SCHOOL OF EDUCATION | UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL

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# How can we make schools safer?

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### **School of Education**

The School of Education at the University of North Carolina at Chapel Hill is a community of collaborative researchers, practitioners, students, staff, and engaged alumni. We are dedicated to realizing the transformative power of education: To achieve equity in educational access and outcomes for all learners in a diverse and just society. Our work is guided by four pillars:



#### **Educating the Whole**

We recognize that learning is dependent on the well-being of children, their families, and their communities. With a focus on underprivileged and underserved communities, we seek work with educators, parents, schools, communities, and beyond, in partnership with other UNC-Chapel Hill units, to empower learners and communities to thrive.



#### **Empowering the Leaders of Tomorrow**

We empower educators and scholars to lead; to think creatively, act with passion, and strive for excellence and equity for all. Equipped to succeed in their professions, our graduates also emerge as leaders in their institutions and communities, and mindfully contribute toward continually improving and transforming them.



#### **Collaborating for the Greater Good**

We seek productive and meaningful partnerships across disciplinary and institutional boundaries, working with all stakeholders within and beyond formal institutions of education. A well-educated, diverse, and empowered public is key to addressing social inequities and injustices; promoting and supporting the health and well-being of all; and ensuring the competitiveness and prosperity of our state and nation.



#### Advancing Knowledge, Driving Innovation

We produce cutting-edge knowledge, and pursue innovative, researchbased solutions to the most pressing problems of educational theory, practice, programs, and policy in North Carolina, the nation, and beyond.

## From the Dean



#### Hello!

We who work in the field of education routinely take on tough challenges. We regularly confront issues around matters such as equity, achievement gaps, school finance, measurement and evaluation, and the safety and well-being of our students.

As educational researchers, we are actively engaged in seeking to better understand the problems we confront and in developing robust, evidence-based interventions to alleviate and, we hope, solve those problems. In this edition of "Edge: Carolina Education Review," you will read about some of our scholars and the work they are doing in some of the toughest areas of educational research.

In our cover story Q&A, **Dorothy Espelage**, one of the nation's leading authorities on student well-being issues, talks about some of the gaps in understandings about school and student safety issues and the hurdles that stymie adoption of interventions. Espelage, William C. Friday Distinguished Professor of Education, says schools do a good job of attending to students' physical safety, but that much more needs to be done in the realm of emotional well-being.

Matthew Springer says the way we pay teachers is broken and needs fixing. Springer, our Robena and Walter E. Hussman, Jr. Distinguished Professor of Education Reform, has spent years studying the use of bonuses to retain or reward highly effective educators. Springer and his colleagues have uncovered and illuminated evidence that pay incentive programs can work — provided they are carefully designed and implemented.

Marisa Marraccini has broken new ground in work aimed at helping reduce suicide among adolescents. Marraccini has done work that documents that few high schools have formal protocols for reintegrating students into school after a psychiatric hospitalization. She is doing more work to identify the components that are needed in student re-entry plans, and effective means for encouraging adoption and careful implementation of the plans.

**Eileen Parsons** has studied issues around equity in science education for many years. She recently served on an expert panel convened by the National Academies of Science, Engineering, and Medicine to look at ways to improve the teaching of science and engineering. Parsons advocated for language that makes explicit the need to address current inequities in science and engineering education. In this Q&A, Parsons talks about why some students have been excluded from high-quality science teaching, and some of the steps needed to address the need.

Here at Carolina's School of Education, we are building and bolstering supports for faculty members who pursue ground-breaking research. During the spring semester, we completed our first Strategic Seed Funding Program in which faculty competed for startup funds designed to stir interdisciplinary conversations around tough challenges in education and fund proof of concept projects oriented toward cutting-edge, ambitious interdisciplinary educational research, development or implementation endeavors. Seven projects were selected. I am confident that these projects will lead to new findings that will inform additional research and support applications for additional external funding.

Enjoy this issue of "Edge."



**Fouad Abd-El-Khalick** Dean, School of Education University of North Carolina at Chapel Hill



# Charting ways to make science teaching more inclusive

Researcher: **Eileen Parsons** Article by: **Michael Hobbs**  w can we improve the teaching and learning of science and engineering? That was the over-arching question examined by an expert panel convened by the National Academies of Science, Engineering, and Medicine.

The consensus study report — Science and Engineering for Grades 6–12 looked at ways to improve science and engineering learning in accordance with the National Research Council's (2012) Framework for K–12 Science Education. The report called for investigation and design that engage students in doing science and engineering to understand and apply phenomena, rather than listening to instruction.

It also included explicit discussion about past and current inequities in science and engineering education, and spelled out recommendations for addressing those inequities. The report described the need for more deliberate and effective work to provide equitable access for students from groups that have been excluded or marginalized in the past. The report said educators, including administrators, should pay particular attention to differential student outcomes, especially in areas in which inequities have been well documented, and use that information to make concrete plans to address the disparities.

Eileen Parsons, a professor of science education who focuses much of her research and advocacy on equity in education, served on the panel that wrote the report.

Parsons, who studies the influences of socio-cultural factors, specifically race and culture, on learning in STEM subjects, is president-elect of the National Association for Research in Science Teaching (NARST). Parsons will serve in that position for one year before becoming president of NARST. After serving for one year as president, she will serve for another year as immediate past president.

Parsons has been a member of NARST for 22 years and has been active with the organization, serving as a conference coordinator, on various NARST committees, and recently as a member of NARST's Board of Directors. She also has served as a fellow for the American Association for the Advancement of Science.

In this Q&A, Parsons talks about the report, its descriptions of past inequities, and the need for more work to reduce them.

**Edge:** The report calls for work that bridges inequities and making science and engineering teaching more inclusive. How have some students been excluded?

Parsons: A body of research investigates inequities, inequalities, and exclusion in science education, primarily along the lines of race, gender, socioeconomic status, ethnicity, and language. The specific ways in which certain groups and individuals have been systematically disadvantaged and excluded both historically and contemporarily are too numerous to list here, but generally the inequities, inequalities, and exclusion occur in three main areas. An abundance of data and evidence that exists from the inception of science education in the United States to the present day indicates inequities, inequalities, and exclusion across time in the distribution of material and human resources;



**Eileen Parsons**, a professor of science education who focuses much of her research and advocacy on equity in education. tangible and continued access to, in lieu of theoretical availability of, high-quality opportunities; and representation in what is valued.

