

RESEARCH THAT MATTERS 2016–2017

aller W

60

UNIVERSITY of WASHINGTON | COLLEGE OF EDUCATION

ARTNERSHIP

DEAR FRIENDS,

Schools serve as cornerstones of our neighborhoods. Science fairs, school performances and athletic events are celebrations that bring people together in healthy communities. Families and educators beam with pride as budding artists, tech wizards and athletes discover their passions and predictions are made about who will be the next Neil deGrasse Tyson or Serena Williams.

In less healthy communities these gatherings are farther and fewer between. Too many families don't feel welcome in their children's schools or that they are valued partners in their children's learning.

This is a gulf that must be closed.

Decades of research demonstrate that family-schoolcommunity partnerships are essential to keep students on course to achieve their potential. This is especially true for our underserved youth—children of color, those impacted by poverty, immigrants and refugees, young people with special needs—whose families haven't been given a place in school.

As parents, teachers, students, researchers, policymakers and community members, we must engage one another as true, equal partners in education.

We are fortunate here in Washington and across the nation to possess an incredible diversity of people and viewpoints. This diversity can be an invaluable asset for educating our young people, but only if we truly share power with all segments of society in the education of our young people.

In this issue of Research That Matters, we investigate the many ways in which the University of Washington College of Education partners with teachers, school leaders, families, social service agencies and community organizations to unlock the potential of all students.

You'll visit the Puget Sound coastline and learn how Professor Megan Bang is working with Native communities to create powerful learning opportunities that blend STEM and arts education while drawing upon traditional knowledge and ways of understanding the world.

From Highline School District, you'll sit in with teachers, coaches and UW researchers as they co-build a network of educators tackling the most pressing problems of classroom practice—and ensuring every child has access to rigorous and engaging science instruction.

Step into the home of a new dad participating in an innovative program that helps poverty-impacted fathers in King County discover and strengthen their parenting skills, while supporting children's development in their earliest years.



Traveling to Seattle's High Point community, discover how a UW College of Education partnership with Neighborhood House is providing hands-on STEM learning opportunities to low-income, immigrant and refugee youth after the school bell rings.

And finally, learn how UW researchers are working with parents and schools throughout South King County to build equitable interactions that tap into the knowledge and expertise of historically underserved families, creating national models for improved communityschool engagement.

These partnerships address some of the most complex and pressing issues in education. Issues that no single person or entity can solve by going it alone. If we are to

realize our vision of a world where every child has access to a high-quality education, it is abundantly clear that multiple perspectives, skills and capacities must unite and work together for genuine, sustainable solutions.

Equitable partnerships take time to build. Many of the College of Education's partnerships with more than 300 schools, districts, social service agencies and communities go back decades, and over the years we've learned as much (and often more!) from our partners as they've learned from us.

We're especially grateful for how our partners have helped build our knowledge of what great teaching is and how to support it. Research clearly shows the most important school-based factor impacting student achievement is teaching quality, and any long-term, sustainable answer to closing today's unacceptable opportunity gaps must include making great teaching available to all students.

During the coming year, the College looks forward to encouraging public dialogue about great teaching and how we—both in Washington and as a nation—can better support its practice. We hope you'll join us in this important conversation.

Mia Tuan DEAN, UW COLLEGE OF EDUCATION



ALL IN IT ##### TOGETHER ############## P.10





ANTER'S SEAT

RESEARCH THAT MATTERS 5

TELLERS OF A

MEGAN BANG'S STEAM PROJECT ADDS THE ARTS TO STEM—AND REMINDS NATIVE YOUTH THEY WERE AMERICA'S ORIGINAL SCIENTISTS

With the state of

Fern Renville tells about a visioning exercise she shared with a group of young urban Indians at Seattle's Red Eagle Soaring theater company, where she serves as executive director.

She asked the kids to imagine what life would be like if America had never been colonized—if their tribes had simply continued "evolving and adapting and becoming" as they had for thousands of years.

"Most of them said we would have abundant, clean, lovely resources, and a beautiful home," Renville said. "Then one kid said, 'but we wouldn't be educated."

And that's the problem.

"A lot of Indian people believe down deep that our ancestors were primitive savages, with no technology, no science," Renville said. "That's pretty ugly. Megan Bang is helping us have a larger intellectual context for our work changing those stories.

"Every scientist knows that relationship and observation are at the heart of science. We want to make sure Native kids know we were the continent's first and most qualified scientists—through our loving observation and relationship with the land."

DURING A SUMMER STEAM CAMP IN SEATTLE'S DISCOVERY PARK, NATIVE YOUTH LEARN ABOUT THE INTERCONNECTEDNESS OF ECOSYSTEMS, DRAWING ON INDIGENOUS WAYS OF KNOWING AS THEY EXPLORE TIDE POOLS, INCORPORATE MATH CONCEPTS INTO POTTERY DESIGN, AND LIVE-ACTION ROLE-PLAY AS LOCAL PLANTS AND ANIMALS.



PUTTING IMAGINATION BACK IN STEM

Renville's Red Eagle Soaring is one partner in a multifaceted program for urban Indian youth led by Bang, an associate professor at the UW College of Education and a nationally recognized expert on culturally responsive STEM education.

The research, funded by the National Science Foundation, is now in its third year. Centered at Daybreak Star Indian Cultural Center in Seattle's Discovery Park, it also partners with the UW's Institute for Science + Math Education and Alaska Native representative corporation Sealaska. Its goal is to bring culturally relevant STEAM (Science, Technology, Engineering, Arts and Math) programming to hundreds of urban Native families representing more than 30 tribes from the Pacific Northwest and beyond.

The program includes an annual summer camp focusing on hands-on outdoor science education, Red Eagle Soaring's theater group, special "Maker Days" where families come together to experience the work of Native master artists, and weekend Family STEAM days.



" In our culture, we've always used art and science together."

NICOLE TILLOTSEN, SEALASKA COMMUNITY DEVELOPMENT MANAGER

Adding the arts to STEM is key to the project's success, Bang said.

"Our projects are trying to get out of learning science as rigid practices defined by western ways of knowing. We're increasingly trying to provide opportunities for kids to be imaginative and expansive about how they make knowledge about the world. Because science is actually a far more imaginative endeavor than kids are usually led to believe."

