

in REVIEW

OFFICE OF RESEARCH NEWSLETTER

FEATURED AWARD

COMPUTER MODELING AND PROGRAMMING IN SECONDARY ALGEBRA



In October of this year, the National Science Foundation awarded Arnulfo Pérez (Teaching and Learning) and his colleagues a \$1.2M STEM+ Computing grant to fund a study entitled “Assessing the Impact of Computer Modeling and Programming in Secondary Algebra.” This initiative combines the pedagogical content knowledge of researchers in STEM education and the computational prowess of computer scientists to infuse programming and computer modeling into an algebra unit on linear functions. The project draws on the expertise of co-PIs Kathy Malone (Teaching and Learning) and Christopher Stewart (Computer Science). It will create opportunities for research experience for current STEM Education PhD students as well as lead to the recruitment of additional graduate students.

Through a collaborative partnership with South-Western City School District, the study will examine the impact of

modeling and computer programming opportunities on students’ understanding of linear functions and their engagement in practices associated with success in STEM and computer science. The study will leverage computational thinking for 21st-century learning by integrating modeling and computer programming into a project-based exploration of linear functions using engineering applications.

During a summer institute, participating high school algebra teachers will collaborate in developing an engineering project-based learning (PBL) unit on linear functions. The professional development experiences will follow a participatory approach that engages teachers as partners in research and expands their understanding of pedagogical approaches that lead to success for all students.

Researchers will gather data on classroom discourse, student perceptions and learning outcomes to assess the effect of the PBL unit. In particular, the team is interested in possible shifts in how learners represent

functions graphically and algebraically, engage in computational thinking, persist in problem-solving and tackle open-ended tasks.

Because of its focus on algebra, this study pilots an approach that has the potential to put computer science squarely in the path of virtually every high school student. The major impact of the study is to initiate a series of linked research and curriculum projects that will ultimately produce a high school mathematics curriculum to better prepare diverse learners for success in the STEM+C careers of tomorrow. Combining strategic curricular design, transformative teacher training and close attention to student experiences and learning outcomes in traditional classroom settings, the study paves the way for further integration of computer science into secondary mathematics to broaden the pipeline of students prepared for STEM+C careers. 🍷

To learn more about this award, contact principal investigator Arnulfo Pérez, perez.378@osu.edu.

A MESSAGE FROM OUR ASSOC. DEAN



This has been a very busy research year in the college. Some highlights include seed grants being awarded last fall, a two-phase grant writing series conducted in September and January, and our annual Student Research Forum is just around the corner in February. And

more is yet to come with numerous workshop offerings, both from the Office of Research and the Research Methodology Center. Further described herein are EHE funded research projects related to technology. Projects include algebraic modeling, SpotOn for digital content review, a Read It Again app, supplemental math games, voice-activated early literacy software and

computer-based dynamic geometry. As a lifelong techno-geek, I find all of these projects rather exciting.

I look forward to seeing you at one of our events this spring and take care.

*Richard G. Lomax
Associate Dean for Research and Administration*



This fall, the College of Education and Human Ecology launched a new strategic initiative, SpotOn™ The Classroom Content Selector (spotonreviews.org), which builds on the college's tradition of leadership in K-12 teaching and learning. SpotOn's mission is to provide decision support to K-12 educators as they evaluate and select digital curriculum materials for instruction.

SpotOn is supported by a joint investment from EHE and the Ohio State Office of Academic Affairs, and a five-year Straight A grant from the state of Ohio. Today, SpotOn features reviews, ratings and product information for nearly 300 courses in English language arts, science, social studies, and mathematics. By providing this information to K-12 decision-makers, SpotOn allows educators to more easily select the most appropriate digital

content for successful implementation in their classrooms. Correct selection is imperative for improving the learning process and maximizing student achievement.

Led by Dorinda Gallant (Educational Studies) and Nicole Luthy (Ohio Resource Center), EHE conducted research critical to the academic validation of the rubric used to evaluate digital content. This rubric evaluates

against four dimensions: Quality, Pedagogy, Standards and Use of Technology, which were identified by educators as the most important criteria for selecting and implementing digital content in the classroom.

SpotOn reviewers are licensed teachers who have undergone specialized training; 70 percent have a master's degree or are pursuing one. SpotOn aims to change how K-12 educators select content by providing them with a one-stop site where they can view a wide range of materials and quickly select the most suitable for their classroom based on quality, price, device compatibility, discipline, grade level and other factors.

