Community for Advancing Discovery Research in Education

Bios for Past CADRE Fellows

*Meet the Fellows from 2010–2011, 2011–2012 and 2012-2013**

2010–2011

Irving Brown
Texas A & M University
Project: Preservice Teachers' Knowledge for Teaching Algebra for Equity in the Middle Grades
PI: Gerald Kulm

Irving Brown is a PhD candidate at Texas A&M University in Mathematics Education with primary research interests in STEM education, preservice teacher education, and the use of computational technology in mathematics education. Prior to coming to TAMU, he taught mathematics full-time at Huston-Tillotson University where he also worked on a U.S. Dept. of Education Minority Science and Engineering Improvement Program (MSEIP) grant. Irving has over 18 years of industry experience as both a process controls engineer and as a senior technical instructor, during which time he taught PLC (Programmable Logic Controller) programming courses. In January 2011, he will remain at TAMU and become the postdoctoral research fellow on the DR K-12 grant project entitled, "Preservice Teachers' Knowledge for Teaching Algebra for Equity in the Middle Grades."

Jennifer Hope
University of Missouri, St. Louis
Project: Science Literacy through Science Journalism (SciJourn)
PI: Joseph Polman

Jennifer Hope is a graduate assistant in the doctoral program at the University of Missouri-St. Louis. She is currently working on dissertation research within the "Science Literacy through Science Journalism" project, focusing on high school student engagement in science and technology in both in- and out-of-school settings. Jennifer has a bachelor's degree in Environmental Science from Lenoir-Rhyne College, an MA in Environmental Education from Maryville University, and a certificate in Education Program Evaluation from UM-S. She has extensive experience in teaching and coordinating environmental and outdoor education programs in a variety of non-formal education settings, and has also developed related curricula for classroom use. Her career goals are focused around evaluation of non-formal science education programs, with a particular interest in the student experience.

Casey Hord
Purdue University
Project: Nurturing Multiplicative Reasoning in Students with Learning Disabilities in a Computerized Conceptual-Modeling
PI: Yan Ping Xin

Casey Hord completed a BA in Sociology at Millikin University in 1997. After three years as a mental health professional, he returned to college and earned his MS in Education from Southern Illinois University at Edwardsville in 2002. He was a special education teacher at the sixth-, seventh-, and eighth-grade levels for two years. Then, he taught sixth-grade general education mathematics for four years. In 2008, he was admitted to the PhD program in Special Education at Purdue University and

*Bios from the 2009-10 cohort are unavailable.

began studying under Professor Yan Ping Xin. For over two years, he has been the project coordinator of the NSF-funded "Nurturing Multiplicative Reasoning in Students with Learning Disabilities in a Computerized Conceptual-Modeling" project. Casey has also provided guidance and supervision to special education student teachers while at Purdue University. His primary goal as a researcher is to help students with mild disabilities gain access to higher level mathematics such as algebra and geometry.

Mario Martinez-Garza
Vanderbilt University
Project: Scaffolding Understanding by Redesigning Games for Education (SURGE)
PI: Doug Clark

Mario Martinez-Garza is a doctoral student of Math, Science, and Engineering Education at Vanderbilt University. A life-long gamer and student of games, his main areas of interest are the investigation of the nature of learning through games, and also the application of good design principles to support learning through play activity of all kinds. He has alternated careers between technology and education, serving as a middle-school math and science teacher, a competition math coach, and also co-founder and lead game designer of Kognitia Games, a start-up devoted to delivering fun, competitive games to support school mathematics. Most recently, he served as a producer and game designer at large for a company specializing in commercial casual games. He holds a BS in Chemistry and a MEd in Education.

Camillia Faye Matuk
University of California, Berkeley
Project: Visualizing to Integrate Science Understanding for All Learners (VISUAL)
PI: Marcia Linn

Camillia Faye Matuk is currently an associate specialist under the direction of Marcia Linn at the Graduate School of Education at the University of California, Berkeley, where Camillia assists with the NSF-funded project," Visualizing to Integrate Science Learning for All Learners (VISUAL)." She is also finishing a PhD in the department of the Learning Sciences under the advisement of David H. Uttal at Northwestern University in Evanston, Illinois. Her interests are in the visual communication of science: in how people make meaning of concepts from images; in how they invent and use notations to solve problems; and more broadly, in the link between aesthetics, cognition, and creative thinking. She investigates questions of scientific representation, specifically, of its invention, symbolization, interpretation, and design. She also considers various forms of imagery, from diagrams, to animations, to graphic stories, to interactive multimedia.

Jamie Mikeska
Michigan State University
Project: Learning Science as Inquiry with the Urban Advantage: Formal-Informal Collaborations to Increase Science Literacy and Student Learning
PI: James Short

Jamie Mikeska completed her PhD in Curriculum, Teaching, and Educational Policy at Michigan State University in 2010. She is currently serving as project director on a research study that examines how informal science institutions can best design resources to support teachers, administrators, and families in helping middle school students learn how to conduct scientific investigations and better understand the nature of science. In her graduate studies, she worked for four years on a research project examining the effects of science-specific professional development on teachers' knowledge and

teaching practices and the learning and engagement of their students. Prior to graduate school, Jamie taught elementary school for five years outside of Washington, D.C., and earned her National Board certification during her tenure as a public school teacher. Her research interests center on the connection among professional development, science teachers' learning and classroom practice, and students' achievement and engagement. She also conducts research at the intersection of literacy and science education and has been examining strategies elementary students use to understand different types of science texts.