A NATURAL FIT, CULTURALLY

Matt EchoHawk-Hayashi is an artist who created a series of infographics about local ecosystems for the STEAM summer camp. He's also a dad of two kids who attend.

"There are so many things my kids love about it. The art programs, the singing—not just music for music's sake, but songs to initiate certain parts of the day. They really get deep into learning about the tides and all the animals. My older son, who's nine, is now an expert in all the native plants in the area.

"It's so affirming for these Indian kids to learn science in a context where their cultural identity isn't just acknowledged—it's celebrated. For most if not all of these kids, this is the only opportunity they have to be with their peers for this much time." "Some kids are really shy when they start out," said Sealaska Community Development Manager Nicole Tillotsen, whose Sockeye Summer Camp was a precursor to the current summer program. "Eventually, they're one of the mentors, showing the younger kids the ropes, and getting more comfortable with educators and adults, which can really help them in their classrooms throughout the year, where they often feel isolated and marginalized.

"In our culture, we've always used art and science together. Our halibut hooks, for instance, are designed for sustainability, to only catch mature fish and not the younger ones. Coming at science from that angle, teaching the importance of Western science and connecting it with the knowledge of their ancestors, makes a very natural fit."

Bang said that reconnecting Native youth to their unique cultural approach to science also has implications for the greater practice of science.

"Getting kids reconnected to engaging in land-based investigations—what is increasingly being thought about as Field STEM—given the challenges like climate change that we face, raises implications for how we need to teach and learn science differently to everyone," Bang said. "Because when people have real relationships with land, they reason differently, they make decisions differently. When we teach kids to value and respect and understand complex ecosystems and people's role in them, that's a meaningful call to action."

CREATING STEAM-POWERED PARTNERSHIPS

"I want people to understand it's not just UW folks designing these programs and then going in and implementing them," Bang said. "Everything we do, from developing protocols to looking at data, is co-designed and fully engaged with community members."







Sealaska's Tillotsen said her organization deeply appreciates that powerful emphasis on equal give and take.

"It's an incredible partnership," Tillotsen said. "It's challenging to find educators who know and understand how to teach with cultural understanding in STEM fields. A socially focused for-profit business paired with an educational institution has so many interesting opportunities to explore. And since it's a research project, we're able to show tangible results and measurements to funders and community partners."

"I would never have partnered with any entity who I didn't feel had a very respectful approach," Renville said. "Where service delivery meets academia, where community meets academia, both parties have a lot to learn. There's no person who's better to partner with than Megan Bang. She's such a powerful advocate for us and for the work—she has the heart of a lion."

CHANGING THE STORY WITH SCIENCE

Renville remembers one kid in the program asking her why they had to do science at all.

"Before I could answer, another kid spoke up and said, 'we don't have to, but we want to. We're Indians, so we're always going to care about this stuff."

That's exactly the shift in mindset that Renville said is so needed.

"Right now, we're doing a play of the creation story of the Snoqualmie tribe. It's about a deity who comes to change the world, to make it ready for the ones to come. That's what these Indian kids are doing right now. Kids who felt stigmatized start to become really proud, and identify the power and strength and resiliency in our culture. They're reclaiming our roles as Indian scientists and thinkers and artists. They're going to be the tellers of a new story."



Hear more from Megan Bang about culturallyresponsive STEAM education and her work with Native youth and watch scenes from a "Maker Day" at Daybreak Star Indian Cultural Center.

education.uw.edu/native-steam



"The tribal fisheries here in the Northwest are leading the globe on research. It would be cool if that field had more Native people in it."

FERN RENVILLE, RED EAGLE SOARING EXECUTIVE DIRECTOR

Building a pipeline of Native scientists

Sealaska Community Development Manger Nicole Tillotsen says partnering with Megan Bang in STEAM education for Native youth is having one important impact that might not be fully felt for decades.

"We're a for-profit company with businesses in environmental services, environmental construction, data analytics, natural resources, and natural foods and seafood," Tillotsen said. "We chose those industries because they're aligned with our core Native values—and they're all within STEAM."

Tillotsen says her goal is to leverage Bang's STEAM program to develop Native youth who are passionate about these industries, and continue to offer support and encouragement as the program's young participants reach high school and college age.

"We have internships and scholarships in these areas. We're wanting to build this pipeline of youth who understand the businesses we work in, and have a background and interest in those things."

RESEARCH THAT MATTERS 9

"The tribal fisheries here in the Northwest are leading the globe on research," said Red Eagle Soaring Executive Director Fern Renville. "It would be cool if that field had more Native people in it. And to see Native people able to participate more fully in our own resources and our relationship with those resources. I'm looking forward to when Northwest fisheries management and response to climate change is deeply impacted by tribal leadership and example—with kids from our program in leadership roles."

IT TAKES AMBITION, TIME AND **EFFORT TO BRING A COMMUNITY** TOGETHER TO PREPARE EVERY STUDENT FOR NEXT GENERATION SCIENCE STANDARDS







ALUNT



It's a special day at Highline District's ACE/Global High School.

Science teacher Alison Thomas's students are tackling osmosis, diffusion, cell transport and other biology concepts in a way designed to make sure every student stays fully engaged with the lesson. They're trying to figure out a mystery—why a fictional character named "Mrs. Strange" died (hint: blame homeostasis).

ESEARCH THAT MATTERS 11







Students meeting biology end-of-course standards increased from 38 percent to 60 percent

But what's even more special is who's in the classroom. Thomas and her dozen or so students are sharing space with three other ACE/Global science teachers, Highline's three district science coaches, UW College of Education Associate Professor Jessica Thompson and UW graduate student Soo-Yean Shim.

By turning biology into detective work, the teacher is using methods designed by Thompson's team and Highline's science coaches to make sure every student in the class has an easy way to make sense of what they're trying to learn.

As the lesson continues, the visitors watch and talk quietly about how the class is going. And when students break into small groups for discussion, everyone pitches in to help.

"If something interesting happens and the teacher wants to talk about it, we can actually take a pause during live instruction and share," Thompson said. "It lets teachers try new practices and take risks in a supported way—and usually the kids pipe in and are fascinated by the process. Everybody is active. We're all in it together."