The next stage of SpotOn development is already under way to continue to grow engagement by increasing the number of registered users and classroom feedback. Kui Xie (Educational Studies) is spearheading the modeling development of a recommendation engine, with a goal to closely align classroom student profiles with specific digital content.

SpotOn has already impacted 160 educators, 20,000 students and five



SpotOn Staff From left: Susan McGowan, Director, Product and User Experience; Charles Halpin, Business Lead; Jessica DiCerbo, Content Manager; Linda Flickinger (seated), Director, Operations and External Funding; Tanya Parisi, Director, Professional Learning and Editorial Services; Dwayne Sattler, Managing Director; Brooke Felts, Program Coordinator. [jpg]. Photo Courtesy of SpotOn.

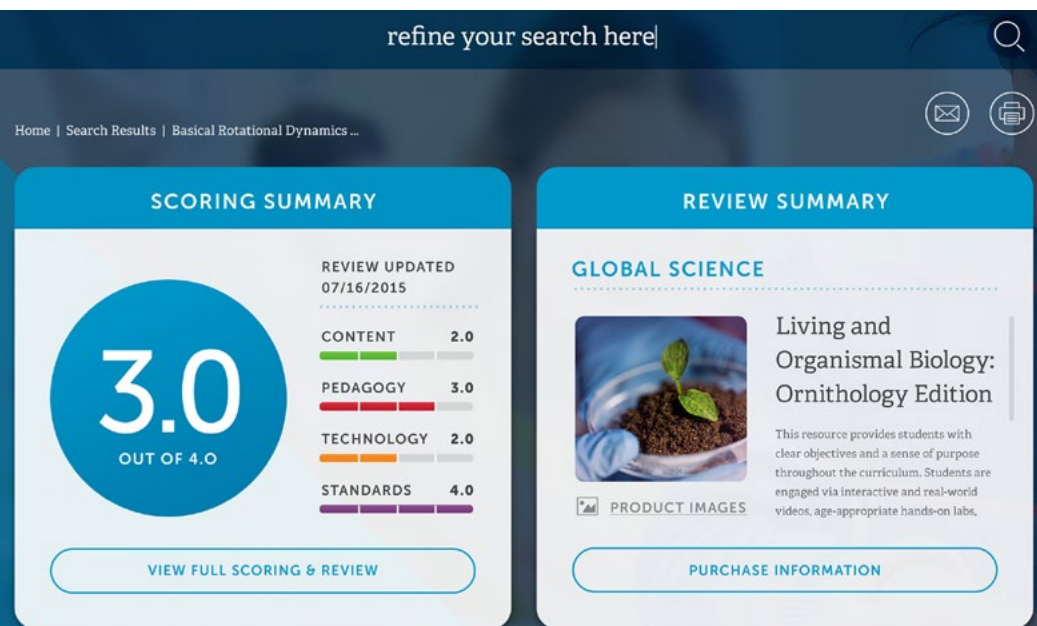


Ohio school districts through the Straight A grant's review process, content adoption and evaluation training. By fall 2016, the portal is on target to publish over 1,000 reviews of digital content in a wide variety of disciplines ranging from full-year curriculum to games and apps. More news will be forthcoming about SpotOn during the 2016 launch year as increasing numbers of districts across the U.S. engage with SpotOn for support in their decisions about digital

content purchases.

Visit SpotOnReviews.org to see the future of digital content selection. ♥

Article by Dwayne Sattler, Managing Director, SpotOn. For additional information about this initiative, contact him at sattler.29@osu.edu or Brooke Felts, Program Coordinator, at felts.13@osu.edu.



SpotOn search results example. [jpg]. Photo Courtesy of SpotOn.