For example, in contrast to schools enrolling students from middle- to high-income backgrounds and white and students of certain Asian descent, schools with large enrollments of students from low-income backgrounds and students of color have fewer resources (e.g., inadequate facilities). These schools, called high-poverty and high-minority enrollment schools in the literature, also experience high personnel turnover and employ a greater number of personnel who do not meet the minimum quality standards set by states (e.g., subject matter certification). Additionally, students traditionally excluded in science education lack tangible and continual access to high-quality opportunities. The rigor of the academic offerings and the quality of science learning experiences of the schools they attend circumscribe the future STEM prospects of these students is one example.

The last area is representation in what is valued and includes the inequities, inequalities, and exclusion that are most acknowledged in education in general and science education in particular. This representation spans the gamut of what the science curriculum features; what the instruction highlights; and whose ways of being, interacting, and communicating classroom events esteem to who society elevates as people who do STEM.

**Edge:** How does this NAS report differ from past reports on issues around equity?

**Parsons:** The NAS report differs from past reports in addressing equity in one major way. The NAS report explicitly and consistently acknowledges that the current inequities, inequalities, and exclusion of certain groups in science education are not incidentals and do not exist because of past or present haphazard actions. Historians and other researchers in the social sciences document a continuous link – periodically interrupted by ephemeral progress corresponding with democratic ideals - between the inequities, inequalities, and exclusion of today and the inequities, inequalities, and exclusion of yesteryear.

The inequities, inequalities, and exclusion of yesteryear resulted from the intentional and deliberate design of systems and development of policies and practices to advance groups deemed by a societal worldview to be superior and to oppress groups considered inferior. Even though language use and the overt expression of beliefs associated with past inequities, inequalities, and exclusion have changed over time in public discourse, the intentional and deliberate wholesale transformation of the systems, policies, and practices initially engineered to ensure inequity, inequality, and exclusion has not occurred; the reader is reminded of this reality throughout the NAS report.

**Edge:** What has to be done to make schools and science classrooms more inclusive for these students?

**Parsons:** A litany of efforts and initiatives exist to make science classrooms inclusive, but I contend that the successes of such efforts will remain isolated and temporary without

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For schools and science classrooms to be inclusive, it is necessary to couple the recognition of the present-day impact of historical legacies with intentionality, a focused determination to alter ecosystems.

a certain recognition and intention. To make schools and science classrooms more inclusive first requires a recognition that the present inequities, inequalities, and exclusion are continuations across time of systems historically engineered to produce them. Because people are unaware of the historical linkages, deny their existence, or do not fully address them for various reasons documented in research, these systems remain operative and structurally unchanged today.

For schools and science classrooms to be inclusive, it is necessary to couple the recognition of the presentday impact of historical legacies with intentionality, a focused determination to alter ecosystems — federal and state policies, district regulations, school-wide norms, and classroom practices — to advance equity, equality, and inclusion. For instance, past reforms in science education have shown that a sole emphasis on science competencies and scientific habits of mind with a nod to equity, equality, and inclusion and a hope for more equitable outcomes result in little progress. People often uncritically engage these ecosystems, approaching them from a tightly held and heralded belief that opportunity is equally available to and accessible by all individuals who seek it, believing (consciously or not) in unfettered, individual agency to overcome systemic obstacles through hard work and innate ability.

Such engagement that lacks criticality is most evident in the demand for equal treatment regardless of pre-existing conditions beyond the purview of traditionally excluded groups sorely underrepresented in positions society empowers to institute transformative change. For example, processes in pre-K-12 science education often function as though a level playing field exists between students traditionally included and students traditionally excluded in science and science education. Nationwide data generally indicate that groups traditionally included in science have ample exposure to science and have unceasing, actualized access to high-quality science experiences throughout their precollege educations, whereas pre-K through high school science education insufficiently exposes and provides inadequate and intermittent access to highquality science experiences to groups traditionally excluded from science and science education.

**Edge:** What are some of the barriers to making that happen?

**Parsons:** There are numerous barriers, some more daunting and obstructive than others. The root of many of these barriers are beliefs of which we are

## Addressing Equity Issues in Science and Engineering Education

The National Research Council's Framework for K–12 Science Education included seven recommendations. Among them was a recommendation aimed at addressing equity issues in science and engineering education.

**Recommendation:** Administrators should take steps to address the deep history of inequities in which not all students have been offered a full and rigorous sequence of science and engineering learning opportunities, by implementing science investigation and engineering design approaches in all science courses for all students.

- School and district staff should systematically review policies that impact the ability to offer science investigation and engineering design opportunities to all students. They should monitor and analyze differences in course offerings and content between schools, as well as patterns of enrollment and success in science and engineering courses at all schools. This effort should include particular attention to differential student outcomes, especially in areas in which inequality and inequity have been well documented (e.g., gender, socioeconomic status, race, and culture). Administrators should use this information to construct specific, concrete, and positive plans to address the disparities.
- State and national legislatures and departments of education should provide additional resources to schools with significant populations of underserved students to broaden access/opportunity and allow all students to participate in science investigations and engineering design.

aware and those that operate beyond our consciousness. These beliefs ultimately constrain and circumscribe actions. These beliefs include but are not limited to **1**) science is only for the select, very bright few, **2**) equity, equality, and inclusion are important but there are other formidable challenges that need attention, and **3**) issues of equity, equality, and inclusion are best addressed by teachers in the science classroom.

At one point in the history of science education in the United States, these beliefs may have aligned with and met society's needs and goals. In current conditions replete with rapid demographic and societal changes and the integral, pervasive role of science in daily life, these beliefs are detrimental in meeting the humanitarian, economic, political, and social needs and goals of U.S. civic life. Research and data show that the select few who have traditionally dominated science middle-class white males - are insufficient in number to meet the growing demands that require more creative and viable solutions; research indicates that these innovations are more likely to emerge from the engagement of diverse populations.

