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THE OHIO STATE UNIVERSITY
COLLEGE OF EDUCATION AND HUMAN ECOLOGY

in REVIEW
OFFICE OF RESEARCH-NEWSLETTER

FEATURED AWARD

EARLY LEARNING NETWORK: CRITICAL CONTRIBUTIONS OF CLASSROOM ECOLOGY TO CHILDREN'S LEARNING

Laura Justice

In July of 2016, the Institute of Education Sciences (ies.ed.gov) awarded Principal Investigator Laura Justice (Educational Studies) and her colleagues Kelly Purtell (Human Sciences), Tzu-Jung Lin (Educational Studies), Jessica Logan (Crane Center for Early Childhood Research and Policy), Mileidis Gort (University of Colorado at Boulder), and Richard Lomax (Educational Studies) $4.5M to generate a comprehensive, empirically driven model of the dimensions of classroom ecology that shape the academic and social development of children from pre-K to third grade. This research project aims to identify features of the classroom ecology—including the objective (e.g., classroom composition) and subjective (e.g., student experiences) properties of the classroom environment—that exert a strong influence on children's development. It also examines educational policies and practices via systems-level analysis that serve to shape the classroom ecologies.

This five-year research project includes three studies that will lead to a unified, comprehensive model of the classroom ecology and its multiple and inter-related dimensions. The comprehensive model will include examination of policies and practices that affect classroom ecology and how these are generated and diffused; it will also include a description of the dimensionality of classroom ecology, and the extent to which specific dimensions are associated with children's outcomes during each of the first years of schooling. In addition, this work will describe stability and change in classroom ecologies, as experienced by a longitudinal sample of children followed through third grade, and describe how stability and change are associated with transition to kindergarten and subsequent trajectories for preschool participants and nonparticipants.

This work is part of an IES initiative called The Supporting Early Learning From Preschool Through Early Elementary School Grades Network (Early Learning Network). The purpose of a network is to work together to address a critical education problem or issue. The network is composed of five research teams (The Ohio State University, University of Virginia, University of North Carolina, Boston University, University of Nebraska), an assessment team (Arizona State University) and a network lead (University of Nebraska). These teams meet regularly to discuss research plans and progress and to identify ways that they can strengthen their work by collaborating on data collection tools, common measures, dissemination of study findings and other activities.

For more information about this award, please contact Tzu-Jung Lin at lin.1653@osu.edu.

A MESSAGE FROM OUR INTERIM ASSOC. DEAN

This issue of our newsletter focuses on collaborations across the university, as we wanted to acknowledge the strong relationships across OSU. We are also pleased to share the new awards received by our faculty and congratulate them all on their successes.

The Office of Research and the Research Methodology Center have a great series of workshops and webinars scheduled this semester focused on meeting the needs and interests of researchers, so I am sure you will find them helpful. All our events are listed on our EHE Research Events calendar (go.osu.edu/ResearchEvents).

I am excited to be in the role of Interim Associate Dean for Research, and look forward to working with our EHE faculty and staff over this semester.

Sandy Stroot
Interim Associate Dean for Research

COLLABORATIONS ACROSS THE UNIVERSITY

We want to highlight seven of our college's most interesting and productive collaborations between faculty from our college and other colleges at Ohio State. These projects reflect the importance of building relationships and working together.

Thompson Library [jpg]. Retrieved from go.osu.edu/photographs

Investigating and Improving Synthesis Problem-Solving Skills in Introductory Physics via Analogical Reasoning

Sponsor: National Science Foundation (Research on Education and Learning)

PI: Lin Ding (EHE). Co-PI: Andrew Heckler (Physics)

The focus of this project is to investigate and improve student skills in solving synthesis problems in introductory physics - that is: problems that require a joint application of multiple physics concepts including those taught in different chapters or at significantly different times in the course. Differing from the traditional textbook exercises and closer to real-world situations, these synthesis problems cannot be easily solved by using formula-based "plug-and-chug" approaches. Rather, they require students to recognize and coordinate multiple key concepts in order to reach a successful solution. This project directly targets undergraduate students in Science, Technology, Engineering and Mathematics (STEM) who are enrolled in college-level introductory physics courses.