It's called Studio Day, and it's one of more than 80 similar days held this year in Highline middle and high schools.

Studio Days are just one element of Thompson's multifaceted work supporting ambitious science teaching throughout the Highline district. The project, now in its third year, will soon expand to Seattle, Federal Way, Bellevue and other districts.



A COMMUNITY APPROACH

"Our challenge is to make sure that knowledge doesn't just live in one school," Thompson said. "Because systems in place now aren't designed to help teachers share within schools and across districts."

To address that challenge, Thompson has helped Highline develop "Networked Improvement Communities" to ensure that new knowledge, along with best practices, infuse the entire district.

"The idea is to develop the whole group—UW researchers, science teachers, district science coaches and principals—to orient the entire system around improving instruction," Thompson said.

It's a concept originally developed for the health care industry by the Carnegie Foundation. But Thompson is the first researcher in the country to apply it to instructional improvement.

"Now every secondary school in our district has teams of teachers working on improving science teaching," said Bethany Sjoberg, one of Highline's science coaches and a UW College of Education graduate. "They're able to collaborate and share their learnings with each other. It's transformed science teaching in our district."

GETTING THERE TAKES TIME

Transforming Highline's science teaching practices has been a complex, time-consuming process, Thompson said. It incorporated multiple methods simultaneously, and continues to adapt and include new learnings.

Sjoberg said that Studio Days were a great place to start. Besides helping teachers master Next Generation Science Standards, the Studio Days also give every teacher a chance to work on a core set of ambitious teaching practices developed by Thompson and her team.

It also gives teachers a chance to improve their practice without adding more to their demanding schedules.

"Because we do Studio Days during the school day it gives them the opportunity to collaborate and work on improving their teaching while on the clock," Sjoberg said. "That's one of the reasons we're able to engage so many teachers."

Sjoberg and her fellow science coaches are another big element of the project's success. Originally, they were funded by Thompson's research funds to provide a dedicated focal point for the work.

"Jessica helped us create this model of science coaches at the system level," said Carmen Gonzales, Highline's STEM director. "We just didn't have the capacity to do that on our own."

The coaches have proved so effective that this year Highline decided to make them permanent, and is in the process of taking over their funding.

"Before Jessica started the work we didn't have science coaches at all," Gonzales said. "So that's a big testament."

The program also created opportunities for all Highline science teachers to come together as a large group to share teaching strategies—something that had never happened before.

Originally these gatherings, called convenings, happened twice a year. Now, they're happening three or four times a year, Thompson said.

AMBITIOUS SCIENCE TEACHING FRAMEWORK

Four core sets of teaching practices support students of all backgrounds to deeply understand science ideas, participate in the activities of the discipline and solve authentic problems. Learn more at ambitiousscienceteaching.org.

> PLANNING FOR ENGAGEMENT WITH IMPORTANT SCIENCE IDEAS

> > INTELLECTUAL ENGAGEMENT

> > > ATTENTION

TO EQUITY

PRESSING FOR EVIDENCE-BASED EXPLANATIONS

ELICTING STUDENTS' IDEAS



SUPPORTING ON-GOING **CHANGES IN THINKING**

The latest addition to the program is a training program for select 5th and 6th grade teachers in the shared curriculum and practices, so that kids come to middle school better prepared.

"We can't assume we're going to introduce a new set of standards and teaching is going to change overnight." Thompson said. "Sometimes it takes up to three years for teachers to really start collaborating and improving instruction."

It's been time well spent. Gonzales said that about 80 percent of Highline's secondary science teachers have now been trained in ambitious science teaching practices, which focus on helping every student in this very diverse district succeed. Among other benchmarks, students meeting biology end-of-course standards increased from 38 percent to 60 percent district-wide.



HIGHLINE SCIENCE TEACHER ALISON THOMAS WORKS WITH STUDENTS DURING A STUDIO DAY AT ACE/GLOBAL HIGH SCHOOL.

COLLABORATION CREATES SUSTAINABILITY

Thompson said it's important that as the work evolves, leadership moves away from UW researchers and into the school district, so that it can be permanently sustained.

In the beginning, for instance, Thompson personally led most Studio Days. Now, that role has shifted to the district's science coaches. The coaches themselves have shifted some of their leadership in networking teachers to individual science teachers, Sjoberg said.

"We plan a lot of our professional development collaboratively with Jessica and her team," Sjoberg said. "I've always felt like my contributions are valued and incorporated into the work."

"Partnering with the University is a great thing," Gonzales said. "Jessica opens up my eyes to things I don't think about because I'm immersed in the work, and vice versa. We learn from one another. I've really appreciated that."

READY FOR THE FUTURE

'The Ambitious Science Teaching Framework has become our framework at Highline," Sjoberg said. "It's given me and my colleagues a common vision. It's provided more coherence in our work. It's helped in the classroom. It's helped build capacity among the teachers, and it's also helped us as leaders be more effective.

"Our work for the last several years has been to build capacity for the Next Generation Science Standards and I think we really have built that capacity. Our teachers are much more ready than they would have been without the partnership."



Hear more from Jessica Thompson and Highline teachers and coaches about how Networked Improvement Communities are helping improve teaching practice.

education.uw.edu/NICs

Creating the next generation of ambitious teachers

"Part of the challenge at Highline in the past has been high turnover of teachers. They get a new batch of teachers every year, which can feel like the whole system is shaking right underneath them."

JESSICA THOMPSON, UW COLLEGE OF EDUCATION ASSOCIATE PROFESSOR



While College of Education Associate Professor Jessica Thompson has focused her efforts on promoting ambitious science teaching practices in the Highline District, Professor Mark Windschitl has been training the next generation of science teachers in those same practices at the UW—and district leaders at Highline have taken notice.

"Part of the challenge at Highline in the past has been high turnover of teachers," Thompson said, "They get a new batch of teachers every year, which can feel like the whole system is shaking right underneath them." "So many of our new hires come from the UW," said Highline STEM Director Carmen Gonzales. "It's really helped us build capacity, and we've actually reduced teacher turnover since we started our partnership with Jessica.