In order to meet the current and future challenges, it is an imperative that a broader spectrum of the U.S. population is prepared to assume the mantel. Such preparation requires equity, equality, and inclusion to become an urgent priority reflected in policy and practice. When stakeholders, especially those with the power and authority to initiate and sustain change, elevate equity, equality, and inclusion to the status of import they warrant, teachers in the science classroom will be just one of the many components of the ecosystem esteemed crucial in efforts. Actions (e.g., resource allocation, capacity building) at different levels — federal, state, district, school, and classroom — will align and intentionally work in concert to realize enduring transformations such that outcomes in science education matches its rhetoric "science education for all."

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#### INCLUSIVENESS AND EQUITY IN SCIENCE EDUCATION OVER TIME

The National Research Council's Framework for K–12 Science Education described persistent inequities in science education and the need for more explicit work to address those inequities.

#### In summary:

- An examination of the history of science education in the U.S. shows that although inequality and inequity have been hallmarks of education and subsequently science education throughout U.S. history, they went unacknowledged in science education reform until the mid-1980s. Early formal science instruction was for whites only. From the mid-1900s, recommended directives for science curriculum and instruction — and efforts to implement those directives — were targeted at those who were recognized as citizens and entitled to the full rights of citizenship, to the exclusion of all others.
- Although passage of the Civil Rights Act of 1964 and the Elementary and Secondary Education Act of 1965 facilitated the desegregation of schools, racial segregation of schools continued into the 1970s, with white students receiving an education of higher quality. Blacks and Hispanics were among groups who did not enjoy the full measure of positive results from science curriculum reforms in the 1970s.
- Only in the 1980s, with the emergence of Science for All Americans, issued by the American Association for the Advancement of Science in 1989, was the inclusive goal of "science for all" made explicit — a goal that still has not been achieved.
- In 2006, the National Research Council's America's Lab Report called for engaging students in doing science investigations and other "hands-on" science activity integrated into the content learning.

- A notable change since the 2006 context is an explicit recognition of the need for science and engineering instruction to be more inclusive and to ensure that students from groups that have been excluded or marginalized in the past have equal and equitable access to quality K–12 science and engineering learning opportunities.
- This explicit focus is especially timely because of demographic changes in which the percentage of students of color enrolled in public schools was 50.5% in 2014, reflecting the first time that the percentage of students who were white was less than 50%. It is projected that the percentage of white students in public schools will continue to decline.
- Even though courts acted to dismantle segregation, segregation has persisted, and is continuing to worsen. Schools with large proportions of black and Hispanic students, English learners, and/or students in poverty are often under-resourced. Consequently, they typically offer fewer math and science courses and course sequences and fewer certified teachers in science content areas than schools serving predominantly white and higherincome students.



# Helping schools support students struggling with suicidal thoughts and behaviors

Researcher: **Marisa Marraccini** Article by: **Michael Hobbs**  t's a bleak fact: Suicide is the second leading cause of death among school-aged youth in the United States.

There's a rising tide of suicide in the United States, with suicide among all age groups rising nearly 30% nationwide from 1999 to 2016, according to the Centers for Disease Control and Prevention. The rate of suicide among youth is rising even faster. Suicide among teens and young adults has nearly tripled since the 1940s, with approximately 4,600 lives lost each year.

But the scale of anguish extends well beyond the lost lives, with the hurt and questions left behind among family and friends. In 2013, 17% of high school students reported seriously considering a suicide attempt, 13.6% reported making a suicide plan, and 8% reported a suicide attempt. Each year, approximately 157,000 youth are treated in emergency departments for selfinflicted injuries.

Can schools do more to help students avoid suicide? What more can school personnel do?

Marisa Marraccini, assistant professor of school psychology, is leading research aimed at those questions. She has identified a key point at which students can be helped by schools: When they re-enter school after a psychiatric hospitalization. Her work provides some of the only examination of current practices around helping adolescents reintegrating into schools, and promises to develop the first research-based guidelines aimed at establishing protocols for reintegration after psychiatric hospitalization for suicidal thoughts and behaviors. **The Edge:** Suicide has been rising among young people, tripling since the 1940s to approximately 4,600 suicide deaths among school-aged youths per year. Many more attempt suicide or consider it. Schools are an ideal environment for helping youths dealing with suicidal thoughts and behaviors, especially during the period just after release from psychiatric hospitals. But, a survey conducted by Marisa Marraccini has identified that few high schools have formal protocols for reintegrating students into school environments after they've been psychiatrically hospitalized. Marraccini is leading new research to identify the components of reintegration protocols that would be effective in helping adolescents in their return to school after psychiatric hospitalization.

## RESEARCH AIMED AT PREVENTING SUICIDE

Marraccini joined the School of Education in 2017, coming to Carolina from Rhode Island, where she served in a postdoctoral research fellowship focused at the Department of Psychiatry and Human Behavior in the Warren Alpert Medical School of Brown University.

Marraccini conducts research aimed at promoting child and adolescent mental health in the context of their school settings. Her research is focused on supporting vulnerable populations, including adolescents struggling with suicidal thoughts and behaviors, youth at risk for bullying, and other students with behavioral, social, and emotional difficulties.

In 2018, Marraccini won a National Institute of Mental Health grant to use data from a study conducted by a mentor, Nicole Nugent of the Warren Alpert Medical School of Brown University, to examine school factors that could influence recovery from suicidal thoughts and behaviors, in order to identify ways schools can better support these students.

The project is aimed at developing practical in-school supports and interventions to prevent suicide.

Marraccini also is supported by a grant from the American Foundation for

Suicide Prevention for her research aimed at describing school protocols and services provided for high school students discharged from psychiatric hospitals, and at identifying critical information that can be shared between hospitals and schools.

The study aims to become the first to identify best practice recommendations for how to facilitate re-entry of adolescents into schools after discharge from psychiatric hospitals.

#### SCHOOL REINTEGRATION: A HIGH-RISK PERIOD

During the three-month period following hospitalization for adolescents — a period in which most of them return to school — they are at extremely high risk for making a suicide attempt. Nearly one-third are re-hospitalized with suicidal thoughts and behaviors (STB).