RESEARCH METHODOLOGY CENTER UPCOMING WORKSHOPS

FEBRUARY 2016 WORKSHOPS

THURS, FEB. 4 | 1 - 2:30 P.M.
Everything You Need to Know About Weighting With Primary and Secondary Data with Tasha Snyder, Associate Professor in Human Sciences; Associate Dean, Faculty Affairs

THURS, FEB. 11 | 1 - 4 P.M.
Introduction to Spatial Analysis with Elisabeth Root, Associate Professor (Dual appointment in the College of Arts and Sciences - Geography; College of Public Health - Epidemiology)

THURS, FEB. 18 | 1 - 3:30 P.M.
Ordinal Measurement Invariance in SEM with Natasha Bowen, Professor in Social Work

THURS, FEB. 25 | 1 - 2:30 P.M.
Using the NLSY with Paula Baker, Elizabeth Cooksey and Rosella Gardecki, Ohio State Center for Human Resource Research

MARCH 2016 WORKSHOPS

FEATURED SPEAKER

THURS, MARCH 3 | 9:30 - 11 A.M.
An Introduction to Mixed Methods for the Evaluation of Intervention Effectiveness with Burke Johnson, Executive Director for the Mixed Methods International Research Association

WEDS, MARCH 23 | 1 - 2 P.M.
Panel Discussion, Ethics in Research with Bryan Warnick, Associate Professor in Human Sciences, Kim Arcoletto, Associate Professor in the College of Nursing and Carson Reider, Adjunct Assistant Professor in the College of Public Health

For additional information about these workshops or to register, please go to rmc.ehe.osu.edu.



RESEARCH PROJECTS

FOSTERING LEARNING IN TECHNOLOGY-RICH ENVIRONMENTS

The Oval in winter [jpg]. Retrieved from go.osu.edu/photographs.

More than \$7M has been received for these six active projects, all of which focus on learning how to design and effectively use learning technologies.

The National Science Foundation Division on Research on Learning, STEM+Computing program, awarded **Arnulfo Perez (Teaching and Learning)**, **Kathy Malone (Teaching and Learning)** and **Christopher Stewart (Computer Science and Engineering)** more than \$1.2M in October 2015 to assess the impact of computer modeling and programming in secondary algebra. The study will leverage computational thinking for 21st-century learning by integrating modeling and computer programming into a project-based exploration of linear functions using engineering applications.

Laura Justice (Crane Center for Early Childhood Research and Policy (CCEC)), **Jessica Logan (CCEC)** and **Kui Xie (Educational Studies)** were awarded almost \$1.5M from the Institute of Education Sciences, U.S. Department of Education, in August 2015 to develop a technology-based version of the research-based Read It Again (RIA) curriculum supplement focused on

at-risk preschoolers. The curriculum targets the development of children's vocabulary knowledge, narrative skills, print knowledge and phonological awareness. Project staff will develop digital versions of existing components and professional development and learning management supports for effective implementation of key elements of the curriculum.

Theodore Chao (Teaching and Learning) is part of a team that received a Small Business Innovation Research (SBIR) award through the Institute of Education Sciences, U.S. Department of Education, in March 2015. The project team developed a series of supplemental math games designed to provide elementary students with engaging, adaptive and personalized or team-based learning opportunities. This current SBIR project will develop a digital dashboard to strengthen teachers' ability to integrate these games within their instructional practice, and within a full third grade mathematics curriculum.

The Institute of Education Sciences, US Department of Education also funded **Gwendolyn Cartledge (Educational Studies)** and faculty from Computer

Science and Engineering almost \$1.4M in July 2012 to develop a voice-activated software intervention that has the potential to increase the oral reading fluency of young (first- and second-grade) urban learners with or at risk for disabilities. Additional funding from the National Science Foundation, Small Business Technology Transfer Program, to support the commercialization of this software has been awarded to Carney Labs, LLC., and PI Cartledge.

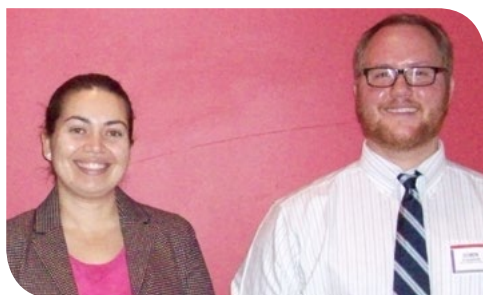
Michael Battista (Teaching and Learning) was funded through the National Science Foundation, Division on Research on Learning, Discovery Research K-12 program, to develop a cognition-guided, formative-assessment-intensive, individualized computer-based dynamic geometry learning system for grades 3-8. The project started in September 2011 and was in the amount of more than \$2.7M. This learning system contains four instructional modules in geometry and measurement that reflect the recommendations of the Common Core State Standards (CCSS).

