of Education, College of Engineering, College of Agricultural, Consumer, and Environmental Sciences, College of Liberal Arts and Sciences, University of Illinois Extension, rural and urban school districts, and industry partners. Project goal: develop a series of high-quality, integrated professional development activities for K-8 teachers.

PI: Barbara Hug. Curriculum & Instruction

Co-Pl's: Susan Gasper (UI Extension); Samantha Lindgren (MSTE); Meghan McCleary (UI Extension); Joseph Muskin (Engineering) Funder: Illinois State Board of Education



#### **Underrepresented Student Learning in Online Introductory STEM College Courses**

This research explores how students who are traditionally underrepresented in STEM can use online platforms to support their learning and persistence. The project also seeks to identify how learning and persistence is sometimes undermined by online environments. Project partners include the College of Education and College of Engineering. Project goals: develop theory-driven and empirically supported motivations for improved course (re)design, timely and potent student interventions, increased retention, and improved learning outcomes.

#### PI: Michelle Perry, Educational Psychology

Co-Pls: Carolyn Anderson, (Educational Psychology); Lawrence Angrave, (Computer Science); Suma Bhat, (Electrical & Computer Engineering) Funder: Institute of Education Sciences, U.S. Department of Education



RESEARCH BRIEF

#### **Strengthening Anti-Racist Leaders to Advocate for Racial Equity Amongst Political Uncertainty**

Racial inequities in education persist in part because the solutions that districts and schools choose to employ largely ignore why and how institutional and structural racism is the root cause of inequities in education. Yet, racial inequities in schooling can be redressed if districts and schools have leaders who are deeply committed to combatting racism in their daily practice and structures of schooling. Therefore, this conference expands research on anti-racist educational leadership by identifying what type of capacity-building is needed for school administrators to facilitate anti-racist change in their schools.

PI: Anjale Welton, Education Policy, Organization & Leadership **Funder: Spencer Foundation** 



#### **Early Childhood Collective (ECC)**

Prime Funder: U.S. Department of Education

Operated by the Department of Special Education, Early Childhood Collective is comprised of six projects that receive ongoing support from a combination of state and federal funding. ECC projects provide important training, information dissemination, and infrastructure in support of early childhood education in Illinois. They are well-established sources for evidence-based information for families, teachers, early interventionists, administrators, and policymakers.



Illinois Early Childhood Asset Map (IECAM) provides a comprehensive picture of early care and education services by combining demographic data and early childhood program data. IECAM offers reports and statistical information that provide a birds-eye view of data related to risk factors for the state of Illinois.

PI: Dawn Thomas, Co-PI: Catherine Corr, Special Education, Funder: Illinois State Board of Education



Illinois Early Learning Project (IEL) offers information and resources that improve school readiness. The resources are available to families, child care providers, and to early childhood and kindergarten professionals in all settings. IEL reaches diverse audiences in Illinois and the world through its website and through the distribution of digital and print resources.

PI: Bernadette Laumann, Co-PI: Michaelene Ostrosky, Special Education, Funder: Illinois State Board of Education



Illinois Families and School Success Project (IL-FSS) provides families and school personnel (PreK-grade 12) with evidence-based information and resources that focus on family and school engagement. The resources are aligned to the Illinois State Board of Education Family Engagement Framework.

PI: Bernadette Laumann, Co-PI: Michaelene Ostrosky, Special Education, supported by federal pass-through dollars under the Every Student Succeeds Act



Early Intervention Training Program (EITP) is a statewide professional development training program for early intervention professionals. The program provides pre-service and inservice training for early interventionists, including service coordinators, providers, and other stakeholders supporting young children and families in the Illinois Early Intervention System. PI: Ostrosky, Michaelene, Co-PI: Tweety Yates, Special Education, Funder: Illinois Department of Human Services,



Illinois Early Intervention Clearinghouse (EIC) is a free, state-funded lending library that identifies and collects research-based and best-practice early intervention and early childhood information, including resources useful for caregivers of children with

PI: Megan Burke, Special Education, Funder: Illinois Dept of Human Services, Prime Funder: U.S. Department of Education



Military Families Learning Network Early Intervention Team (MFLN) is a national professional development training program for family providers serving military families and their young children with or at-risk for disabilities. The Family Development Early Intervention team within the MFLN is a newly funded project that supports the unique needs of professionals who serve military families and their children with disabilities and developmental delays. PI: Rosa Santos Gilbertz, Co-PI: Michaelene Ostrosky, Special Education, Funder: Auburn University, Valdosta State University, Prime Funder: U.S. Department of Defense

#### **UNDERGRADUATE EDUCATION IMPACT AND**

## STUDENTS +

Our programs prepare leaders to succeed in the public and private sector—from classrooms to boardrooms-worldwide.

Our teacher licensure programs equip students with the knowledge and skills needed in today's classrooms. With our focus on diversity, technology, and indepth field work, students are prepared to succeed in complex environments.

The Bachelor of Science in Learning & Education Studies (LES) degree offers four areas of concentration: Applied Learning Science, Digital Environments for Learning, Teaching & Agency, Education Equality & Cultural Understanding, and Workplace Training & Development. Our graduates have attained jobs with employers such as The Walt Disney Company, Goldman Sachs, Bell Helicopter, LiveNation in Chicago, and the Northwestern University Center for Talent Development.