And yet, few studies have examined school reintegration following psychiatric discharge of adolescents.

## Among youth, who is at risk?

Of the reported suicides in youth ages 10 to 24, 81% of the deaths were males. Females, however, are more likely to report attempting suicide than males. Native American youth have the highest rates of suiciderelated fatalities. Hispanic youth were more likely to report attempting suicide than their black and white, non-Hispanic peers.\*



\*Source: cdc.gov/healthcommunication/toolstemplates/entertainmented/tips/SuicideYouth.html



Marisa Marraccini Assistant Professor School Psychology

While being a primary post-discharge environment for adolescents leaving hospitalization, schools also offer associated risk and protective factors to at-risk youths:

- Difficulties with academics has been associated with higher STB risk among adolescents and is one of the primary stressors for adolescents rejoining school after psychiatric treatment.
- Peer reactions and perceptions of adolescent psychiatric hospitalization are considered to be a large source of difficulty for these youth.
- School connectedness issues are important factors in the health of students with higher STB risk.

Schools, therefore, are ideally situated to support adolescents after being discharged from hospitals.

#### WHAT CAN SCHOOLS DO TO HELP?

In a study published in School Mental Health in January 2019, Marraccini led research to determine what are the current practices of high schools across the country to help youth being reintegrated into school. The survey of school psychologists found

- Only 16.5% had written protocols for school reintegration of formerly hospitalized students.
- 45.1% had informal procedures in place.
- 38% had no protocols or procedures.

At the same time, nearly all of the school psychologists surveyed estimated that their schools refer

one or more students to emergency departments for a mental or behavioral concern each year, with at least one psychiatrically hospitalized each year. While the majority of schools have students returning from psychiatric hospitals, very few have formal reintegration protocols in place.

Marraccini's survey suggested that schools located in the Northeast and in suburban areas were more likely to have some sort of reintegration protocols or procedures. Given that some of the most vulnerable youth are not only more likely to live in urban and rural areas, and that they are also less likely to receive mental health care, the finding suggests increasing provisions for mental health crises should be a priority in these areas.

School psychologists reported three elements as being the most important for addressing reintegration needs: 1) meeting with the family,
2) communicating by phone with hospital staff, and 3) developing an individualized re-entry plan.

Common components of individualized re-entry plans:

- Specifying the timing and location for school return, such as a gradual return, a separate space of a stepdown program to return to.
- Identifying specific services and accommodations for students, such as counseling and tutoring.
- A plan to complete missed course work that may include forgiveness, reduced workloads, or altered deadlines.
- Passes to take breaks from classes and/or seek out support from school professionals.

#### DEVELOPING BEST PRACTICE RECOMMENDATIONS

Little research has been done that would help guide school reintegration following hospitalization for STB.

In her study funded by the American Foundation for Suicide Prevention, Marraccini is working to establish a set of best practice recommendations for reintegrating adolescents into school following psychiatric hospitalizations.

Her study has three main objectives, aimed at bridging communication between the support systems of hospitals and schools to support adolescent recovery:

- Identify and describe existing school-based protocols and procedures that may be used to support adolescents following psychiatric hospitalization.
- Characterize school professional, hospital professional, adolescent, and parent perceptions of school reintegration following hospitalization for STB to inform what should be shared between sites for successful reintegration.
- Develop a prototype for guiding principles about school reintegration following hospitalization for STB.

#### FUTURE AREAS OF INQUIRY

In her School Mental Health paper, Marraccini points to additional areas of needed further inquiry:

#### What are current methods schools use to identify and support youth returning to school?

How are schools accounting for school-related stressors, such as

academic, social emotional, and school environment factors?

## How should school psychologists be involved in school reintegration?

School psychologists reported in Marraccini's survey that they were frequently involved in risk assessments, but not necessarily in school reintegration efforts.

## How effective are reintegration protocols in improving quality of care provided for students?

School psychologists working at schools with formal protocols or informal procedures for school reintegration rated their schools' reintegration services as higher quality than those working at schools without a protocol or procedure. But do formal protocols actually improve care?

#### What are the roles of school counselors in school reintegration after hospitalization?

Marraccini's survey found that school counselors are the most common school professionals involved in student re-entry. What roles should they play in reintegration protocols?

## How well do reintegration protocols work?

Studies are needed to establish the feasibility of and adherence to reintegration protocols and procedures, as well as the fidelity of implementing them. This information will provide additional information on the best methods for schools to approach reintegration of adolescents after psychiatric hospitalization.

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# How can we make schools safer? Evidence-based approaches to end bullying, violence, and harassment

### A Q&A with Dorothy Espelage

Researcher: **Dorothy Espelage** Article by: **Michael Hobbs** 





**Dorothy Espelage** William C. Friday Distinguished Professor of Education

orothy Espelage found her way into her field of research the way many scholars do: She stumbled into it. Twenty-five years later, Espelage has established herself as one of the world's leading academic authorities on student well-being, school safety, and bullying.

Espelage, William C. Friday Distinguished Professor of Education at the School of Education at UNC-Chapel Hill, conducts research that has illuminated issues around youth violence and have led to interventions, policies, and laws aimed at helping protect students and to make schools safer.

She is credited with introducing the notion that school-based bullying is best understood as a behavior that emerges over time, is maintained as a group phenomenon, and serves as a precursor to other forms of youth violence.

Her work has had impact.

"When we started this work in the early '90s, one state in this country had an anti-bullying law," Espelage said. "Every state has some form of legislation now."

#### WHERE IT BEGAN

Espelage's research career started in graduate school at Indiana University, where she served as an evaluator, assessing the efficacy of a computer-based program aimed at preventing youth violence. During that project, she found the work of Dan Olweus, a Norwegian psychology researcher who pioneered investigations into bullying.

But, she said she was not convinced that the findings regarding the roots of bullying found in Europe were transferable to the contexts of U.S. schools. "So with my graduate students we just went in and we did lots of focus groups and interviews with American kids to understand what is this notion of bullying," Espelage said. "Why are kids bullying? What predicts it? What are the risk factors? What are the protective factors? And that just started this huge body of literature and research programs across the years."