Comprehensive Lifestyle Intervention Program for Knee Osteoarthritis Patients (CLIP-OA)

Sponsor: National Institutes of Health (National Institute on Aging)

PI: Brian Focht (EHE). Co-PI: Kevin Hackshaw (Immunology and Rheumatology)

The aim of this project is to develop efficacious and sustainable lifestyle interventions in health promotion and disease prevention efforts for patients with knee osteoarthritis (OA), especially those who are overweight. At the completion of this project the comparative effectiveness of two community-based interventions will be known: community-based exercise+dietary weight loss program versus the Arthritis Foundation's Walk With Ease Exercise program. The primary positive impact of the trial is that the results of this study could alter the Arthritis Foundation's approach to the management of the functional consequences and symptoms of knee OA in communities nationwide.

EiE (Engineering is Elementary) Ohio – Building 21st-Century Learners

Sponsor: Ohio Department of Higher Education (Improving Teacher Quality)

PI: Karen Irving (EHE). Co-PIs: Kathy Malone (EHE), Andrew Heckler (Physics), Rachel Kajfez (Engineering Education)

This project is a collaboration between multiple Ohio State colleges and the Columbus City Schools to bring STEM-integrated engineering units to high-needs elementary schools. Introducing science and mathematics in engineering contexts exposes young children to a variety of engineering, science and technical careers. Early introduction to engineering can encourage many capable students—including females and other under-represented groups in STEM fields—to consider engineering as a future career choice. The collaborative nature of the design projects helps students develop the skills needed for effective teamwork, which is useful because communication skills are important for success.

Modelling Biology Instruction: Leaders in Science and Engineering

Sponsor: Ohio Department of Higher Education (Improving Teacher Quality)

PI: Kathy Malone (EHE). Co-PIs: Karen Irving (EHE), Lin Ding (EHE), Kathleen Harper (Engineering Education), Zakee Sabree (Evolution, Ecology, and Organismal Biology)

The objective of this project to improve the content knowledge of 63 teachers and over 1,800 students in high-needs secondary schools using a professional development model that has teachers teaching teachers, along with cutting-edge exposure to biological and engineering researchers. These teacher leaders will be trained in biology and engineering concepts, assist in developing both a diagnostic concept assessment (S-BCI) and teacher educative materials, and pilot curricular units with bioengineering projects they develop with project staff. Then, with the support of Ohio State biology and engineering faculty, they will provide a 90-hr summer institute for 60 teachers from high-needs secondary schools.

Effect of n-3 Fatty Acids and Sugars on Chemotherapy-induced Cognitive Deficits

Sponsor: National Institutes of Health (National Cancer Institute)

PI: Tonya Orchard (EHE). Co-PIs: Rebecca Andridge (Public Health), Martha Belury (EHE), Joshua Bomser (EHE), Courtney Devries (Neuroscience), Maryam Lustberg (Medical Oncology)

The primary objective of this project is to use a randomized, placebo-controlled trial to determine the extent to which dietary supplementation with n-3 fatty acids reduces neuroinflammation and prevents cognitive decline in women receiving chemotherapy after breast cancer surgery, and whether n-3 fatty acids are more effective in women whose usual diets are lower in added sugars. Also examined are the mechanisms through which chemotherapy impairs cognitive performance and the potential of added sugars to modify the neuroprotective effects of n-3 fatty acids by including experiments using a translational mouse model. The protocol closely approximates the chemotherapy regimen commonly used to treat women with breast cancer.

Of the 65 awards received in 2016, 21 include collaborations: 4 with other universities, 14 with other colleges at OSU and 3 across EHE.