#### 2017-18 BY THE NUMBERS

Undergraduate students enrolled in the College

340

Education bachelor's degrees awarded

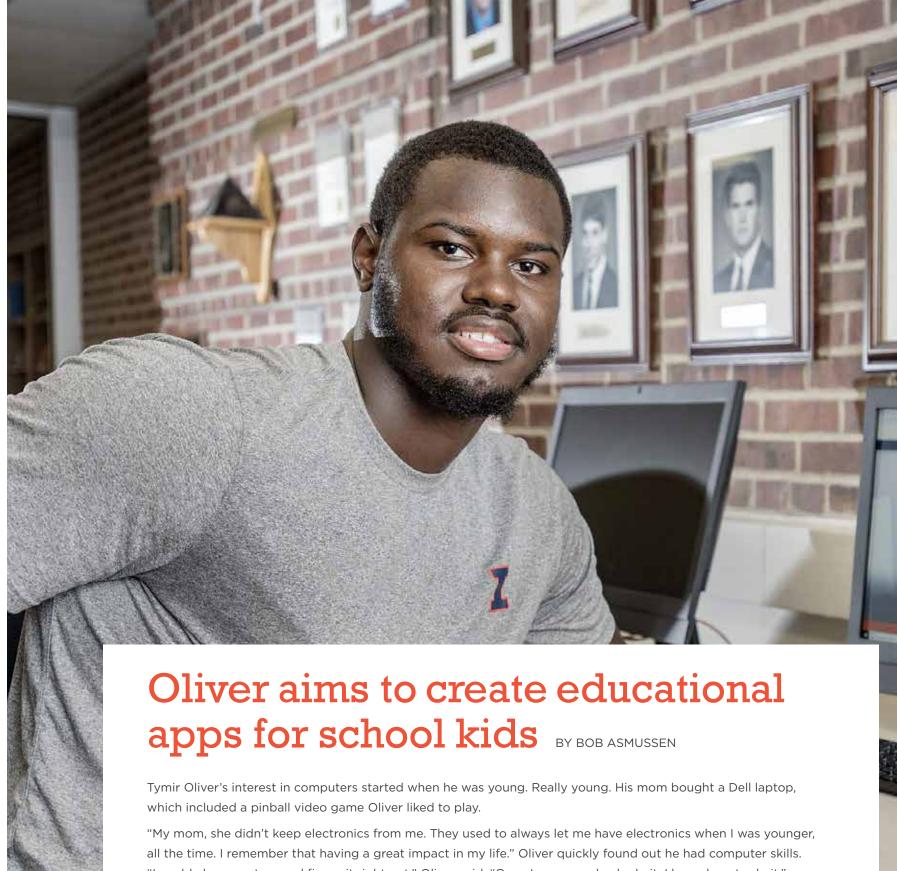
106

Secondary education minors awarded

34.5% 27.85

Undergraduate students from underrepresented populations

Average ACT score of our incoming freshmen



"I could always get on and figure it right out," Oliver said. "Once I saw somebody do it, I knew how to do it." My plan is to create a LeapFrog-type of thing for younger kids," Oliver said. He hopes to have the first one done by the spring.

Excerpted from The News-Gazette, August 26, 2018 Photo by: Rick Danzl/The News-Gazette

Tymir Oliver is taking courses in the Digital Environments for Learning, Teaching and Agency concentration in the Learning & Education Studies major.



#### Chicago Public Schools teacher Amanda Fagenson is recognized by peers for her teaching skills

Twenty-three-year-old Amanda Fagenson is no different than many other first-year teachers.

At the start of the 2017-18 school year at Avalon Park Elementary School in the south side of Chicago, she had the typical concerns: What will it be like to officially manage her own classroom? How will the communication with the students' families go? Will she make a positive and effective first impression on the students? And how will she balance her work and personal life?

But the College of Education at Illinois prepared Fagenson well as a secondary education minor, and she is creating quite the buzz in Chicago Public Schools (CPS). Earlier this year, the social studies teacher was selected as one of four CPS educators to be observed in her classroom by peers and colleagues.

Fagenson was told by Avalon Principal Takeshi M. James that none other than the chief executive officer of CPS, Janice K. Jackson, wanted to observe her teaching.

While many new teachers would feel nervous about this level of scrutiny, Fagenson was comfortable. She was formally observed six times as a student teacher, and because the Danielson Framework used for the College's supervision and evaluation helps teacher candidates feel at ease being observed, Fagenson was prepared.

Fagenson was drawn to teach because of her mom, who taught kindergarten. Before coming to Illinois, Fagenson had opportunities to assist in her mother's classroom and even substitute. As cute as the kindergarteners were, she knew she was destined to educate middle-school children.

"When students feel known, cared for, and empowered in a classroom, we are better able to construct a learning environment that is engaging, supportive, productive, and equitable."

According to James, Fagenson is helping develop youth through "rigorous tasks" and by giving them a voice in the classroom. She said it's been wonderful to have Fagenson as a teacher on the staff.

#### "We can show them the future."

- Allison Witt, Director of the Office of International Programs

### Innovators in Education Camp offers teenagers hands-on look at future teaching

Guiding the career paths of potential future teachers, early on, was one reason Kathy Ryan, assistant dean for academic affairs, and Allison Witt, director of the Office of International Programs, started the **Innovators in Education** 5-Day Camp held each summer at the College of Education.

Campers discussed education practice in some of the highest-ranking K-12 schools in China, Finland, and Singapore and utilized cutting-edge technology in the College's iFLEX classrooms, which included teaching an English lesson to students in Indonesia.

"We can show them the future," Witt said. "This is the future of teaching here, and that's really what they need to see in order to make an accurate decision about their career. They need to see what it's going to look like in 10 years, and this is where you see that. And it's how you know you want to be a teacher."