Since then, research led by Espelage has resulted in nearly 200 refereed journal articles, 73 book chapters, and seven books, making her one of the world's most-cited scholars in her areas of research. Her work has attracted more than \$15 million in research funding.

In 2018, Espelage was elected to the National Academy of Education. She is a recipient of the American Psychological Association's Lifetime Achievement Award in Prevention Science and the APA's Award for Distinguished Contributions to Research in Public Policy. She is a Fellow of the American Educational Research Association, the Association of Psychological Science, and the American Psychological Association's Divisions 15 (Educational Psychology) and 17 (Counseling Psychology).

She came to Carolina this year from the University of Florida, where she was a professor of psychology. She previously was at the University of Illinois, Urbana-Champaign, where she was the Edward William Gutgsell and Jane Marr Gutgsell Endowed Professor and College of Education Hardie Professor.

#### TRANSLATING RESEARCH INTO EFFECTIVE PRACTICES

In addition to conducting research, Espelage orients much of her work toward helping the public and policymakers understand academic research findings so that effective prevention and intervention programs can be created and supported. She regularly advises members of Congress and has led webinars for the Centers for Disease Control and Prevention, the National Institutes of Health, and the National Institute of Justice. She authored a 2011 White House brief on bullying among LGBTQ youth.

Espelage has served as a consultant for the stopbullying.gov website, the Department of Health and Human Services' national anti-bullying campaign, and NIH's Pathways to Prevention initiative to address bullying and youth suicide. She regularly appears on television news and talk shows and is frequently sought after by national news media for her perspective on student well-being issues.

She actively mentors scholars from around the world on bullying and other student well-being issues and has advised hundreds of government officials from the U.S. and other nations. Espelage frequently leads training sessions for school resource officers (SROs), educators, and administrators.

For her most recently funded project, Espelage, with her colleagues at the University of Florida, University of Missouri, and Vanderbilt University, has been awarded \$1.4 million by the Institute of Education Sciences to develop and pilot test an online professional development program for elementary school educators, with an emphasis on general education and special education teachers, aimed at helping them understand how to identify bullying, respond, and intervene.

"With this program, we'll use a coachembedded framework and give teachers hands-on experiences that they had not gotten before," Espelage said.

#### Following is a Q&A with Espelage, who talked about some of the key things she has discovered and where her new work is leading.

**Edge:** In school and student safety, where are gaps in our understandings?

**Espelage:** I can identify gaps in five areas.

First, clearly we know that policies and procedures are important around school safety. Policies and procedures are simply not enough. We need to understand how they need to be implemented, and they need to be consistently implemented.

Second, we understand that parents need to be able to have open communication with school administrators and teachers. Often times, schools have policies and procedures related to addressing bullying, but these policies and procedures are not communicated to parents until something concerning happens with their children. Schools often have parents sign that they have read the policies in the handbook, but the content of these policies are not explained to parents. Schools have less bullying issues when they hold regular meetings with parents about their policies and/or communicate via multiple avenues - such as emails, PTA meetings, newsletters consistently each year.

Three, we know that teachers, administrators, staff — even the custodians — need to be trained to understand both bullying and other forms of aggression and develop their competencies and advocacy around it. It was only recently in the last decade, maybe even the last seven years, that we've recognized that adults are lacking some of the very competencies that we're trying to train the children to develop. Some of our recent work, including an IES grant that was just funded, is to do in-depth professional development for teachers, both special education and general education teachers, to help them to understand how to identify bullying, respond, and intervene, but doing it through a coachembedded framework to give them hands-on experiences that they have not gotten before.

We also need to train the custodians and the cafeteria workers, campus monitors and school police — all the adults who interact with kids. That's a major, major gap.

Fourth, we know that kids need behavioral expectations within the contexts that promote school safety. And that means that there are certain types of behaviors that will not be tolerated because they contribute to a negative climate.

The Institute of Education Sciences recognizes a gap around school safety and academic achievement within the area of "positive behavior intervention supports." We all support this idea that we need interventions that help reduce behavioral problems. But we don't know how to integrate that with these other components I'm talking about.

A major gap in social-emotional competencies is that we have now recognized that just because a district buys a particular social-emotional learning curriculum, it doesn't mean it's going to be implemented with fidelity. So how do we track that? How do we think about implementation science? And again, the RFP for IES right now it's very, very clear that they understand that we need to do implementation studies. So what should it look like in various places?

And, fifth, we know that school climate really matters. So the relationships within a school building matter.

We were making some really good progress in the last presidential administration and with the secretary of education around school climate. As a result, we've got these great surveys that we spent millions and millions of dollars on. These surveys are free to schools and provide in-time and actionable data. But how do we get them to use the surveys when they are not aware of their existence? And then how do we encourage them to use the data to improve their school climate?

Then you can take all these five areas, and how do you integrate them together? What is the framework that accomplishes that?

Edge: What are the impediments to getting interventions that work into school environments?

**Espelage:** The biggest one is for administrators and school districts to recognize that this is something that is in their wheelhouse.

What we've learned is that the schools do a pretty good job of attending to physical safety. So they have the



police officers, name tags, and security systems. But where the kids feel that they're lacking is in emotional safety. We're seeing that with the high rates of youth suicide and mental health challenges faced by our students.

The biggest impediment is districts and administrators recognizing that this is their responsibility. You've got to recognize that you have a problem before you can address it. School safety, bullying, sexual harassment, violence against teachers, all of these things are complex problems. But school districts want to go for the easy solutions. They like being able to say "We bought this program." Or, "We bought this curriculum," and then want to check off that box. But often there's no money for evaluation and there's no compliance. So we have these policies and procedures in the curriculum, but no one's monitoring the extent to which they're being implemented with fidelity. And I can tell you that the implementation of these programs and these frameworks is all over the place.

Also, there is a tremendous amount of competition in the school safety world. The focus on school shootings has led to more companies trying to get those safety dollars, and those safety dollars are largely going to school police and the "hardening" of our schools.

Another barrier is turnover in education. You may have a strong principal who has helped shift a climate, work that can take years, and now you have a restorative, problem-solving approach to discipline. But the minute that person leaves, that ideology, that framework, all that work, can go out the door.