"It's such a nice pipeline. As the UW gets teachers trained in ambitious science teaching, we just want to take them. They're well trained and come into our district and do really well. We're always looking for more!"

RESEARCH THAT MATTERS 17

REVEALING THE

"Who can tell me the Ideal Gas Law?"

LESLIE RUPERT HERRENKOHL AND HER PARTNERS HELP IMMIGRANT YOUTH OF COLOR SEE THEMSELVES IN A WHOLE NEW LIGHT

It's a glorious spring afternoon. A gaggle of energetic middle-schoolers shuffle around an odd metal contraption set up on the sidewalk outside Neighborhood House, in the heart of West Seattle's High Point neighborhood.

A few minutes earlier, they were joking and bouncing a basketball. Now, their mentor Benjamin Pennant has their attention. Pennant, a UW senior in aerospace engineering, is busy tinkering with the equipment.

"Who can tell me the Ideal Gas Law?" Pennant asks, looking around the group.

The students, most of whom are first- or second-generation immigrants, glance at each other to see who knows the answer.

"Come on," Pennant says. "You guys know this."

"I think it's...pressure times volume equals temperature?" one says.

"Excellent!" Pennant says. "PV = nRT."

Pennant asks about the technical definition of

"I think it's... pressure times volume equals temperature?"

pressure. He leads a brief, lively discussion on Newtonian vs. non-Newtonian fluids.

Then he holds up a two-liter soda bottle. "Now—who wants to make a nose cone so we can launch this thing?"

Several hands shoot in the air and excited voices ring out. **"I do! I do!"**

And that's just the rocket science.

A FIRST STEP TOWARD STEM

Inside, other groups of middle and high-schoolers work with mentors recruited with help from the UW Dream Project (a partnership of the College of Education and Undergraduate Academic Affairs), Neighborhood House staff and AmeriCorps volunteers, and College of Education Professor Leslie Rupert Herrenkohl on fun and engaging projects in computer coding, biology, photography, wood shop and aerospace engineering.

It's a typical weekly Studio session, part of the STUDIO: Build Our World project Herrenkohl leads for low-income, immigrant and refugee youth at Neighborhood House, under the auspices of the UW's 3DL Partnership.

The project, which is nearing the end of its second year, works with around 45 underrepresented youth each year in multiple nine-week sessions of intensive learning aimed at helping them see STEM-related careers as an attainable long-term goal.

"Creating more opportunities for underrepresented groups to consider STEM fields is a really pressing need," Herrenkohl said. "Our ability to innovate and change and address the complex problems we face in the 21st century depends on a diverse set of people putting their minds together."

PARTNERING IN THE HEART OF COMMUNITY

Herrenkohl said that having a strong communitybased partner like Neighborhood House is a critical element of the program's success. Since Studio is an after-school program that requires a substantial time commitment on the part of the youth, a convenient location in the heart of their High Point community helps keep participation high.

Besides providing a perfect venue for STEM-related exploration, Neighborhood House staff also make important contributions to the program's design and implementation on every level—and they've been involved since the program's beginning.

"There's no way we could do this alone," Herrenkohl said. "I start from an assumption that collaboration is absolutely necessary to create powerful learning spaces. It drives the work and energizes everything we do."

"It's an incredibly collaborative project," said Clarke Hill, youth services manager at Neighborhood House. "I've never seen a program so transformative for the youth. I've also never seen such strong parental involvement in an after-school program. The kids are talking about how amazing it is. They are all really proud of what they're doing."

"As children of immigrants, they're often put on a remedial track—they're often looked at as deficient. And they're not deficient. They're incredible."

CLARKE HILL, NEIGHBORHOOD HOUSE YOUTH SERVICES MANAGER



DURING A STUDIO SESSION AT NEIGHBORHOOD HOUSE, STUDENTS EXPLORE AEROSPACE ENGINEERING, CODING, BIOLOGY AND MORE THROUGH HANDS-ON PROJECTS LED BY UW STUDENTS.

Hill, who's been part of Studio since its beginning, said one of the reasons the community is so excited about the program is that the youth who participate sometimes feel marginalized at school. As children of immigrants, Hill said, "they're often put on a remedial track—they're often looked at as deficient. And they're not deficient. They're incredible."

"The relationship between Neighborhood House and the College of Education is really impactful on the youth," said Neighborhood House STEM Coordinator Chris Batalon, who's responsible for keeping the program running smoothly, including working closely with the mentors. "It's great for them to see that adults in partnerships can be creative. Even as facilitators, we try to show the youth that we're all on the same playing field—so we should be able to grow together. We want to introduce the concept of science to these young minds and tell them that if they want it, it's totally attainable."

MENTORS GIVE SCIENCE A HUMAN FACE

Herrenkohl said another key element of the program's success are the dozen or so UW undergraduate mentors who donate a significant amount of time to the project. Despite the high demands of their STEM-related majors—including molecular, cellular and developmental biology, biochemistry, physics, human-centered design and engineering, computer engineering, informatics and mathematics— Herrenkohl said they all put a high priority on putting a human face on science for the youth they mentor.

84%

of STEM professionals who are white or Asian males.

Only **5.2 percent** of nation's science and engineering workforce are Latino and only **4.6 percent** are black, despite representing **30.6 percent** of the nation's population.

33%

of high schools where at least three-quarters of students are black or Latino offer calculus, compared to **56 percent** of high schools () where less than a quarter of the student body is black or Latino.

48%

of high schools where at least three-quarters of students are black or Latino offer physics, compared to **67 percent** of high schools where less than a quarter of the student body is black or Latino.

65%

of high schools where at least three-quarters of students are black or Latino offer chemistry, compared to **78 percent** of high schools where less than a quarter of the student body is black or Latino. "The kids we have at Studio are brilliant. How a project like this might shift the STEM field in 15 or 20 years is something I'm very excited about."

MEIXI, COLLEGE OF EDUCATION PH.D. CANDIDATE



"Many of our mentors are women and people of color working in STEM fields, and these are populations that aren't currently well represented in STEM careers," Hill said. "Not only are they providing an excellent role model, but at the same time they're also young people themselves. Our youth are saying 'I've never seen an African American rocket scientist.' Not only do they see that exists—but also that he's just a regular guy they can have a real conversation with. I think that's really powerful."