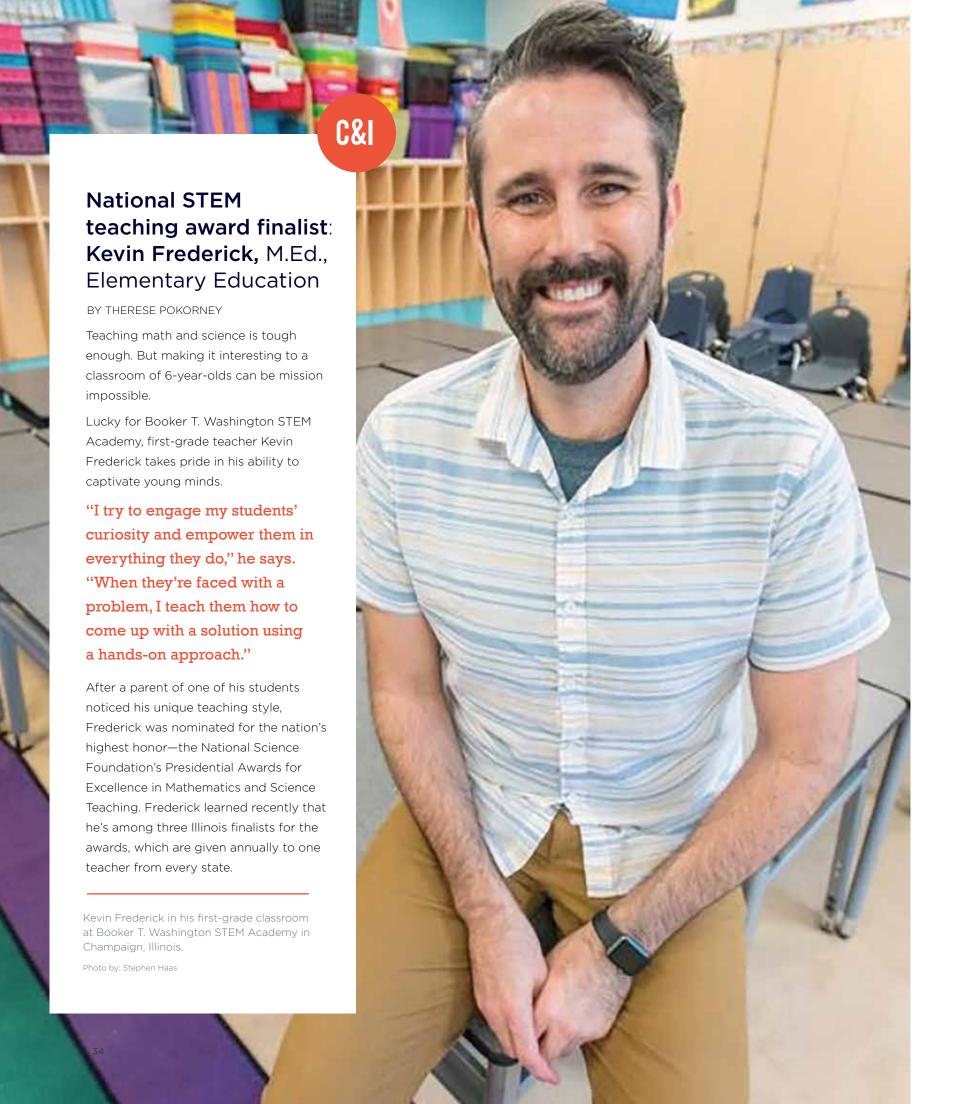
#### Preparing Students to Teach and Lead in a Diverse, Globally Connected World

Education students are unique in that they are part of a profession that is future-oriented.
Educators develop future citizens of the world and it is important that they are equipped to instill global competency in their students.

Through engagement with international students, institutional partnerships, programming, study abroad opportunities, and research with visiting scholars, we prepare globally conscious citizens, teachers, administrators, researchers, and policymakers to confront the global challenges and embrace the worldwide opportunities of our time.

# EACH EDUCATION UNDERGRADUATE IS ELIGIBLE FOR A \$500

STUDY ABROAD SCHOLARSHIP



#### **GRADUATE EDUCATION IMPACT AND**

## STUDENTS+

Our graduate students exemplify leadership in educational research and practice across disciplines.

Our world-class programs prepare master's and doctoral students to address the most challenging issues in education. Faculty provide opportunities for students to participate in grant-funded research and hone their skills as researchers.

Our annual **Graduate Student Conference** builds networks among faculty, colleagues, advanced undergraduate students, and graduate students within the field of education. We strive to introduce new scholars to the important role that academic conferences will play in their scholarly endeavors; to create a lively forum for budding scholars to present their ideas; and to serve as a bridge between sharing scholarship within the College of Education and the broader field.

#### 2017-18 BY THE NUMBERS

499

On-campus graduate students

115

Master's degrees awarded Summer 2017-Spring 2018 69

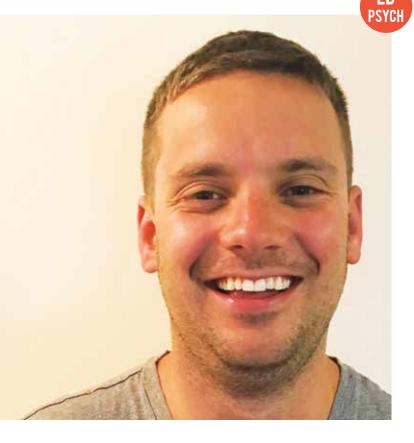
Doctoral degrees awarded Summer 2017-Spring 2018

19%

International student populations

29%

Graduate students from underrepresented populations





#### Wesley Crues, Ph.D. candidate, Educational Psychology, QUERIES Division

#### Q. What is the focus of your research?

A. I focus on developing and using data and text-mining methods to understand the replicability and reproducibility of educational research and to understand student behaviors in online educational environments.

#### Q. Have you received awards or recognition for your work?

A. Besides several college and departmental awards like the Jeffrey Tanaka Award, I was awarded a travel award by the International Educational Data Mining Society to present my work in 2017 in Wuhan, China.

#### Q. Any publishing activity?

A. I have published papers in ACM Transactions on Computing Education and in proceedings of the following conferences: Proceedings of the International Conference on Educational Data Mining in 2017 and 2018; ACM Conference on Learning@Scale in 2018; and Proceedings of Technology, Mind, and Society 2018.

#### Q. Why is the College of Education right for you?

A. In the Educational Psychology department, I have the opportunity to determine my own research interests and develop a unique path. I was able to take courses from several departments on campus and forge collaborations with many different researchers. It's an environment that supports and nurtures future scholars.

#### **Laurie Andrews,** Ph.D. candidate, Special Education

#### Q. What is the focus of your research?

A. I am focusing on special education teacher preparation. I will be examining special education student teachers' opportunities to engage in high-leverage teaching practices during the student teaching experience. The purpose is to maximize clinical experiences so that early-career special education teachers are well prepared for the demands of being a special educator.