In training school police or SROs in Florida, I found another challenge: The school districts don't control these police. They're not required to

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### With the security specialists I trained last month, they had never really thought about the fact that their kids come to school with trauma.

have professional development or any kind of continuing education. In most cases, they don't even have a child development course. Also, unions can be impediments. Teacher unions and police unions may block any effort to have additional trainings.

We had great success with security specialists who work as school system employees. But we had to feed them. We had to pay them. It had to be a day when there were no kids on campus. We had to pay them to complete the evaluations. But at the end of the day, the 60 that I trained, they were like, "Wow! I'm going to really look at my children, my students, differently."

**Edge:** After you've done a training session, what do people say that they learned? How are their eyes opened?

**Espelage:** It depends on the training. So when I do training around understanding different types of issues that are related to school safety, for example, the notion that bullying is a precursor to other forms of violence... It's like, "Aha! No way! I never thought of it that bullying leads to gender-based harassment, and that leads to sexual violence." They're moved by this. It helps them because then they can see their classroom and the students interacting differently.

With the security specialists I trained last month, they had never really thought about the fact that their kids come to school with trauma.

Another one is that when teachers and administrators do social-emotional learning training, they recognize that they are lacking in some of these very competencies themselves, whether it's self-awareness or social awareness and/or emotional regulation.

I think if I have a good training, then they will recognize that most of this comes down to really strong interpersonal relationships with kids. It comes down to basics. These teachers and administrators often get lost in the daily stresses of working in schools. But they come to realize that it all boils down to developing ways to build basic human connections with these kids and try to get to know them and understand what they're bringing to the table, and that includes their trauma.

Often what happens in my training sessions is that, for really good educators, the sessions serve as validation. They're like, "This is what I've been doing. Oh, there's a science to this!" They get it.

**Edge:** What directions are you taking from here?

**Espelage:** I've got funding from the Department of Justice to continue work to soften the hardening in schools. So I will continue training school police. I see training security specialists and other folks in the state of North Carolina, and they're open to it. I've started that communication. A key project will be using this new IES funding to develop online professional development for general education and special education teachers, focusing bullying prevention on the adults in the building.

We're going to continue to try to use innovative methods to reach and train people. We have a lot of proposals under review, so it depends on what gets funded.

We would like to be able to do work in bullying prevention, teen-dating violence prevention, and sexual violence prevention that doesn't take up classroom time. That's one of our priorities. We'd like to develop games for kids to learn how to intervene when they see cyberbullying, for example, and to develop the healthy skills that they need to prevent teen-dating violence, those types of things.

And we'll continue to publish off of all of our data sets. We just ended a randomized clinical trial evaluating a youth-led intervention program at high schools called "Sources of Strength." We'll be analyzing and writing about that for the next couple of years. It's going to give us some understanding of what these youth-led interventions need to look like to be efficacious.

Lots of exciting things are happening.

# **Can teacher bonuses** help close the achievement gap?

Evidence shows incentives can help keep good teachers in our neediest classrooms

Researcher: Matthew Springer Article by: Michael Hobbs



ur teacher compensation system is broken.

Not only is it broken, but the way we pay teachers is doing harm, says Matthew Springer, the Robena and Walter E. Hussman, Jr. Distinguished Professor of Education Reform.

The single-salary pay schedule commonly used by school districts across the country contributes to an inequitable distribution of highly effective teachers that is stifling academic progress among the nation's neediest students.

That has motivated Springer and colleagues to examine how teachers are paid, specifically looking at whether bonuses and teacher evaluation systems support and contribute to retaining good educators, and whether differentiated compensation leads to gains in student achievement. He's found evidence that incentive pay systems can have positive effects provided they are carefully designed and implemented.

#### **ROOTS OF A BROKEN SYSTEM**

Most school districts in the U.S. use a single-salary pay schedule, setting compensation based on teachers' years of experience and their highest academic degrees. Single-salary pay schedules were first adopted during the 1920s to professionalize compensation practices and to help eliminate then-rampant gender and racial discrimination, nepotism, and favoritism in teacher compensation practices. Single-salary schedules also had the effect of easing salary negotiations between school boards and teachers' unions during a period of labor-management strife in the early part of the last century.

**The Edge:** An inequitable distribution of highly effective teachers is contributing to hard-to-close achievement gaps in American K-12 education. Research by Matthew Springer and colleagues has identified that paying highly effective teachers salary incentives — when the incentive programs are carefully designed and implemented — can help reduce teacher turnover, leading to higher student achievement. New research is pointing to factors that can make salary incentive programs more effective.

Single-salary schedules are workplace anomaly. Most professions offer higher salaries to reward those with highdemand skills or expertise and to recruit and to retain the most effective employees. Consider medicine or higher education, where pay varies significantly by specialty or field.

According to Springer, single-salary pay systems exacerbate the most pressing problems in American K-12 education.

A large body of research finds that the inequitable distribution of highly effective teachers helps explain the student achievement gap. Schools with higher concentrations of lowincome, non-white, and low-performing students have a more difficult time retaining teachers, especially the most effective ones.

The subsequent sorting of teachers across schools helps fuel racial- and poverty-related achievement gaps. Schools enrolling children from the most disadvantaged backgrounds are more likely to be staffed by novice teachers, less-prepared teachers, and teachers instructing out-of-field. As a result, children enrolled in schools with high concentrations of disadvantaged students are exposed to higher teacher turnover and lower quality instruction.

In short, Springer says, when teacher pay is equalized, teacher quality is dis-equalized.



Matthew Springer Robena and Walter E. Hussman, Jr. Distinguished Professor of Education Reform

### WHAT WE'VE LEARNED FROM REFORM EFFORTS

Since the landmark "A Nation at Risk" report in 1983, policymakers have pursued three waves of compensation reform. The first wave of compensation reform typically took the form of career ladder programs in which teachers earned additional compensation for taking on new responsibilities, or knowledge- and skill-based pay plans in which teachers were rewarded for successfully completing activities — such as portfolios, additional certifications, earning graduate degrees in subjects taught - that demonstrated higher levels of expertise and understanding of exemplary practices.