"I didn't even know what engineering was until age 20," Pennant said. "I'm eager to pay it forward. If we're building engineering systems that are going to affect people, we need to make sure we have a diverse group of people to build a better product. Having that exposure this early—showing these kids the STEM in them—is having a huge impact."

"STEM fields today are largely built on Western ways of knowing," said College of Education Ph.D. candidate Meixi, who serves as the project's research assistant and provides support for the mentors. "This project lets us push back on this one way of knowing to multiple ways of knowing. The kids we have at Studio are brilliant. How a project like this might shift the STEM field in 15 or 20 years is something I'm very excited about. I think it's going to change our understanding of what STEM is."

GROWING AND EVOLVING

Hill said that, as far as Neighborhood House is concerned, STUDIO is here to stay.

"One of my main focuses is sustainability of the program. We hope to replicate it at some of our other locations. We're already starting to roll out some of the smaller one session activities in South King County, White Center and Auburn. We get excited about this program, because we know that the mentors, the youth, the staff and everybody is really happy that this is happening. You can just feel that. It's palpable when you walk in the room. It's phenomenal."

"It is so important to think about the long-term benefits, not only to the youth but to society. We can only solve the problems we face when every perspective is represented," Herrenkohl said. "The mentors and youth in our program will go on to do incredible things and contribute in significant ways that we can't even imagine. We're going to say we knew them back when."



Hear more from Leslie Herrenkohl, UW student mentors and Neighborhood House staff about STUDIO: Build Our World and see scenes from a weekly Studio session.

education.uw.edu/STUDIO

RESEARCH THAT MATTERS 21

New Tech Tool AIMS TO DOCUMENT LEARNING

The middle- and high school students in Leslie Rupert Herrenkohl's STUDIO project are engaging in critical STEM practices and activities every time they attend a weekly Studio session—as are the mentors who lead them.

"But one of the things that continues to be a challenge is how do we document that, when the learning is really rich and multifaceted?" Herrenkohl said. "What we hope to do is develop a tool that will allow us to document the types of learning that are taking place in real time during the STUDIO sessions. We also want to understand the impact that it's having on the mentors, the staff and on the larger research community."

To start, Herrenkohl enlisted the help of one of last year's mentors, Ankur Agrawal, a humancentered design and engineering student who now works at Intel, to develop a simple prototype. Google Forms are useful for documentation using text only, but lack the ability to attach photographs or other documents (e.g., pdf files) to a form. Agrawal created a web-based tool that can be used on phones, tables and computers to make this possible.

"We want a tool that will allow youth and mentors to talk about what they've learned, through the use of visuals and text, with a minimum of data management time, so it's easy to share experiences, ask for help and advice, create strategies, and reflect," Herrenkohl said. "Having an easy-to-use tool will help us to incorporate what mentors learn to help new mentors, and allow us to better understand what the youth are learning in the program. We are in the initial phases now but would like to seek funding to fully develop a tool that can be shared with other educators."

10%

In Washington state, underrepresented populations earned **10 percent** of computing degrees/ certificates in 2013 even though they made up **21 percent** of the college-age population.

7%

In Washington state, underrepresented populations earned **7 percent o**f engineering degrees/certificates in 2013 even though they made up **21 percent** of the college-age population.

Sources: U.S. Bureau of Labor Statistics, National Science Foundation, Change the Equation, Economic Modeling Specialists International, U.S. Department of Education.



ILER STRENCTS

676

MATTERS 23

INNOVATIVE PILOT STUDY DEMONSTRATES WHY SEEING IS BELIEVING A father sits at the table of his Seattle home with Luke Quinn, a home visitor from Children's Home Society of Washington. Mom's away, and Dad's caring for his two small children.

It's a noisy, lively scene as the toddler and kindergartner play together—until Quinn suggests watching a short video. The kids scurry over and snuggle with Dad as they all gather around Quinn's laptop.

The clip starts. It's Dad and the kids, a week earlier, at the park. The toddler takes a spill and starts to cry. Dad's there immediately to gently comfort the little guy. They share a simple back-and-forth conversation about what just happened.

Quinn pauses the video. He compliments Dad, and explains how this small moment perfectly illustrates a specific element of effective parenting they'd talked about in a similar meeting a week before.

"That is really cool," Dad says. "When I see these clips, I get how important it is."

"I want to watch it again!" says the older child.

SIMPLE INTERACTIONS WITH COMPLEX ROOTS

This is one of hundreds of similar moments from a pilot focused on helping low-income dads positively support and engage with their children from 6 months to age three, led by College of Education Assistant Professor Holly Schindler.

While moments like this look simple, Schindler said this video-based intervention method—called FIND (Filming Interactions to Nurture Development) represents a big departure from traditional early childhood education programs.

FIND, developed in collaboration with Oregon Social Learning Center and Harvard's Center on the Developing Child, where Schindler was a post-doctoral fellow, is based on recent advances in neuroscience and the biology of adversity. It's unique in that it focuses 100 percent on reinforcing existing strengths rather than critiquing mistakes, Schindler said. And while FIND has been used extensively to help moms improve their early childhood education skills, Schindler's focus on fathers—which she calls FIND-F—is a first.

"Basically, it's a lot like tennis. The child gives a cue and the dad returns it."

HOLLY SCHINDLER, COLLEGE OF EDUCATION ASSISTANT PROFESSOR

"The beauty of this program, what makes it unique, is that we have specific skills we highlight," Schindler said. "They're things that Dad's already doing—things that all parents naturally do. But parents who are experiencing stress or have had adversity in their own lives often don't recognize they might be doing them less frequently."

A GREAT COMMUNITY PARTNER IS GOOD TO FIND

In order to make the pilot possible, Schindler sought out a community partner with deep experience serving low-income families, and a desire to expand those services to dads. She found the perfect match in Children's Home Society of Washington (CHSW).

Schindler first connected with CHSW through a group she now co-leads called the Washington State Innovation Cluster, which is part of the Frontiers of Innovation (FOI), a rapidly-growing nationwide learning community based at the Harvard Center.