14% inter-departmental collaborations (between EHE departments and/or centers)

65% inter-college collaborations (within OSU)

19% external collaborations (outside EHE/OSU)

Functions for Programming: Computer Modeling in Algebra

Sponsor: National Science Foundation (STEM+Computing)

PI: Arnulfo Perez (EHE). Co-PIs: Kathy Malone (EHE), Christopher Stewart (Computer Science and Engineering)

Through its focus on algebra—the most widely taken high school mathematics course—Computer Modeling in Algebra will pilot an approach that has the potential to put computer science squarely in the path of virtually every high school student. This project will combine the pedagogical content knowledge of researchers in STEM education and the computational prowess of computer scientists to infuse programming and computer modeling into a project-based algebra unit on linear functions taught to students from a range of backgrounds. Teachers and students will develop an understanding of computational thinking as a way of creatively approaching tasks using fundamental concepts from computer science.

Urban G.E.M.S. (Grow Fresh, Eat Fresh, Market Fresh, and Sustain Healthy Communities)

Sponsor: United States Department of Agriculture (National Institute of Food and Agriculture)

PI: Deanna Wilkinson. Co-PIs: Laquore Meadows (OSU Extension), AnaClaudia Zubieta (OSU Extension)

Urban GEMS is a multifaceted, 21st-century youth development initiative designed to reduce high school dropout by enriching the science, health, personal and career development curricular offerings at two community sites for youth and families at high risk. Students build competencies in youth leadership, teamwork, project development, project management, microbusiness operations, professionalism, event planning and Internet and social media marketing. Faculty and staff from OSU Extension and SNAP-Ed provide classes on nutrition, expertise on sustainable agriculture, and program evaluation. Additional partners are the National Center for Urban Solutions (NCUS) and the African American Male Wellness Walk.

EHE
RMC
RESEARCH METHODOLOGY CENTER

TEAM SCIENCE AND AUTHORSHIP

As team science approaches to research grow, so does the need for clarity in authorship. We've identified some resources that can help novice as well as seasoned researchers with decisions regarding authorship.

American Journal Experts (AJE): The Ethics of Manuscript Authorship

Reviews the ICMJE guidelines, with additional information on choosing a journal, the peer review process, and related publication issues. Translations in Portuguese and Chinese. (aje.com/en/arc/ethics-manuscript-authorship/)

International Committee of Medical Journal Editors (ICMJE)

Comprehensive website dedicated to the 2015 "Recommendations for the Conduct, Reporting, Editing, and Publication of Scholarly Work in Medical Journals." These recommendations—originally known as the "Vancouver Recommendations"—are in use by many non-ICMJE journals as well. (icmje.org/recommendations/)

Northern Illinois University

A collection of learning modules focusing on responsible authorship and manuscript preparation. They cover collaborative authorship and authorship credit guidelines and tips for avoiding common mistakes in manuscript preparation (methodology and interpretation). (niu.edu/rcrportal/publication/)

NEED A NEW PERSPECTIVE? TRY TEAM SCIENCE

In 2007, Wuchty, Jones and Uzzi studied authorship patterns in over 19.9 million papers published over five decades. They concluded that research is increasingly being done by teams, that team-produced research is more likely to be cited, and that teams are increasingly responsible for producing the most impactful research. These findings aren't surprising given the increasing complexity of the problems we are trying to solve. Yet the study of the "how and whys" associated with conducting impactful scientific research in teams is relatively new.

Bennet and Gadlin (2013) describe team science on a continuum of both interaction and integration. At the lowest end of the continuum, a single researcher works alone. At the highest end of the continuum, integrated research teams meet, agree on goals and objectives, and share leadership. Stokols et al. (2008) have identified a continuum of disciplinary integration that distinguishes team science from simple collaboration. Moving from *unidisciplinarity* to *transdisciplinarity*, research teams are increasingly attempting to synthesize conceptual frameworks, theories, concepts and methods across previously impermeable disciplinary boundaries.

For more information on team science, please consult the resources listed. A more extensive list of team science resources and the references cited in this article can be found on the Research Methodology Center's (RMC) Resource Guides page (see rmc.ehe.osu.edu).

The Team Science Toolkit

The team science toolkit, created by the National Cancer Institute, is a user-generated, interactive collection of resources for professionals engaged in team science (teamsciencetoolkit.cancer.gov/public/WhatisTS.aspx).