#### Q. Have you received awards or recognition for your work?

A. I received a University Fellowship for the 2016-2017 academic year.

#### Q. Any publishing activity?

**A**. Yes, I published the article, "Teacher Shortage in Special Education" with Dr. Jeffrey Anderson and Dr. Lisa Monda-Amaya in the journal *RETHINKING Behavior*.

#### Q. Why is the College of Education right for you?

A. The Department of Special Education Department at Illinois is an extraordinary place. Building its foundation of groundbreaking research, distinguished faculty provide students with opportunities to participate in innovative, rigorous, and important research. At the same time, the faculty creates a collegial environment that supports and nurtures future scholars.

Leslie Morrow on teaching inclusive history in schools

BY SHARITA FORREST

Leslie K. Morrow, a doctoral student in the Department of Education Policy, Organization & Leadership, is the director of the Lesbian, Gay, Bisexual and Transgender Resource Center. She spoke with News Bureau education editor Sharita Forrest about a bill in the Illinois Legislature that would require history curricula in Illinois public schools to include discussions of prominent people who had disabilities or were lesbian, gay, bisexual, transgender, or questioning.

### Q. What historical events might exemplify an inclusive curriculum or how might discussions of events that are studied currently change under such a curriculum?

A. The Harlem Renaissance movement in the 1920s and 1930s is a wonderful addition to an inclusive history curricula. But so often history lessons about it are stripped of the queerness within that time and that community. Learning about those aspects of it would have really helped the younger me.

The continued omission of LGBTQ history by default rewrites and sanitizes history, mis-educating our students. This is damaging to all students and negatively impacts school climate because LGBTQ issues remain underexamined and misunderstood.

"Growing up, I was desperate for images and information about LGBTQ people to figure out who I was. I wasn't able to read a textbook or sit in a class and hear positive things that reflected all aspects of my identity—black, female, queer. I didn't encounter an inclusive curriculum until I was in graduate school."

Critics of the proposed law say that children are already learning about the accomplishments of prominent people who were or may have been LGBTQ, so why the need to bring their sexual orientation into the conversation?

We're not providing a complete picture of these individuals if we're not talking about all aspects of their identity, including their sexual and gender identity.

Students learning about amazing women such as poet/feminist/civil rights activist Audre Lorde or writer/activist June Jordan are not seeing the entire person if we're rendering their sexuality invisible. That takes away the opportunity for a student to think, "I can dream, I can achieve and be queer."

Photo by: Brian Stauffer



## Illinois' College of Education the first to offer an Instructional Design Certificate Program through Coursera

Denice Ward Hood started working with online courses and programs in 2002. Her tools, she jokes, were like a stone tablet and a chisel compared to today's technology.

"Now, it's amazing," says Hood, who is the director of online programs in the College of Education. "We were just dreaming back then about what we're doing now. There's so much we can do now."

One significant example is the launch of the online Instructional Design MasterTrack™ Certificate program through Coursera, a company that partners with top universities and organizations to offer courses online. Coursera lists more than 2,000 courses—109 of which can be taken at the University of Illinois." Illinois and Coursera have formed a strong bond that is mutually beneficial.

#### First-ever Instructional Design Program on Coursera

"This is quite prestigious for us," says Hood, an associate professor in Education Policy, Organization & Leadership (EPOL). "We will be the first, and the only, instructional design MasterTrack certificate that Coursera offers, and that's important."

The idea for collaborating on a program with Coursera started with College of Education Professor Bill Cope over two years ago. A proposal went through the department, college, and university approval processes, and the idea was pitched to Coursera.

"In their market research, they were finding a lot of interest for freestanding certificates," Hood says.

"We have the expertise in instructional design, and there's a demand for it.

It will meld nicely with our online master's and doctoral programs."

"There are many more instructional design positions than there are people to fill them," Hood says. "There's a gap in terms of training and skillset, so filling in that gap is important."

#### A history of leading with online education

The College of Education has been offering online courses since 1998 and has long been a leader in producing online courses and programs at the University of Illinois. "We are the first on campus to have an online doctoral program," Hood says.

As director of online learning, Hood's vision includes growing the College's online programs "and doing that in a way that maintains the quality that we have," she says. "That gives us an opportunity to push out and develop new ways of thinking about teaching and learning, and being able to study that will help us process in a systematic way so that we are continuing to innovate and attract graduate students and faculty that want to work in this area.

"We're breaking new ground for the College of Education, which is really exciting. We have a chance to do something that's innovative ... something that will also have a real impact educationally, socially, and professionally."

#### ONLINE & OFF-CAMPUS PROGRAMS

#### **Doctoral Degree Programs Concentrations:**

- Diversity & Equity in Education
- Global Studies in Education
- Human Resource Development
- Learning Design & Leadership
- Educational Administration & Leadership

#### **Master's Degree Programs Concentrations:**

- Diversity & Equity in Education
- Global Studies in Education
- Human Resource Development
- Learning Design & LeadershipEducational Administration & Leadership

#### - Laucational Administration & Leadership

- Educational Administration & Leadership
- Educational Administration & Leadership: Teacher Leader Specialization
- Educational Administration & Leadership: Principal Preparation

**Certificate of Advanced Study Concentrations:** 

 Educational Administration & Leadership: School Executive Leadership

#### **Endorsement Programs:**

- Bilingual & English as a Second Language (ESL)
- Technology Specialist

#### **Certificate Program Concentrations (Non-degree):**

- Diversity & Equity in Education
- Global Studies in Education
- Human Resource Development
- Learning Design & Leadership
- Instructional Design Mastertrack Certificate Program

#### 2017-18 BY THE NUMBERS

526

Online and off-campus enrolled graduate students

11.8%

International student populations

35%

Graduate students from underrepresented populations



### Human Resource Development Online Program Tops in Nation

Sometimes the success of a program is revealed in the smallest of numbers. As in the number 1, which is the public institution national ranking for the University of Illinois' online master's program in Human Resource Development from TheBestSchools.org, a strong voice in higher education online programs. That top ranking comes as the program celebrates its 20th anniversary in 2018, and is the result of many strengths, says program coordinator Wenhao David Huang, an associate professor in Education Policy, Organization & Leadership (EPOL).