"FOI brings together community organizations, researchers, policymakers and parents to have conversations about innovation," Schindler said. "That's where I met people from CHSW—and it felt like a really good match. They touch families in the tens of thousands across Washington state through their early childhood education and parenting programs."

"We'd already used the FIND model in a small pilot study with moms," said Jason Gortney, director of CHSW's Office of Policy and Innovation. "But we'd been trying to figure out how to adapt it to families in our home visiting program. Holly's interest in programs to support fathers was very appealing. Our expertise in service delivery and Holly's expertise in science has created a fantastic relationship that's helped us start from a much stronger place." Other important partners were low-income fathers like those the pilot targeted, Schindler said. Before launching the pilot, Schindler and her team, which included CHSW's Quinn and College of Education doctoral candidate in school psychology Cindy Ola, spent months interviewing dads who were receiving CHSW services. Their input helped the team design a program tailored specifically to work well for dads like themselves.

TENNIS METAPHOR, ANYONE?

At the core of FIND-F is a concept known as "serve and return," Schindler said. It's a simple metaphor that helps fathers interact with children in ways shown to nurture optimum neurological development.

"Basically, it's a lot like tennis," Schindler said. "The child gives a cue and the dad returns it."

That core concept is further broken down into five supporting behaviors. For the pilot, Schindler and her team settled on a six-week, six-visit model with 15 dads. The first week was spent introducing the concept of "serve and return." Each following week focused on one of the five supporting behaviors:

- **1** Sharing the child's focus
- 2 Supporting and encouraging
- 3 Naming
- 4 Back and forth
- 5 Endings and beginnings

"These are very foundational skills in a nicely laid out framework that people seem to easily understand," Schindler said. "Each week builds on the previous week. We give a little overview of that week's concept, then film Dad and child interacting together—just doing simple things like playing or making dinner."



The videos of those interactions are then analyzed to pull out moments that best illustrate each behavior.

"We edited the films down to three very clear examples of Dad doing that week's behavior," Schindler said. "Dads then watch each example three times with us narrating."

"We never tell fathers what they're doing wrong. Only what they're doing right," Quinn said. "When you actually see yourself doing one of these behaviors, it's really hard to say that you can't do it—because you just did it. So now you can do it with intention, and do it more often."

GRATIFYING INTERACTIONS, PROMISING RESULTS

After the pilot, both fathers and children showed positive results. The 80 percent of fathers who completed all six sessions reported lower stress and showed improvements in observed parenting skills. In addition, fathers who had experienced the most adversity in their own lives reported higher levels of parental involvement and decreases in their children's behavior problems. This success led to an expanded pilot focusing on Mexican-American fathers (see sidebar) over the next two years, with plans to apply for grants that would expand the work moving forward, Schindler said.

It also cemented the partnership between the College of Education and CHSW.

"A project like this is not something we at CHSW would have the know-how or resources to do on our own as well as we can in partnership with a researcher," Gortney said. "Being able to work with someone like Holly, to innovate and meet unmet needs and translate the latest science into real-world programs that benefit families, is hugely important. It's been a very fruitful relationship. I'm confident we'll continue to work together."



Hear more from UW researchers, CHSW staff and a FIND-F participant about the project.

education.uw.edu/FINDF

Cindy Ola

Doctoral student gains practical insights from FIND

For College of Education doctoral student in school psychology Cindy Ola, serving as the primary research assistant and Spanish translator for Holly Schindler's FIND-F pilot led to insights she plans to carry forward into her career.

"The way we did research with Holly really opened a lens to a different way you can do research," Ola said. "It was building relationships, being out in the community, connecting with people who knew the population we were working with. It opened up a whole new avenue of research to me, where you're involving the community as partners." Schindler said Ola's work on the project was invaluable to its success, and her Spanish language skills will help make the expanded pilot with Mexican-American dads possible. The experience also led Ola to look at the role of fathers in a new light—a perspective she plans to put to work in her own career.

"In my work with school psychology I always see moms come to meetings, moms pick up the phone, moms fill out the forms," Ola said. "I always felt there was a missing piece. This project really helped me in my own practice as a school psychologist during my internship in the Edmonds School District. It helped me realize the critical pieces fathers bring to the table that are different from mothers. Now I always try to encourage dads to come to the table."



New dads to

Holly Schindler's latest study focuses on Mexican-American fathers

Positive results from Holly Schindler's recent pilot program with fathers served by the Children's Home Society of Washington (CHSW) has led to a grant from the Foundations for Child Development Young Scholars program for a two-year expanded pilot that began in May.

The new project will take learnings from the original pilot, including input from an advisory committee of dads served by the original project, and apply them to using FIND-F methods with 50 Mexican-American fathers in King County.

Schindler said that during the initial project, she learned that CHSW serves a large number of Mexican-American families, who sometimes face barriers to service and a lack of tailored supports (e.g. materials that reflect Mexican-American fathers and their cultural values and a program structure that accommodates their work schedules).

In addition, she explained that Mexican-American dads show characteristics that make them ideal candidates for FIND-F.

"In spite of challenges, these fathers often live with their children and consistently report that building good relationships with their children is 'the most important thing of all."

CHSW plans to use the results from this study to inform their own home visiting practices. CHSW serves over 30,000 children and their families each year, including a high percentage of Mexican Americans. Should FIND-F be found to be effective, it may be scaled within CHSW's constellation of family services to reach a greater number of fathers, Schindler said. RISSEAT ANTERISSEAT MOVING EQUITABLE **PARENT-SCHOOL COLLABORATION TO A NATIONAL** LEVEL

About 100 parents, social workers and educators have just taken their seats in the bright, expansive auditorium of Neighborhood House in the heart of south Seattle's 98118 ZIP code—the most diverse zip code in the U.S., according to the Census Bureau.

That vibrant diversity rarely comes together in one room so visibly as it has today for Neighborhood House's annual Data Carousel. David Johnson, Neighborhood House's associate co-director of child development, explains to the group that Data Carousel lets Neighborhood House share information and actively collaborate with parents they serve, many of whom are recent immigrants.

"We're always looking for different ways to learn what your experience is, and what you think and feel," Johnson says. "From this process we take all the ideas and the thoughts you share with us, so we can weave it together into our planning process."