Science of Team Science Website

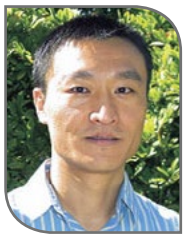
A website dedicated to building the knowledge base for team science, this site features information on the SciTS annual conference and the option to subscribe to the group listserv (scienceofteamscience.org/workshop-submissions).

National Research Council (2015). *Enhancing the Effectiveness of Team Science. Washington, DC: The National Academies Press. doi: 10.17226/19007.*

Describes the evolution of team science and provides advice on how a culture of team science can be fostered and supported (nap.edu/catalog/19007/enhancing-the-effectiveness-of-team-science).

2017 EHE SEED GRANT AWARDEES

The EHE Office of Research annual seed grant program supports the scholarly activities of its faculty and research staff by funding investigations that break intellectual ground and provide the foundation for additional proposal development. This year's seed grant program required a collaboration between researchers in EHE and Arts and Sciences.



Lin Ding

Lin Ding (Teaching and Learning) and Ian Krajbich (Arts and Sciences)

Discovery Through the Eyes of Problem Solvers: Using Eye-Tracking Technology to Explore the Mechanisms of Successful and Unsuccessful Approaches to Synthesis Physics Problems

This project is aimed at using eye tracking to study attention patterns of experts and novices as they solve novel synthesis physics problems. These problems involve multiple topics typically taught in different chapters and at various time points. Successful strategies for synthesis problems differ considerably from those for traditional physics tasks.

Elaine Richardson

Elaine Richardson (Teaching and Learning) and Wendy Smooth (Arts and Sciences)

Girls of Color as Social Change Agents: Identifying Pathways to Leadership

This project applies insights from political science, women's and gender studies and girls' empowerment studies to understand girls of color and their leadership aspirations. Using focus groups with girls of color ages 8-14, we seek to identify how girls of color respond to role models in politics with whom they share some demographic identity markers.

Leslie Moore

Leslie Moore (Teaching and Learning) and Monique Mills (Arts and Sciences)

Assessing Students' Narrative Language: Emic and Etic Perceptions

The goal of the proposed exploratory study is to expand the empirical basis on which to establish best practices for assessing the narrative language of school-age Black students—a population which tends to underperform academically compared to Asian and White students. Although the factors that contribute to these educational disparities are complex and myriad, language skills form the bedrock of academic success.

Ouliana Zouzenkova

Ouliana Ziouzenkova (Human Sciences), Randy Nelson (College of Medicine) and Jonathan Parquette (Arts and Sciences)

Development of Nanoscaffold-Delivery of Insulin-Sensitizing Proteins to Target Diabetes

We propose to develop nanostructured protein scaffolds for the safe delivery of insulin and other proteins, such as epiregulin, shown to be capable of overcoming insulin resistance and obesity in our preliminary studies. The successful completion of this project will address a long-standing problem in achieving lasting treatment of chronic diseases with protein therapeutics.

For additional information about any of these projects, please contact the principal investigator. For information about past seed grants, please visit our website at go.osu.edu/EHESeedGrants.

STUDENT RESEARCH AWARDS

TRAVEL AWARDS

The following individuals received EHE Office of Research Travel Awards July - October 2016.

FACULTY INTERNATIONAL TRAVEL

Educational Studies
Karen Beard
Christopher Zirkle

Human Sciences
Claire Kamp-Dush

Teaching and Learning
Dean Cristol

GRADUATE STUDENT TRAVEL

Educational Studies
Leigh Ann Amspaugh; Natalie Andzik; Sheng-Bo Chen; Jennifer Dane; Zak Foste; Ryan Kapa; Christian Martinez; Maureen Myrtil; Alana Oif; Jamie Paulson; Gregory VanHorn; Pamela VanHorn; Sharon Watkins; Qingqing Xia; Christopher Yaluma; Xi Zhan

Human Sciences
Taylor Banh; Ana' Brown; Sugene Cho; Jennifer Cotto; Gui Jeong Kim; Seulki Ku; Congrong Ouyang; Seung Yeon Park; Hanna Paulose; Jia Yan

Teaching and Learning
Chris Bolognese; Eileen Buescher; SuBeom Kwak; Hyoseon Lee; Luis Fernando Macías; Caitlin Murphy

POSTDOCTORAL TRAVEL

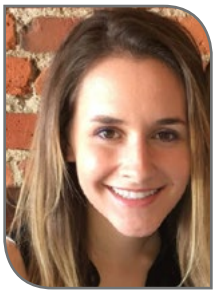
Educational Studies
Bruce Arnold

APPLY ONLINE

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

All EHE Office of Research travel grant applications are accepted at any time during the year and must be submitted PRIOR to travel.