"Our faculty is a major strength for the online HRD program," Huang says. "Among us there are more than 70 years of experience in leading research and practices in the field of human resource development. Our faculty is known for their expertise in training and development, organization development, and career development in organizations."

## RESEARCH IMPACT AND OUTREACH +

Our mission extends beyond our classrooms and campus. We make a difference in people's lives locally, nationally, and globally by invigorating outreach informed by our commitment to community and rigorous research culture.

Center for Education in Small Urban Communities serves as the liaison for school-university partnerships.

Center for Culturally Responsive
Evaluation & Assessment (CREA) brings
together scholars and practitioners around
issues of cultural context in evaluation and
assessment.

The Early Childhood & Parenting Collaborative provides research and resources for educating and raising young children.

**Education Justice Project (EJP)** expands higher education within American prisons.

Forum on the Future of Public Education disseminates credible information on key questions facing P-20 education.

#### Illinois New Teacher Collaborative

provides statewide leadership for promoting new teacher induction and mentoring programs.

The National Institute for Learning Outcomes Assessment (NILOA)

surveys the national landscape of higher education learning outcomes.

#### Office of Community College Research & Leadership (OCCRL)

studies policies, programs, and practices designed to enhance outcomes for diverse youths and adults who seek to transition to and through college to employment.

Office for Mathematics, Science & Technology Education (MSTE)

enhances student achievement and teaching performance in math, science, and technology.

#### **University Primary School (UPS)**

is a pre-K through fifth-grade Reggio Emilia-inspired lab school.



# Illinois-Microsoft partnership to create opportunities for students with autism BY SAL NUDO

The Department of Special Education is one of several units on campus that is collaborating on the Accessibility Lighthouse Program with Microsoft, which is looking to employ more students with autism by creating a University of Illinois-to-Microsoft hiring pipeline.

Microsoft is investing \$200,000 in the one-year program, which launched June 4, 2018.

#### "Making our university a place where every individual can succeed that's the goal."

Associate Professor Hedda

Meadan-Kaplansky will lead Special Education's efforts in conjunction with The Autism Program (TAP), working with colleagues to help students with autism earn more technology degrees and work at Microsoft.

"Making our university a place where every individual can succeed—that's the goal," Meadan-Kaplansky said.

Meadan-Kaplansky and her colleagues will be developing and providing training and resources for faculty and peers on best practices for working effectively with students and co-workers who are on the autism spectrum.

The collaborators will also develop an on-campus version of the Lighthouse program, providing the supports and services necessary to recruit promising students on the autism spectrum, and supporting their growth and development so they are prepared for the workforce after graduation.

Given the recent statistics on autism, Meadan-Kaplansky said such efforts are needed more than ever. According to a 2018 report by the Centers for Disease Control and Prevention (CDC), one in 59 children are diagnosed with autism spectrum disorder by age 8, an increase of 15 percent since 2012.

Just as alarming, the report says the national numbers likely "reflect a persistent undercount of autism's true prevalence among the nation's children."

Over the years, Special Education scholars have been heavily involved in studies related to autism.

Currently, Meadan-Kaplansky is working on a project that promotes communication development of young children with autism and other developmental disabilities.

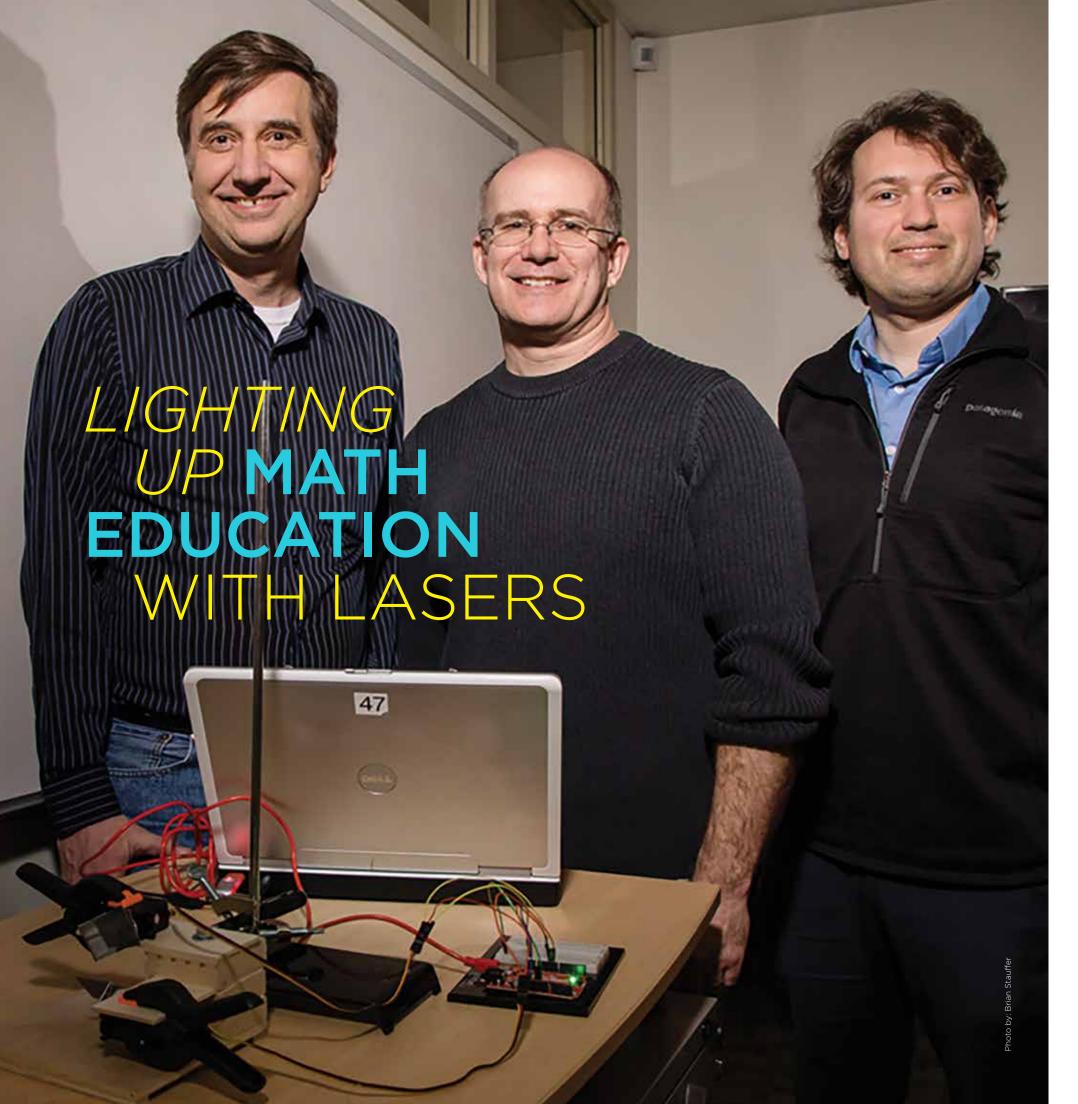
She is also collaborating on the development of the Family Behavior Support App, with the goal of supporting parents in implementing interventions with their young children with disabilities and challenging behaviors at home.