Uma Natarajan
Temple University
Project: SAVE Science: Situated Assessment Using Virtual Environment for Science Content and Inquiry
PI: Diane Jass Ketelhut

Uma Natarajan is project manager for the DR K-12 project "Situated Assessments Using Virtual Environments" at Temple University's College of Education. She has been involved in research in education internationally, and her interests are centered primarily on integration of technology in classrooms. Uma's doctoral work focused on a sociocultural approach to the study of the curriculum and practices in a secondary school's computer-applications classroom in Singapore. She has over 10 years of experience teaching in a variety of settings and levels. Prior to this current position at Temple University, Uma was a research associate for five years in the Centre for Research in Pedagogy & Practice (CRPP) in Singapore, where she worked on several projects, including capacity-building efforts for middle school science teachers to teach for understanding, implementing a coding scheme to capture classroom teaching across 800 classrooms, planning and developing an inter-disciplinary curriculum with teachers, and implementing Web-based tasks for high-achieving students in secondary school science and history classrooms in the country.

Vishakha Parvate
KCP Technologies
Project: Data Games: Tools and Materials for Learning Data Modeling
PI: William Finzer

Vishakha Parvate knew at the age of six that she wanted to teach math, not because she was good at it (though, in a conventional sense, she was and has been "good at Math"), but because she couldn't fathom why some of her most intelligent friends claimed they were no good at it. This basic conundrum of a perceived lack of math expertise among smart, hard-working folks is at the heart of her motivation for working in the area of technology in math classrooms. Disillusionment with the meaninglessness of all the symbol manipulation that consisted the bulk of her undergraduate major in mathematics was mitigated by the exciting mathematical patterns that programming brought during graduate studies in Computer Science. This dual educational background and a lifelong passion for changing the teaching and learning of mathematics to be meaningful and exciting means that creating and researching dynamic mathematics technologies was the natural career path for her. At various points in time, Vishakha has taught computer science, programmed in Java and C++, and, for the past five years, has been focusing on interaction design, user testing, professional development, and project management of a dynamic mathematics software called Fathom at KCP Technologies. Currently, she is the research and project manager for the "Data Games: Tools and Materials for Learning Data Modeling" project, which is leveraging video game data as a springboard for math activities.

Jessica Tybursky
New York University
Project: Teachers' Use of Standards-based Instructional Materials
PI: Karen King

Jessica Tybursky is a second-year doctoral student in Mathematics Education at New York University in the Steinhardt School of Culture, Education, and Human Development. She is a research assistant supervised by Karen D. King, PhD on the project "Teachers' Use of Standards-based Instructional Materials." Jessica previously taught high school mathematics in West Orange, N.J., after acquiring an MA in Teaching at Montclair State University, where she developed research interests in the practices and development of mathematics teachers, and the achievement gap. Jessica graduated from Lehigh University with a BA in Psychology.

Chao Wang
University of Colorado, Boulder
Project: Design and Use of Illustrations in Test Items as a Form of Testing Accommodation for English Language Learners in Science Assessment
PI: Guillermo Solano-Flores

Chao Wang is currently a fourth-year doctoral student in the Educational Equity Cultural Diversity program in the University of Colorado at Boulder. Prior to coming to the United States, she taught English as a foreign language to students at different levels, ranging from elementary school children to college students and adults. Her research interests have always been children and teachers, and the role of language and culture in learning, teaching, and testing. She has worked for two years as a research assistant to Dr. Solano-Flores on the NSF-funded project "Design and Use of Illustrations in Test Items as a Form of Testing Accommodation for English Language Learners in Science Assessment." It examines the advantages and limitations of vignette illustrations as a form of testing accommodation for English language learners in science assessment. Her dissertation is derived from this project, and compares state, national, and international assessment programs in regards to the characteristics and functions of the illustrations used in their science test items. Chao is particularly interested in utilizing knowledge from the cognitive sciences to improve STEM instructional and assessment practices.

2011–2012

Jason Chen
Harvard University
Project: Transforming the Engagement of Students in Learning Algebra (TESLA)
PI: Christopher Dede

Jason Chen, a former science teacher, is currently a post-doctoral researcher working on the "Transforming the Engagement of Students in Learning Algebra (TESLA)" project. Chen is working towards improving STEM education through exploring innovative curriculum choices that schools make that facilitate students' motivation to pursue STEM careers. Having taught high school chemistry and physics, Jason includes classroom experience in understanding theories of motivation and design of innovative technologies to motivate students in math. He has a PhD in Educational Studies, with a specialization in Educational Psychology from Emory University.