Johnson's introduction complete, the tables—including tables for Somali, Spanish, Oromo and Amharic speakers—begin to buzz with conversation.

RESEARCH THAT MATTERS 31

BUILDING CAPACITY TO COLLABORATE WITH PARENTS

Neighborhood House's Data Carousel is just one example of an interaction with parents that would look very different today if not for the College of Education's Equitable Parent-School Collaboration Project, led by Assistant Professor Ann Ishimaru and Associate Professor Joe Lott.

The project has been working with organizations and schools in the "Road Map" region—seven school districts encompassing Kent, Renton, South Seattle, Highline, Auburn, Tukwila and Federal Way—for about four years, to help them identify common indicators of family engagement and build capacity to forge stronger relationships with parents. The region has nearly 120,000 students who speak 167 different languages, with well over half being students of color or from low-income families.

DIFFERENT COMMUNITIES, DIFFERENT SOLUTIONS

"Our work is based on the big idea that marginalized parents have valuable knowledge, experiences and cultural practices from which schools and districts can learn. If systems recognize how efforts to 'fix' families of color reinforce inequity, we can begin to push beyond traditional approaches that reinforce the status quo and only include certain people in the conversation," Ishimaru said. The work—done in partnership with the Community Center for Education Results and supported by the Bill and Melinda Gates Foundation—has had different outcomes, but in every case the emphasis is on changing systems to enable historically marginalized parents to play a more equitable role as collaborators with schools and educational organizations, and to tap into their unique expertise to improve educational outcomes.

In the Federal Way Public Schools, for instance, family liaisons reflect on their practice to more equitably bridge language, culture and power differences between diverse parents and educators and help parents advocate for themselves and their children.

In Southeast Seattle, in a process similar to Neighborhood House's, the Southeast Seattle Education Coalition (SESEC) engages its coalition of community organizations, schools, parents and caregivers in collecting and making sense of data from more than 500 community surveys in 10 languages to improve how local schools engage with families.

In the Kent School District, Ishimaru helped parents, teachers, principals and district leaders co-design a parent engagement curriculum that includes lessons on fostering students' positive racial identity and combating bullying—a curriculum that is now available to schools throughout the Road Map region and beyond. Kent is now working to take the principles, curriculum and family engagement indicators system-wide to improve processes for engaging with historically marginalized parents, Ishimaru said. "Our work is based on the big idea that marginalized parents have valuable knowledge, experiences and cultural practices from which schools and districts can learn."

ANN ISHIMARU, COLLEGE OF EDUCATION ASSISTANT PROFESSOR

CATALYZING A NATIONAL CONVERSATION

The Equitable Parent-School Collaboration Project's success in helping districts and community-based organizations locally has been followed by a \$1.7 million grant from the W.K. Kellogg Foundation to create a multidisciplinary "Family Leadership Design Collaborative."

The Collaborative's 40 scholars, practitioners, and family and community leaders represent a broad spectrum of American schools and communities, from inner city Detroit to rural Rhode Island, and from the Mississippi Delta to urban Los Angeles, Ishimaru said. UW College of Education Associate Professor Megan Bang is the Collaborative's co-primary investigator with Ishimaru, while Research Associate Jondou Chen serves as project director and Assistant Professor Filiberto Barajas-López is also a member of the project.

Ishimaru said the Collaborative got its start at the 2014 White House Symposium on Transformative Family Engagement, which brought together leaders in the field from across the U.S. Ishimaru said the symposium made it clear there were many experts from different disciplines who were doing important work around racial equity in family-school engagement, but there was no active collaboration tying these efforts together.

In its first year of work, the Collaborative has developed a set of research priorities that envision historically marginalized families at the center of efforts to pursue community wellness and educational justice. They are launching a dozen design circles—a more reciprocal form of focus group—with youth, families and communities focused on educator preparation and professional learning, racial equity initiatives, youth and family leadership, and out-ofschool contexts in different areas of the country.

For example, Derrick Lopez, associate superintendent of instruction in Southfield Public Schools, is working with principals near Detroit to build authentic relationships with parents. CADRE, a communitybased organization serving South Los Angeles, is bringing parents and teachers together around racial disproportionality in discipline. Gerardo Lopez from

PARENTS SHARE FEEDBACK ABOUT CRITICAL NEEDS FOR THEIR CHILDREN'S EDUCATION DURING A ROAD MAP REGION PARENT FORUM.



FAMILY MEMBERS SHARE THEIR EXPERIENCES WITH LOCAL SCHOOL SYSTEMS DURING A SOUTHEAST SEATTLE EDUCATION COALITION SUMMIT.











the University of Utah and University Neighborhood Partners in Salt Lake City are co-designing a process for schools to engage families in resource decisions. And Shirin Vossoughi of Northwestern University is working with an Iranian community school in Chicago.

Ishimaru said that while there's no one thing that works for every context and community, in every case reciprocity and collaboration are at the core of the interaction. "We learn from families' expertise as much as we contribute our own. There's an exchange—and together we can create new and more equitable approaches and ideas."

RECIPROCITY IS KEY

That emphasis on reciprocity also applies to the research methods used by Ishimaru and her team when partnering with school districts and community organizations, as exemplified by her work with Neighborhood House.

"When Ann and her graduate students first came to us they did things right," Johnson said. "They listened to our planning for a long time. They didn't interrupt at all. So they learned, and we could see they were coming from a good place that created trust."

After an initial observation period, Johnson said Ishimaru's team facilitated a reflective session with Neighborhood House staff, asked questions, shared early findings and got feedback in a reciprocal process. Ishimaru's team then turned the results of the entire process into an actionable brief that helped Neighborhood House transform several small-scale data sharing activities into today's successful, community-wide Data Carousel.

"Before, we had a mishmash of many types of data that was confusing," said Ericka Newman, who codirects Neighborhood House's child development efforts with Johnson. "Ann's work helped us improve the accessibility of our data with families in mind, and led us to think about how we could create a more welcoming space for our families. It's really helped us move the dial in terms of family engagement."

Action tools for schools

The Equitable Parent-School Collaboration Project has developed a set of free tools that are available online at education.uw.edu/epsc.