Researchers in Special Education are also working on projects with the University of Birmingham to understand the needs of culturally and linguistically diverse families with children with autism in the U.S. and U.K.

Microsoft is likewise engaged with individuals with autism and recruiting them in its workforce. Meadan-Kaplansky said the company wants to enhance that effort by building a relationship with a renowned university that is widely known for its inclusivity toward those with disabilities. The College of Applied Health Sciences and the Department of Computer Science are also involved with the Accessibility Lighthouse Program.

"I think the collaboration with Microsoft will make this project stand out," Meadan-Kaplansky said. "It's not just the educational preparation but also the pipeline of jobs waiting for some individuals, so it's going to be very unique and helpful."





### Using laser light shows to engage middle-school students in mathematics and design thinking

BY SHARITA FORREST

Laser light shows are no longer just the stage dressing for rock concerts. They're also a fun way for local middle-school students to learn the fundamentals of mathematics and computer programming.

University of Illinois faculty members in education and engineering have teamed up on the project, adapting a "homemade" laser light show machine and using it to teach coordinate math to students at Urbana Middle School.

The lessons introduce students to the same math concepts delineated in the state learning standards but in an engaging, entertaining way, said Adam Poetzel, an instructor of mathematics education in the Department of Curriculum & Instruction and one of the faculty members collaborating on the project.

Poetzel, who taught math for 10 years at Champaign Central High School before joining the faculty at Illinois, created the lesson plan for the laser light show activity to show skeptical middle-school youths that the math they're learning has exciting applications beyond the classroom.

"As a math teacher, I know that kids often ask: 'How will I use this in real life?'" Poetzel said. "When they use math in an activity that has real-world applications, it elicits that response I'm looking for: 'Wow, I didn't think you'd get to do something cool like this with math!"

The students create a design of their own choosing, such as a heart or a star, and plot the coordinates on graph paper, then write a short piece of computer code that enables the laser to trace those points and create a light show of their design.

"We saw in the classroom that some designs worked on the first try and were exactly what the student predicted, but there were others where something wasn't quite right," said **Joe**Muskin, a visiting education coordinator in mechanical science and engineering at Illinois who is collaborating on the project. "But that's a good challenge, too, because the student has to go back and review their plan and think, 'Did I plan appropriately? Was I careful in how I coded?"

"Those are some really good teachable moments—when their laser light show design does not correspond to what the student thought it would," Poetzel said. "That's when the real learning happens sometimes, because the student has to think more deeply about how to fix the problem."

During the summer, Muskin, Poetzel, and Arend van der Zande, another collaborator on the project, shared the curriculum with technology teachers in Champaign schools, with educators who attend summer workshops at the U. of I. and with preservice teachers at the university to encourage them to use it with their students.

## AMPLIFYING BLACK GIRL GENIUS

BY KIM SCHMIDT

Profoundly transformative. That is how Associate Professor Ruth Nicole Brown describes the impact of working with middle-school girls for the past ten years. They have transformed her life.

Of course, over those years Ruth Nicole has changed many lives herself. After years of volunteering with young people, she founded Saving Our Lives, Hear Our Truths (SOLHOT), an organization that celebrates black girlhood through gathering, art, music, and more. In Ruth's words, "We create the conditions where we can follow a black girl into the unknown."

"My research is all about creating the conditions to celebrate black girlhood and then analyzing what happens when that is possible—from the girls' perspective as well as the adults involved," said Brown, an associate professor in the Department of Education Policy, Organization & Leadership. "When we are working in that space with everybody present, it is fundamentally transformative and energetic. It's in the really small things. It's in the laughter, it's in the joke we didn't expect. It's in the interruption that happens and the collective response to that."

Instead of beginning with the assumption that the adults are there to offer guidance and wisdom, Ruth Nicole explains that SOLHOT "is really about relating to black girls as experts of their own lives. Part of the work we do as homegirls in SOLHOT

is to unlearn everything we've been taught about what it means to be in relationship with someone younger than ourselves."

Brown recently received a prestigious Whiting
Public Engagement Fellowship from the Whiting
Foundation to help expand the reach of Black Girl
Genius Week, a week-long series of events that
grew out of the practice of SOLHOT. During this
annual event community members, scholars, and
previous participants from across the country join
Brown and her current SOLHOT girls in a series
of lectures, scholarship, teach-ins, music, dancing,
and celebration.