A second reform wave at the turn of the century was characterized by payfor-performance and market-oriented strategies such as hard-to-staff school and subject bonuses, representing a shift toward compensation systems based on student outcomes — a shift that was accelerated by the 2001 "No Child Left Behind Act." During this period, Congress, states, and local school districts in several cities allocated funds for a variety of pay-forperformance plans.

A third wave of reform, ushered by the Obama Administration's "Race to the Top" grant program, provided incentives for states to develop and implement educator evaluation systems that would inform teacher promotion, tenure, certification, and compensation decisions. An important feature of these reform efforts was that compensation was coupled with other educator supports such as job-embedded professional development or peer-topeer coaching. Despite three decades of interest and a variety of experimentation in pursuit of a better way to compensate educators, efforts have not always been well conceived or adequately aligned with district and labor market realities, Springer and other researchers have found. That's among the reasons, Springer says, why several high-profile experiments failed to produce evidence that incentive pay for teachers improved student test scores or changed teacher instructional practices or behaviors.

Those perceived failures in compensation reform efforts attracted widespread attention in the news media and within the education profession, with teacher associations, think tanks, and advocacy organizations often taking the simplified stance that compensation reform in education does not work, Springer says.

But, according to Springer, careful analyses of the reform efforts do reveal evidence that differentiated pay plans can have positive effects. A close look also points to what is needed to design and implement successful teacher compensation reform initiatives.

#### FINDING THE PROMISING EVIDENCE

Springer has closely examined educator compensation systems and reforms to pay practices for more than a decade. He and colleagues have studied the effects of retention bonus programs and merit pay plans for teachers, examining whether they are effective in retaining high-performing teachers and in supporting students' academic achievement.

Springer, with Luis Rodriguez of New York University and Walker Swain of the University of Georgia, examined a 2013 pilot pay initiative in Tennessee, conducting one of the first studies to use a rigorous causal research design to evaluate a retention bonus program targeting highly effective teachers. In addition to seeking to determine if the one-time bonuses helped retain highperforming teachers, it was designed to gauge whether the bonuses produced long-run benefits for students. (Springer, Swain & Rodriguez, 2016)

With regard to whether the bonus program had any impact on retaining teachers identified as high-performing, the study found - only in tested subjects and grades — a consistently positive effect that was both statistically and substantively significant. However, there was not a significant overall effect on retention among all top-performing teachers. Springer and colleagues identified 1) design concerns – for example, bonuses for teachers of non-tested subjects were based on school-level measures, not those of individual teacher effectiveness -2) implementation concerns — such as the timing of the process for applying for the bonuses - and **3)** noncompliance in the distribution of the bonuses that could have hampered the program's effectiveness.

Springer and colleagues followed with another study of the Tennessee retention bonus program (Swain, Rodriguez & Springer, 2019), this time examining the program's effect on student achievement, an area where little has been published with respect to retention bonus programs.

At first glance, the estimated effects of Tennessee's retention bonus program appear modest, increasing the likelihood of a highly effective teacher returning to high-poverty "Priority Schools" by roughly 20 percent. However, because highly effective teachers are typically replaced by lessexperienced, less-effective teachers, the retention bonus program had the equivalent of a profound intervention.

Springer explains the strength of the effect this way: The average teacher in Tennessee produces one year's worth of academic growth in their students on average, which places them at the 50th percentile of the teacher performance distribution. The average teacher retained as part of the state's retention bonus program was at the 84th percentile of the teacher effectiveness distribution, while the average teacher hired to replace them was at the 25th percentile, a very large difference in teacher effectiveness.

Also, after accounting for potential confounding factors, Springer and colleagues found evidence that schools' participation in the retention bonus program drove improvements in student test scores compared to scores among students in otherwise similar non-participating schools. Reading achievement gains appeared to persist at least a year after the bonuses were removed. Impact on math scores was smaller, but the authors note that result may have stemmed from smaller effects of the bonuses on math teachers' decisions to stav in Priority Schools.

The authors conclude: "In line with several studies before it, the findings presented here indicate that financial incentives can marginally shift teachers' decisions to persist in the challenging work environments of highaccountability, high-poverty, racially isolated schools, and promote higher 66

Properly designed and implemented salary incentive programs, combined with efforts to improve working conditions in lower-performing schools, can help close achievement gaps in our nation's schools, delivering the promise of education to all of our students.

levels of learning than would have occurred had they left."

#### A META-ANALYSIS REVEALS MORE EVIDENCE

Early studies, including work by Springer, report little evidence that incentive pay systems have improved student test scores. These studies gained attention from the education community, fueling arguments against incentive pay systems and, as Springer notes, casting a shadow over compensation as a viable reform strategy for improving public education.

But, Springer argues a careful evaluation of those studies uncovers evidence that points the way to establishing effective teacher incentive pay programs.

Springer, with colleagues Tuan Nguyen of Kansas State University and Lam Pham of Vanderbilt University, conducted a meta-analytic study of the teacher merit pay literature. They identified nearly 20,000 records for screening which were subsequently reduced to 137 studies that warranted a full review, yielding a final sample of 45 studies that were independently coded, 37 of which were included in the final analytic sample. They found that characteristics of merit pay programs implemented in the U.S. differed in two key ways from those implemented abroad. Merit pay programs in the U.S. were implemented for a shorter amount of time, on average (3.5 years vs. 5.9 years). The average size of bonus awards in the U.S. was also not as large as pay awards abroad (10.1% vs. 45.5% of per capita income).

Springer and colleagues then examined the association between teacher merit pay programs and student test scores. They found, on average, the effect of teacher participation in a merit pay program is associated with a statistically significant 0.043 standard deviation increase in student test scores among the studies conducted in the U.S. That's roughly equivalent to three additional weeks of learning, or 9% of the black-white test score gap. While the uncovered average effect size is not as large as some other education interventions, careful examination of the teacher incentive pay literature illuminates factors that can inform more effective design and implementation of incentive pay programs, which is where the debate needs to focus, Springer says.

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The nation's lowest performing schools need strategies to identify and retain their most effective teachers.