For additional information about any of these projects, please contact the principal investigator. ♥



2016 EHE STUDENT RESEARCH FORUM

CELEBRATING STUDENT RESEARCH



2016 Proposal Committee Chair Gleides Lopes-Rizzi (left) and Co-Chair John Schaefer (right). Photo courtesy of the EHE Office of Research.



ATTEND
THE EHE
STUDENT
RESEARCH
FORUM
FEB 12, 2016

Register online at go.osu.edu/2016EHEFORUM

Each year, the College of Education and Human Ecology, Office of Research, hosts a Student Research Forum. The forum highlights the research of our graduate and undergraduate students. Last year, there were almost 100 student presentations, both oral and poster, describing completed, in-progress and proposed studies as well as literature reviews.

This year's forum will have over 100 student presentations from each of our departments within EHE. Student research topics range from determining financial constraints of young adults to implementing a new kindergarten readiness assessment to food security status of food pantry clients.

The forum also includes a keynote luncheon. This year's keynote speaker will be Shayne Piasta, Assistant Professor, Department of Teaching and Learning. Piasta specializes in reading and literature in early and middle childhood. She also is a faculty associate for the Crane Center for Early Childhood Research and Policy (CCEC). Her research focuses on early literacy development and how it is best supported during preschool and elementary years.

Piasta has received the Outstanding Pre-Doctoral Fellow Award from the Institute of Education Sciences and the Dina Feitelson Research Award from the International Reading Association, and her research has been funded by

the Institute of Education Sciences and the Eunice Kennedy Shriver National Institute of Child Health and Human Development.

Piasta has served on advisory boards for the Ohio Department of Education, on the editorial boards for *The Elementary School Journal* and *Annals of Dyslexia* and various review panels related to her professional work.

This year's event also includes a raffle and door prizes. To be eligible for the raffle, presenters and attendees will complete a "passport," obtaining signatures and stamps from the presentations they attend. Door prizes will be drawn at random during the keynote luncheon from the list of registered attendees. Door prize winners must be present to win. Door prizes include an official Ohio State football autographed by Urban Meyer and an official Ohio State basketball autographed by Thad Matta.

The 2016 EHE Student Research Forum will be held on February 12, 2016, from 8:30A.M. to 2:45P.M., at the Ohio Union, 1739 N. High Street, Columbus, Ohio 43210. Please direct any questions about the forum to Rebecca Chacko at chacko.9@osu.edu. ♥

For additional information about the 2016 EHE Student Research Forum, including schedule information and abstracts, please visit our website at u.osu.edu/ehestudentresearch.

TRAVEL AWARDS

The following individuals received EHE Travel Awards in October 2015.

GRADUATE STUDENT TRAVEL

Educational Studies

Halima Alhassan, Nicole Brown, Erin McClure, Jamilah Mugharbil, Maureen Myrtill, Lauren Porter, Naima Shirdon, Kari Taylor, Vu Tran, Christopher Travers, Qingqing Xia, Xi Zhan

Human Sciences

Kyle Bartholomew, Jasmin Carmona, Micah Gerhardt, Seulki Ku, Jin-kyung Lee, Sara Mernitz, Christopher Torres, Kenneth White, Qiong Wu

Teaching and Learning

Eileen Buescher, Tanja Burkhard, David Bwire, Ashley Dallacqua, Leah Frazee, Karly Grice, Brooke Harris Garad, Arianna Howard, Dinglei Huang, Anna Iacovetta, Heather Kellert, Sara Kersten, Sarah Lightner, Kimberly Murphy, Ryan Schey, Larkin Weyand, Xiangquan Yao

POSTDOCTORAL TRAVEL

Teaching and Learning

Moonsun Choi
Bridget Lee

**GRADUATE STUDENT TRAVEL
GRANT APPLICATIONS FOR
TRAVEL BETWEEN
MARCH 2016 - JUNE 2016
DUE FEB. 1, 2016**

APPLY
ONLINE

go.osu.edu/GradTravel
go.osu.edu/PostDocTravel
go.osu.edu/FacultyTravel

Faculty International Travel Grant Program and Postdoctoral Researcher Travel Grant Program applications are accepted at any time during the year and must be submitted PRIOR to travel.