Originally developed for schools in Washington's Road Map region, the tools can be used by any school or district to help create more equitable relationships with historically underserved families.

THEY INCLUDE:

Parent Curriculum: Families in the Driver's Seat A set of lessons designed for and by parents to build their relationships and build collective capacity.

Road Map Family Engagement Survey User's Guide & Survey

A guide to help school districts and educational organizations collect and use indicators of family engagement in a process of family-school inquiry and improvement. **Building Relationships Bridging Cultures** A set of recommendations for cultural brokering strategies that build more reciprocal, collective and relational family-school collaborations.

Data Inquiry for Equitable Collaboration A case study of Neighborhood House's Data Carousel as an example of using data in an inquiry process with families and communities.

RIPPLE EFFECTS, UNEXPECTED BENEFITS

"We don't try to solve the problem by going in for a year," Ishimaru said. "We want to build things that are sustainable for the long term. We give educators tools that help them to improve their practices going forward—and we're finding that sometimes has iterative and ripple effects we aren't always involved with."

One example of such an unexpected ripple effect, Ishimaru said, is that Neighborhood House's Home Visiting Manager Melanie Roper is planning to become one of Ishimaru's doctoral students.

"After going through the process with Ann and her team, I got more and more interested in what they were doing on their side of things," Roper said. "I'm really looking forward to working with Ann next year."

In addition, based on Neighborhood House's experiences with Ishimaru, Johnson has invited another of Ishimaru's graduate students, Dawn Cameron Williams, to develop a dissertation research project about early childhood instruction in collaboration with Neighborhood House. "We would welcome more of Ann's kind of research," Johnson said. "Action research. Because it's improved our knowledge base and given us a different way to organize our efforts. We'd be happy to do more."

"Relationships shouldn't be unidirectional," Ishimaru said. "If we can rethink the ways we help schools and organizations engage with families, then we can improve teaching and learning at the core."



Hear more from families, educators and community members who are partners in the UW's Equitable Parent-School Collaboration Project.

education.uw.edu/familyengagement

HOW A SCHOOL WENT FROM

PERFORMING IN 3 YEARS

In 2011, Onalaska Middle School was identified as one of Washington's lowest performing schools. The district partnered with the UW College of Education's Center for Educational Leadership to improve instruction using "learning walks" in which small groups of teachers explored various problems of practice aligned to CEL's 5D instructional framework.

ACTION ITEM

Give each teacher an opportunity to be both a "walker" and "observed" at least once each school year to drive a sense of shared responsibility for improving teaching and learning improvement, and ultimately create more understanding and support for trying on the selected instructional practices.

ACTION ITEM

At the end of a "learning walk," bring the whole staff together to review the problem of practice along with all the work done by the walking team. Involve everyone in creating a list of trends that lead to a goal for staff to work on in upcoming lessons.

For more information about the UW Center for Educational Leadership visit

k-12leadership.org.

WASHINGTON STATE ASSESSMENT SCORES

GRADE	2010-20 STATE	11 READING SCHOOL	2010-201 STATE	1 MATH SCHOOL
Sixth	70.6	53.2	58.8	35.3
Seventh	56.4	37.3	56.9	32.2
Eighth	68.7	50	50.3	14.3
GRADE	2013-20 STATE	14 READING	2013-201	4 MATH
GRADE	2013-20 STATE	14 READING SCHOOL	2013-201 STATE	4 MATH SCHOOL
GRADE Sixth	2013-20 STATE 72.7	14 READING SCHOOL 77.8	2013-201 STATE 63.6	4 MATH SCHOOL 56.8
GRADE Sixth Seventh	2013-20 STATE 72.7 67.7	14 READING SCHOOL 77.8 72.7	2013-201 STATE 63.6 57.8	4 MATH SCHOOL 56.8 69.1

REIMAGINING THE DISTRICT CENTRAL OFFICE

The UW College of Education's District Leadership Design Lab (DL2) partners with Highline School District to reimagine the work of district central offices to support excellent, equitable teaching and learning for each student. Together, DL2 and Highline leaders are using the latest research and lessons from the district's experience to restructure Highline's Human Resources and Teaching, Learning, & Leadership departments to 1) better staff and support schools for professional learning and 2) overhaul the school improvement planning process to deepen the engagement of teachers and principals in leading their own learning to continuously improve

ACTION ITEM

Invest in rethinking the work of the district central office. Schools need support from their central offices to scale excellent teaching for all students, but central offices must be organized with equitable outcomes as their primary focus and have the tools necessary to realize those ambitious results.

ACTION ITEM

Everyone—teachers, principals and district leaders must lead their own learning to close opportunity gaps at scale and partner with their central office in the process. Focus time and resources on activities that help teachers and leaders in this pursuit. Learn more about DL2 and read "How School Districts Can Support Deeper Learning: The Need for Performance Alignment."

dl2uw.org

To learn more about the UW College of Education's work to support innovative, equity-focused leaders, read about our Leadership for Learning (Ed.D.) program.

education.uw.edu/l4l

DL2's work with Highline is supported by the Bill and Melinda Gates Foundation and the Spencer Foundation.



CONNECT WITH US!

@UWCollegeofEducation

@UWCollegeOfEd

```
O @UWeducation YouTube @uwcoe
```

UNIVERSITY OF WASHINGTON COLLEGE OF EDUCATION

Box 353600, Seattle, WA 98195 Phone: 206-543-3532 edudev@uw.edu education.uw.edu EDITOR: Dustin Wunderlich WRITERS: Rudy Yuly & Dustin Wunderlich DESIGN: Jo-Ann Sire & John Linse PHOTOGRAPHY: Matt Hagen, Dennis Wise & Rudy Yuly VIDEOGRAPHY: Jake Mater

ACKNOWLEDGEMENTS

Thank you to our school and community partners who helped arrange photography: Children's Home Society of Washington, Highline Public Schools, Neighborhood House and Southeast Seattle Education Coalition.

COLLEGE OF EDUCATION

UNIVERSITY of WASHINGTON

Box 353600 • Seattle, WA 98195

NONPROFIT ORG. U.S. POSTAGE PAID SEATTLE, WA PERMIT NO. 62

education.uw.edu