BLACK GIRL GENIUS WEEK
(BGGW) is SOLHOT's weeklong
event of creation, celebration,
and knowing, all in honor of black
girlhood and its collective genius.
BGGW consists of teach-ins
about the work of SOLHOT and
Black girlhood, studio sessions,
concerts, house parties, video
shoots, and actual SOLHOT
sessions at high schools and
middle schools in the area.





# EDUCATION IMPACT AND OUR ALUMNI+

## We are proud of our over 34,000 alumni and the impact they are making worldwide.

Our alumni are some of the most respected and accomplished education leaders in the world. University presidents, charter school founders, international literacy experts, and more—our alumni are leading educational change, shaping policy and practice, and influencing the next generation of educational leaders.

In March of 2018 we held our annual Distinguished Alumni and Young Alumni Achievement Awards and honored nine education graduates who exemplify the kind of excellence people have come to expect of our alumni. Each honoree had a unique story and career path, but all credited the College of Education for nurturing their research interests and providing them with a rock-solid foundation for their future success.

**Raúl Alberto Mora**, M.A. '04 C&I, Ph.D. '10 C&I, a Fulbright Scholar in the College of Education as a graduate student and a recipient of the William Chandler Bagley Scholarship, was honored with the 2019 Divergent Award for Excellence in 21st Century Literacies by the Initiative for 21st Century Literacies Research.

The two-time College of Education alumnus was recognized by the organization for his work as chair of the Literacies in Second Languages Project (LSLP), which consists of a student research lab that explores various theories and concepts in literacy and attempts to rethink and adapt them in the context of second-language education. Mora resides in Medellin, Colombia.

## Blending Art, Science, and Service—

BY GINA MANOLA

#### **Special Education graduate Tim**

Meyers is a self-described "public-media nerd" who thrived while working at Illinois Public Media. While at the nonprofit station as a producer and director, he helped share stories that reflect the people who make the east central Illinois communities of Champaign-Urbana so special.

Meyers successfully pursued a career in film and video production after receiving a Bachelor of Science degree from the College of Media at Illinois in 2010. But it was his experiences as a high school student working with special-needs kids at the local park district in northern Illinois that inspired him to return to Illinois to attain a master's degree in special education.

"I found myself working more and more with education and individuals with disabilities whenever I could," Meyers says.

In 2015, he decided the time was right to pursue a master's degree and special education teaching license, so he applied to the graduate program in the Department of Special Education.

Meyers says one of the best qualities of the learning behavior specialist I (LBSI) program at the College of Education is the range of practicum experiences students are given. He has also been able to teach a diverse population of students.

"I've worked with students from first to 12th grade who have a wide range of disabilities at four different schools in Champaign and Savoy. That's more experience than many students get in other teacher preparation programs.

"Being a student in the College of Education has absolutely made me a better teacher and mentor. The faculty and staff have been incredibly warm and supportive throughout my entire program, and the level of experience and support everyone provides is incredible."

Pursuing his education and training in special education has allowed Meyers to sustain his passion for filmmaking, a hobby he feels fortunate to share with friends in Champaign-Urbana. The local C-U Film Society and Pens to Lens were founded by some of those friends,

and Meyers has assisted the latter group as a board member since 2014.

In addition to bringing screenwriting and filmmaking to K-12 students in east central Illinois, Myers has served as a mentor with the C-U One-to-One mentoring program for the past three years.

Myers doesn't see a need to compartmentalize his love of film with his passion for teaching, and he is able to apply the tools and sensibilities he developed as a filmmaker to his teaching experiences.

"Just like filmmaking, teaching is part science and part art, and the balance between technical skills and creativity," he says.

Myers is a special education teacher at Jahn School of Fine Arts in Chicago.

Meyers received the Special Education Student award and the JoAnn Bargiel Eisenberg Scholarship.





The O'Leary Learning Center will open in the summer of 2019, thanks to the generous donation of Illinois graduates **Richard and Ann**O'Leary, who contributed \$1.5 million to the project.

Richard earned a bachelor's degree in Liberal Arts & Sciences from Illinois in 1955 and a law degree in 1963. Ann earned a bachelor's degree in 1956 from the College of Agricultural, Consumer and Environmental Sciences.

The approximately 4,400 square-foot space will have state-of-the-art math and science labs and a live teaching studio for online instructors, a space that will make the online learning experience much more personalized and natural for students and professors. Those who use the center will experience enhanced collaboration of interdisciplinary research projects, an improved online learning space, and enriched STEM instruction in cutting-edge labs.

"We want to challenge our students to come together and apply their diverse backgrounds and expertise to imagine, design, and innovate the future of learning. We want to provide students with an exceptional environment that inspires them to collaborate, to use technology, and ultimately contribute to addressing the grand challenges in education."

- Gabrielle Allen, Associate Dean for Research



#### Innovator in Iceland

Alumna and Iceland native
Jóhanna Einarsdóttir '76 C&I,
Ed.M. '77 Ed.Psych., Ph.D. '00 C&I, said
her time at Illinois transformed her from
a practitioner in the education field to a
bona fide researcher.

"I was the first person in Iceland who had a doctorate in early childhood education," said Einarsdóttir, who earned a teaching certificate in her home country in 1974. "When I came back with my degree, I kind of became a leader in the field. Having a degree from Illinois ... it's a university that is well known worldwide and people look up to it highly. So it has opened many doors, especially in international collaborations."

Einarsdóttir has been involved in several international projects as a researcher and as a consultant, publishing collaboratively with colleagues from Europe, the U.S., and Australia. She has served as a board of trustee on the European Early Childhood Education Research Association since 2012 and is an expert in educational transitions, children's perspectives, and action research.

Einarsdóttir is one of nine 2018 Distinguished Alumni honorees.



#### Passionate Historian Forever an Illini

#### Alumna Linda Marie Perkins.

Ph.D. '78 EPS, has a long and storied connection to the University of Illinois

Her journey is notable for its breadth of searching and discovery—leading to the moment when Perkins knew exactly what she wanted to pursue.

"Illinois has just been so pivotal in my life in so many ways," she said.