2015 - 2016 NEW EHE FACULTY

Educational Studies

Noelle Witherspoon Arnold, Associate Professor of Educational Leadership



Noelle Arnold

Arnold's timely research focuses on topics pertinent to current events, such as issues of social justice, racial and social disparities, and alternative methods to examine and define educator leadership. Instead of focusing on the technocratic perspective of educator leadership like many in her field, Arnold's work provides empirical counternarratives and theoretical considerations that offer a more balanced perspective on leadership identity, development and socialization.

Human Sciences

Lauren Eden Jones, Assistant Professor of Consumer and Family Financial Services



Lauren Jones

Jones wants to understand how public policies impact the most disadvantaged and at-risk populations. The surprising findings from her National Bureau of Economic Research working paper garnered media attention. She found that when low-income families received increased childcare support from Canada's National Child Benefit Initiative, their spending on alcohol and tobacco decreased and the amount of spending on educational resources, such as tuition and computer supplies, increased.

Teaching and Learning

Kathryn Nelson, Assistant Professor of Reading and Literacy Education, Mansfield regional campus



Kate Nelson

Nelson's experience as an inner-city school teacher in Washington, D.C., and New Orleans has been invaluable to her literacy instruction research. Her current research addresses how critical literacy pedagogy benefits students' reading comprehension. She recently worked on an Institute of Education Sciences (IES) grant exploring professional development to help educators promote critical thinking and argument literacy in discussion-based pedagogy in fifth-grade classrooms.

Michiko Hikida, Assistant Professor of Elementary Language Arts



Michiko Hikida

Drawing from her teaching experience, Hikida works to ensure that all children, including those identified as struggling, are recognized for the cultural, linguistic and literacy insights they bring to classrooms. Extending research on the interactional co-construction of identity, her dissertation research documented how students of color, also labeled struggling or learning disabled, constructed their reading identities in interactions with others. A new framework, Critical Disability Studies, which considers the experiences of those marginalized along lines of race and ability, also informs her work.

NEW RESEARCH AWARDS

Faculty and staff in the college received 36 new awards from July 1, 2015, through October 31, 2015. The anticipated total award amount for all 36 awards is **\$9,944,789**. Pls from EHE are in bold. Awards where EHE is not the primary, Co-Is from EHE are bolded. For additional information on these and previous awards, go to u.osu.edu/eheresearchawards/.

PI/Co-I	Department	Sponsor Name
JAMES AUSTIN ; Robert Mahlman; John Moser	CETE	Rehabilitation Engineering and Assistive Technology Society of North America
MOLLIE BLACKBURN	Teaching and Learning	Spencer Foundation
PATRICIA ENCISO ; Brian Edmiston	Teaching and Learning	National Writing Project Corporation
SHAWN FLANAGAN	Human Sciences	National Strength and Conditioning Assn
BELINDA GIMBERT ; Robert Mahlman	CETE	OH Dept of Educ
JACQUELINE GOODWAY ; Laura Justice	Crane Center for Early Childhood	Admin Children, Youth, & Families
DEBORAH GRZYBOWSKI; Tiffany Wild	Teaching and Learning	Ohio Department of Education
LAURICE JOSEPH ; Sheila Morgan	Educational Studies	McGraw-Hill
LAURA JUSTICE	Crane Center for Early Childhood	City of Columbus
CLAIRE KAMP DUSH ; Hui Zheng	Human Sciences	University of Denver
TRACI LEPICKI ; Robert Mahlman	CETE	Ohio Board of Regents
TZU-JUNG LIN	Educational Studies	Chiang Ching-kuo Foundation for International Scholarly Exchange
KATHRYN MAGUIRE JACK; Kelly Purtell	Human Sciences	Administration for Children and Families
ROBERT MAHLMAN ; James Austin	CETE	Ohio Department of Education
HELEN MALONE	Educational Studies	Franklin County Board of Developmental Disabilities
KATHY MALONE ; Lin Ding; Kathleen Harper; Karen Irving; Zakee Sabree	Teaching and Learning	Ohio Department of Education
LESLIE MOORE	Teaching and Learning	Center of Science and Industry (COSI)/NSF
TONYA ORCHARD ; Rebecca Andridge; Martha Belury; Joshua Bomser; Anne DeVries; Maryam Lustberg	Human Sciences	National Cancer Institute
REBECCA PARKER ; Robert Mahlman	CETE	Minnesota State Colleges and Universities
PETER PAUL	Teaching and Learning	University of Dayton
ARNULFO PEREZ ; Kathy Malone; Christopher Stewart	Teaching and Learning	NSF Div of Research on Learning
PETER ROGERS ; Denny Davis; Lin Ding	Teaching and Learning	NSF Div Undergraduate Education
RACHEL SCHACHTER ; Shayne Piasta	Crane Center for Early Childhood	Spencer Foundation
TERESA SHIVERDECKER ; Shirley Yu	Ohio Resource Center	Ohio Department of Education
NATASHA SLESNICK (5 awards)	Human Sciences	Ohio Office of Attorney General
TUNDE SZIVAK	Human Sciences	National Strength and Conditioning Association
JEFF VOLEK ; Richard Bruno; Orlando Simonetti	Human Sciences	Dairy Management, Inc.
JANE WIECHEL	Crane Center for Early Childhood	Franklin Co Job And Family Services
JANE WIECHEL	Crane Center for Early Childhood	Homeless Families Foundation
TIFFANY WILD	Teaching and Learning	Salus University
CHRISTOPHER ZIRKLE (2 awards)	Educational Studies	Ohio Department of Education