EHE STUDENTS AWARDED OSU PRESIDENTIAL FELLOWSHIPS



Lauren Altenburger

Bradley Cotten

Two Human Sciences graduate students were awarded Ohio State's 2017 Presidential Fellowships: **Lauren Altenburger**, Human Development and Family Science; Sarah Schoppe-Sullivan, advisor, Human Sciences; and **Bradley Cotten**, Human Nutrition; Martha Belury, advisor, Human Sciences. The Presidential Fellowship is the most prestigious award by the Graduate School recognizing scholarly accomplishments of graduate students entering the final phase of dissertation research or terminal degree projects. Altenburger's dissertation topic is "*Father-Child Relationships: Early Precursors and Consequences of Involvement for School-Age Children's Social and Cognitive Adjustment.*" Cotten's dissertation topic is "*Bioavailability and Activity of Dietary Flavonoids to Alter Cancer Cachexia in a Mouse Model.*"

For more information about these candidates and their research, visit go.osu.edu/PresFellow. For information about the presidential fellowship program, please visit go.osu.edu/PresFellowGuidelines.

BRAKENHOFF RECEIVES R36 DISSERTATION GRANT FROM NIDA/NIH

Brittany Brakenhoff

Brittany Brakenhoff, Human Development and Family Science, Natasha Slesnick. advisor, Human Sciences, was recently awarded a R36 dissertation grant from the National Institute on Drug Abuse (NIDA). The project, titled "*Understanding HIV Risk Behaviors of Homeless Youth,*" uses a mixed methods approach to develop a better understanding of homeless youths' high-risk sex behaviors and their perception of the benefits and risks associated with engaging in high-risk behaviors. Brakenhoff developed the idea for the grant while providing therapy to homeless youth at Star House.

To find NIH dissertation funding opportunities, use the keyword "dissertation" in the NIH Guide to Grants and Contracts at go.osu.edu/NIHDissertation.

NEW RESEARCH AWARDS

Faculty and staff in the college received 23 new awards from July 1, 2016, through October 31, 2016. The anticipated total award amount for all 23 awards is $12,848,581. PIs 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
Cynthia Buettner; Sarah Lang	Human Sciences	National Institute of Food and Agriculture
Barbara Boone; Robert Mahlman	CETE	Ohio Department of Education
Richard Bruno	Human Sciences	Pennsylvania State University
Richard Bruno	Human Sciences	American Egg Board
Nicholas Funderburg; **Martha Belury;** Ralf Bundschuh; Susan Koletar; Subha Raman; Abigail Shoben; Pearlly Yan	Human Sciences	National Heart, Lung, and Blood Institute
Earl Harrison	Human Sciences	Columbia University
David Julian; Robert Mahlman; Melissa Ross	CETE	Makah Tribe
David Julian; Robert Mahlman; Melissa Ross	CETE	Ohio Department of Mental Health and Addiction Services
Laura Justice; Mileidis Gort; Tzu-Jung Lin; Jessica Logan; Richard Lomax; Kelly Purtell	CCEC	Institute of Education Sciences
William Kraemer	Human Sciences	Office of Naval Reserves
Tzu-Jung Lin	Educational Studies	National Education Association
Nicole Luthy	DICE	Mentor Public Schools
Robert Mahlman; James Austin; Brooke Parker	CETE	Ohio Department of Education
Matthew Mayhew	Educational Studies	Interfaith Youth Core
Susan Nell; Robert Mahlman	CETE	Ohio Dept Rehabilitation and Correction
Nancy Neef	Educational Studies	Westfall Local Schools
Peter Paul	Educational Studies	University of Dayton
Kelly Purtell	Human Sciences	American Educational Research Association (AERA)
Ruchika Prakash; **Rick Petosa**	Human Sciences	National Multiple Sclerosis Society
Natasha Slesnick	Human Sciences	Franklin County Board of Commissioners
Tiffany Wild	Teaching and Learning	Salus University
Christopher Zirkle	Educational Studies	Ohio Department of Education
Christopher Zirkle	Educational Studies	Ohio Department of Education