She earned a master's degree in music education at the College of Fine and Applied Arts in 1973 and remained on campus to work in the Graduate College as a recruiter. Then Perkins landed a position as the first-ever assistant director of the Office of Minority Student Affairs.

While working, she took courses in education and discovered she really liked them—so much so that she quit her job and became a full-time student studying history. One of

her professors suggested she focus on the history of black women's education, a subject she'd never considered before.

Suddenly, Perkins' career path was crystal clear. She began pursuing a doctorate in educational policy studies (EPS), which she attained in 1978.

Perkins remembers EPS as a department that was globally integrated and focused on important social justice issues.

And though there weren't many female educators around during her studies, she felt fortunate to learn from and collaborate with male scholars who treated her as a peer.

In 1991, after having been away from campus for more than a decade, Perkins was invited to return to give a talk. Little did she know she was being recruited to come back and teach at the College of Education. Life as a scholar with her family in California was good, but Perkins decided to return to Urbana-Champaign to continue her distinguished career in academia. She remained on campus as a tenured professor until 1996 and is a lifetime member of the Alumni Association thanks to her father, who paid for the membership because he wanted his daughter to stay connected to the institution that has influenced her life so much.

Perkins is an accomplished historian of higher education for women and African-Americans. An author of two books, she serves as the director of Applied Women's Studies and director of Women's and Gender Studies at Claremont University.

Linda is a generous donor to the College's Funds for Excellence.



With your help, the challenges of the future will be met today. We are raising \$25 million to support our vision for the future of the College of Education at Illinois.

INVEST IN SCHOLARS OUR GOAL: \$2 MILLION

Enhance our ability to conduct groundbreaking research and teach the next generation of education leaders by retaining and recruiting the best faculty in the world.

OUR FOUR PRIORITIES

INVEST IN STUDENTS OUR GOAL: \$18 MILLION

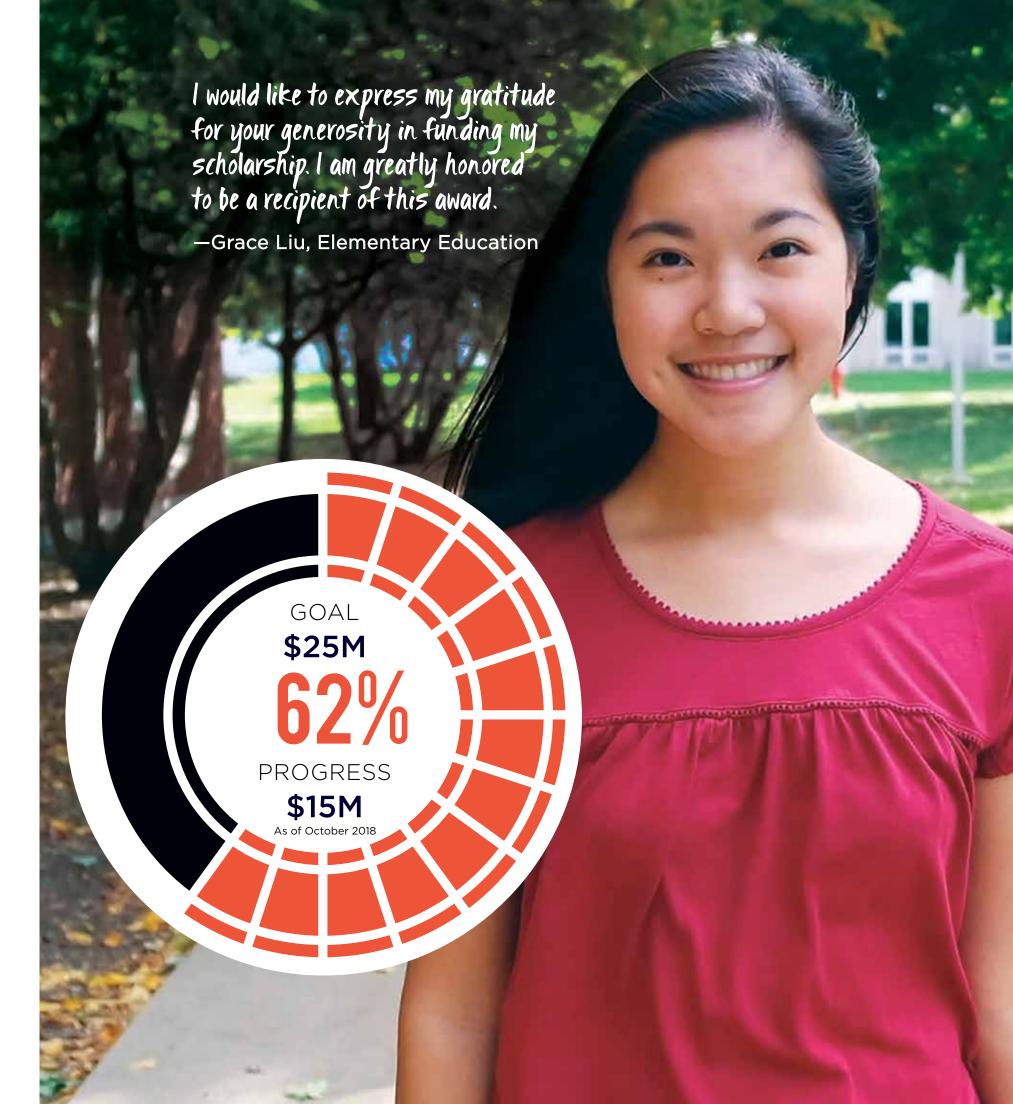
Continue our mission of developing national leaders by recruiting and supporting top students who reflect and embrace the diversity of the communities they will serve.

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EXPERIENCES
OUR GOAL:
\$2 MILLION

Prepare students to succeed in a high-tech, global environment by offering them international experiences and access to today's cutting-edge technologies and learning environments, which jump-start research, teaching, and the student experience.

INVEST IN
RESEARCH &
OUTREACH
OUR GOAL:
\$3 MILLION

Develop new learning, teaching, and assessment models to influence policy and extend education innovation from Urbana-Champaign to the state, nation, and world.





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