UPCOMING EVENTS

WORKSHOPS:

**IRB ISSUES PART II:
SUBMISSION STRAND,
MONITORING, AUDITS**

January 22, 2016
260 Ramseier, 10-11:30am
go.osu.edu/IRBissues2

**EHE CENTERS EXPO:
PARTNERSHIPS, PROJECTS,
PROGRAMS**

March 9, 2016
260 Ramseier, 1:00-2:30pm
go.osu.edu/CentersExpo2016

**DATA SECURITY AND
COMPLIANCE**

April 6, 2016
260 Ramseier, 1:00-2:30pm
Additional registration
information coming soon.

If you would like to be
added to our events
mailing list, please contact
Rebecca Chacko at
chacko.9@osu.edu.

2016 EHE SEED GRANT AWARDEES

The EHE Office of Research annual seed grant program supports the scholarly activities of its faculty and research staff by supporting investigations that break intellectual ground and provide the foundation for additional proposal development. For more information visit go.osu.edu/EHESeedGrants.



T. Chao

Theodore Chao and Michael Battista, Teaching and Learning

Developing and pilot testing of an electronic environment for helping elementary teachers attend to and understand their student's mathematical thinking



M. Battista



C. Gugiu

Cristian Gugiu, Educational Studies and Mihaiela Gugiu, Crane Center for Early Childhood Research and Policy

Do background variables matter to ratings of teacher effectiveness?



M. Gugiu



M. Betz

Michael Betz and Anastasia Snyder, Human Sciences

The shale boom's effect on the distribution of income and wealth in rural communities: Implications for families



A. Snyder



K. Purtell

Kelly Purtell, Human Sciences, and Jessica Logan, Crane Center for Early Childhood Research and Policy

Producing high quality childcare: Barriers and best practices in Columbus childcare centers



J. Logan

EDITORS

Director

Kimberly Lightle
lightle.16@osu.edu

Administrative Coordinator

Rebecca Chacko
chacko.9@osu.edu

Design

OIT Web Services Team
servicedesk@ehe.osu.edu

INTRODUCING THE NEW STAR HOUSE



Natasha Slesnick

To support the more than 1,500 homeless youth living on the streets of central Ohio, Star House founder Natasha Slesnick is shining a light on a population that has been invisible for far too long. Star House, the nation's only research-based drop-in center, works to pull these young people out from the fringes of society and help them experience care, love and connection.

With support from Terry O'Connell, who serves as the Star House Advisory Board chair, the College of Education and Human Ecology and many donors, Star House has raised more than \$1.5 million in donations to purchase a larger location. The new 14,000-square-foot building, located at 1220 Corrugated Way, offers a one-stop shop for homeless youth. It now includes a medical room staffed by nurses and doctors from Nationwide Children's Hospital.

The new drop-in center has enough space to begin a social enterprise operation, where homeless young people will learn employment skills and earn money so they can save money for an apartment and find a long-term job. This will allow the homeless youth to leave the streets for good.

For additional information about Star House or to volunteer, visit starhouse.ehe.osu.edu.