***when the PI is not from EHE, the EHE Co-I is bolded and the Co-I's department is listed**

MEET THE NEW SPO FOR HUMAN SCIENCES

Aimee Sanford

Aimee Sanford joined the Office of Sponsored Programs in the Office of Research as Sponsored Program Officer (SPO) for the Department of Human Sciences. Sanford is originally from Tacoma, Washington. She studied at the University of Findlay and earned bachelor's degrees in marketing and equestrian studies. Before her transition to The Ohio State University, she worked in health care as the benefit coordinator for a home infusion company. Sanford says she is excited to join the Office of Sponsored Programs and looks forward to getting to know everyone. Contact: sanford.136@osu.edu; (614) 688-2773

BUILDING THE PERFECT TEAM: COLLABORATOR FINDER TOOLS

EHE Researcher Expertise (ehe.osu.edu/directory/)

This tool allows users to browse education and human ecology research topics and find out which EHE researchers have expertise in that area. Clicking on the name of the researcher will lead users to a bio page that provides a detailed profile of the researcher.

EngageOSU (osu.academicanalytics.com/)

EngageOSU is an online portal into the research portfolio of The Ohio State University. It enables users to search the entire scope of our research experts. It covers research in all fields – including the life sciences, physical sciences, engineering, humanities and the liberal arts – and covers all Ohio State campuses. The results list provides a list of faculty with their associated research productivity – number of collaborators, articles, books, grants, etc. Clicking on the faculty name in the return list provides a visual representation of their collaborators and the Ohio State program with which they are associated. Clicking on the blue person icon provides a word cloud and the details on research productivity as well as contact information.

Ohio Innovation Exchange (BETA) (ohioinnovationexchange.org/)

This new initiative developed jointly by four major Ohio universities – Case Western Reserve University, Ohio University, The Ohio State University and the University of Cincinnati – provides access to more than 8,250 faculty profiles and 200 resources from the four universities. The purpose of this beta release is to (i) highlight the work completed to date, (ii) demonstrate functionality to other Ohio-based university partners and (iii) serve as a pre-RFP reference point for potential vendors. In subsequent releases, this innovative knowledge management framework will provide users with interactive tools to connect faculty, staff and students with industry in new information-driven ways.

Research In View (osu.researchinview.thomsonreuters.com/)

Ohio State's institution-wide system aggregates, standardizes and links information for every scholarly activity. Public search functionality is now live within Research in View. User settings determine the public/private setting for each entry within the Research in View profile.

STEAM Factory (steamfactory.osu.edu/)

The STEAM Factory (Researcher Network Facilitating a Culture of Interdisciplinary Collaboration) is a diverse and inclusive grassroots network in the Ohio State community that facilitates creative and interdisciplinary collaboration, innovation and dissemination. The goals are to provide opportunities for collaboration that enhance and drive innovation within all research disciplines; to provide linkages and interdisciplinary interactions between Ohio State departments and colleges; and to increase the public awareness, understanding and impact of Ohio State research.

UPCOMING EVENTS

Additional events are listed on our events calendar!

Register online
go.osu.edu/ResearchEvents

PI PORTAL: PERSONNEL OVERVIEW WEBINAR
February 16, 2017
11:30AM - 12:00PM

SURVEY TOOLS WEBINAR
March 2, 2017
1:00PM - 2:30PM
(Registration coming soon)

ARCHIVING DATA
April 10, 2017
Research Commons, 1:00PM
18th Ave. Library, 3rd Floor
(Registration coming soon)

SIXTH ANNUAL STUDENT RESEARCH FORUM
FEBRUARY 24, 2017

Register online at the Research Forum website
u.osu.edu/ehestudentresearch/

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