#### POINTING TO WHAT WORKS AND WHY

According to Springer, even the studies that found little or no effect of teacher incentive pay on student achievement can provide valuable information that helps reveal complexities and mechanisms that blocked the success of some reform experiments.

Some implementation factors that have hampered the success of teacher incentive programs include:

- In the 2013 Tennessee initiative, implementation was late, giving principals little time to take advantage of the bonuses as a retention incentive. Also, there was considerable noncompliance with the rules regarding distribution of bonuses, making it difficult to rule out that principals offered bonuses selectively. (Springer et al., 2016)
- In New York City's Schoolwide Performance Bonus Program, the incentive system was overly complex, and for the most part, bonus payments treated teachers within the same school equally irrespective of their individual performance. (Marsh et al., 2011)
- In the federally funded Teacher Incentive Fund program, researchers reported that in the fourth year of implementation 42% of teachers in the treatment schools were still unaware they were eligible to earn a performance bonus. Teachers in treatment schools also reported that the maximum bonus available was no more than 40% of the actual maximum bonus districts awarded. (Chiang et al., 2017)

Springer argues that more careful implementation of teacher incentive

pay programs is needed. He says the next, and possibly pivotal, generation of teacher compensation reform will be distinguished by three characteristics:

- Intent, meaning compensation reform that is aligned with organizational goals and objectives and designed to attract, retain, reward, and appropriately compensate talented educators.
- Operationalization, referring not only to better measurement of the multi-dimensional nature of teaching and learning and the framing of incentive rewards, but also to the adherence to design in the implementation of incentive pay programs.
- Validation, capturing the ways researchers, in partnership with practice, study compensation reform and leverage insights from behavioral economics and psychology to design, monitor, and refine cutting-edge pay systems.

Springer also outlines the following considerations that policymakers and education reform leaders must consider when designing and implementing teacher incentive pay programs:

- Take steps to ensure principals and teachers in eligible schools are aware of the bonuses and are supported throughout the implementation process to ensure compliance with program guidelines.
- Consider creating opportunities for permanent or longer-term salary increases for teachers with consistently high ratings.
- Make a concerted effort to address the broad range of factors that reduce the desirability of working in low-performing, high-poverty schools, including concentrated poverty itself.

 Be aware that any program that relies on observations and testscore-based, value-added estimates to differentiate teachers are only as strong as the measures of effectiveness are accurate.

The nation's lowest performing schools need strategies to identify and retain their most effective teachers. Instead of policies that target for dismissal of educators with poor evaluations or low value-added estimates, salary incentives that seek to retain highly effective teachers can reduce unwanted turnover, avoiding the associated financial burdens and social upheaval.

More importantly, retaining highly effective teachers can boost academic achievement for students. Properly designed and implemented salary incentive programs, combined with efforts to improve working conditions in lower-performing schools, can help close achievement gaps in our nation's schools, delivering the promise of education to all of our students.

#### RESOURCES

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### School's seed grant program kickstarts faculty research

he School of Education, in its first Strategic Seed Funding Program, has awarded startup funding for seven faculty research projects with the objective of fostering interdisciplinary engagement and development of projects that might attract additional external funding.

The initiative was designed to support a School goal, described in its Strategic Plan 2018–2022, to bolster the School's research activity. The plan outlined six broad strategic initiatives in:

- Education data sciences
- Equity in educational access and outcomes for all learners
- Experiential education
- Improvement at scale
- Innovation, technology, and entrepreneurship
- Whole education

The Strategic Seed Funding Program sought three types of proposals, submitted in a competitive process:

#### **TYPE I - DEVELOPING WORKING**

**THEMES:** Up to five proposals, funded at up to \$3,000 each, to translate one or more of the strategic initiatives into well-defined and articulated working themes.

**TYPE II - GRANT DEVELOPMENT PROJECTS:** Up to three proposals,

#### **The Funded Projects**

#### Type I

**School of Education Special Olympics Team Development -** Sandra Evarrs, principal investigator. Jennifer Diliberto and Helyne Frederick, co-Pls.

**Beyond the Classroom: Health & Disability Across the Lifespan –** Helyne Frederick, principal investigator. Sandra Evarrs and Jennifer Diliberto, co-PIs.

#### Type II

Building a Contextual Community of Practice Around Education Data Sciences: Heightening Capacity for Mixed Methods Research – Nianbo Dong, principal investigator. Alison LaGarry and Diana Lys, co-Pls.

**Carolina Induction Program –** Jocelyn Glazier, principal investigator. Cheryl Bolick, Suzanne Gulledge, and Kristin Papoi, co-PIs.

Improving Science Learning for Linguistically Diverse Students Using Automated Feedback and Data Visualizations – Kihyun "Kelly" Ryoo, principal investigator. Sayamindu Dasgupta of the School of Information and Library Science and Nianbo Dong, co-PIs.

#### Type III

Virtual Interactive Environment for Learning Science: Prototype Development and Testing – Jill Hamm, principal investigator. Janice Anderson and Robert Hubal of the Eshelman School of Pharmacy, co-PIs.

**Evidence-Based Staffing: A Feasibility Study and Proposal Completion Project –** Lora Cohen-Vogel and Matthew Springer, lead principal investigators. Nianbo Dong and Peter Halpin, co-PIs.

funded up to \$10,000 each, to convene and support interdisciplinary teams ready to plan, develop, and submit at least one large-scale proposal for external funding.

#### **TYPE III - PROOF OF CONCEPT**

**PROJECTS:** Up to two proposals, funded up to \$20,000 each, to support interdisciplinary teams that would benefit from a period of development and/ or a specific pilot research to generate sufficient findings to position the project for large-scale external funding.

Seven proposals were funded, for a total of \$76,000 in seed funding for research and development projects for 15 School of Education faculty members. Several projects will support faculty and student capacity building for special education and the Human Development and Family Studies major, and for large-scale data use. Two projects will involve technology development and testing to promote scientific literacy among diverse learners, and two others will address workforce development, through a focus on teacher staffing and retention.

Two projects included collaborations with faculty members in UNC-Chapel Hill's School of Information and Library Science and Carolina's Eshelman School of Pharmacy.

## Notes




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