Rick Gaston
KCP Technologies
Project: Data Games: Tools and Materials for Learning Data Modeling
PI: William Finzer

Rick Gaston is the research and project manager at KCP Technologies. He coordinates the "Data Games: Tools and Materials for Learning Data Modeling" project, focusing on development of online games and activities that improve students' math skills and understandings. Having worked as a software developer, a high school mathematics and computer programming teacher, and a public high school administrator, Rick brings a rich background to the research project. He has an MA in Educational Administration and Policy Analysis from Stanford University.

Jana Craig Hare
University of Kansas
Project: The Evidence Games: Collaborative Games Engaging Middle School Students in the Evaluation of Scientific Evidence
PI: Janis Bulgren

As project coordinator of "The Evidence Games: Collaborative Games Engaging Middle School Students in the Evaluation of Scientific Evidence" project, Jana Craig Hare assists with planning, developing, and testing the prototypes for all phases of development and data collection activities. She believes that effectiveness of technology depends largely upon the appropriate selection and implementation of the technology to meet desired teaching and learning goals. As a former secondary teacher and Native American Citizen of the Potawatomi Nation, Jana brings a unique perspective to the project. She has a PhD in Curriculum and Instruction, with an emphasis in technology-rich learning environments from the University of Kansas.

LaKeisha McClary
Miami University
Project: Chemistry Education Research Doctoral Scholars Program
PI: Stacey Lowery Bretz

LaKeisha McClary is a post-doctoral researcher with the "Chemistry Education Research Doctoral Scholars Program" project. LaKeisha is working on developing assessment measures to identify and quantify chemistry misconceptions as well as students' attitudes that shape the learning of chemistry. She is also involved in mentoring and training graduate students to develop a concept inventory related to organic chemistry students' understanding of acid strength. She has previous experience working in interdisciplinary literacy assessment and evaluations. LaKeisha has a PhD in Chemistry from the University of Arizona.

Emily Moore
University of Colorado, Boulder
Project: Expanding PhET Interactive Science Simulations to Grades 4-8: A Research-based Approach
PI: Katherine Perkins

Emily Moore is a post-doctoral researcher with the "Expanding PhET Interactive Science Simulations to Grades 4-8: A Research-based Approach" project with a disciplinary background in chemistry. In her current position, she has examined science standards documents, collected input from middle school teachers, and planned a thoughtful sequence of middle school chemistry simulations. She is also a

certified Process Oriented Guided Inquiry Learning (POGIL) workshop facilitator and has her PhD in Chemistry from the University of Utah.

Jeremy Price
Boston College
Project: Constructing and Critiquing Arguments in Middle School Science Classrooms: Supporting Teachers with Multimedia Educative Curriculum Materials
PI: Suzanna Loper

Jeremy Price is a graduate student assistant on the "Constructing and Critiquing Arguments in Middle School Science Classrooms" project. He is researching factors that impact teachers' enactment of argumentation in their classroom practice and how they could be integrated into the MECMs to better support teacher learning. Previously, he has worked as a learning and media specialist for the Center for Applied Special Technology (CAST), an NSF IMD grant focused on developing and researching a yearlong high school capstone course in urban ecology. He is a fifth-year doctoral student in Science and Technology Education at Boston College.

Jorge Solís
University of California, Santa Cruz
Project: Effective Science Teaching for English Language Learners (ESTELL): A Pre-service Teacher Professional Development Research Project across Three Universities in California
PI: Patricia Stoddart

Jorge Solís works as a post-doctoral researcher with the" Effective Science Teaching for English Language Learners (ESTELL): A Pre-service Teacher Professional Development Research Project across Three Universities in California" project, which focuses on improving the science teaching and learning of underserved K-6 linguistic minority students through improving the preservice education of elementary school teachers. Jorge works on the development and validation of the research instruments—the ESTELL Teacher Beliefs Survey and the DAISI (Dialogic Activity in Science Instruction) classroom observation and managing data collection. Prior to this project, he has had extensive experience teaching linguistic and cultural minorities. Jorge graduated from University of California, Berkeley with a PhD in Education.

Karen Trujillo
New Mexico State University
Project: Math Snacks
PI: Karin Wiburg

As a post-doctoral researcher and program manager of the "Math Snacks" project, Karen Trujillo works on research design, data collection and analysis, and writing up research reports. In her transition from a school practitioner to academic researcher, Karen supervises the gathering of data on a pilot study on the effectiveness of the Math Snacks products in increasing mathematics knowledge for middle school students. She has been a principal, teacher, math and technology specialist, and professional development provider. She has a PhD in Curriculum and Instruction from New Mexico State University.

Andrea Weinberg
Colorado State University
Project: The Value of Computational Thinking across Grade Levels (VCTAL)
PI: Margaret (Midge) Cozzens

As the project coordinator and lead researcher on the evaluation team for the "The Value of Computational Thinking across Grade Levels (VCTAL)" project, Andrea Weinberg is actively involved in the development of the evaluation plan, communication with project leaders and other participants, instrument design, the IRB approval process, data collection, and report writing, and has attended all project workshops and meetings. She has expertise in research methodology and experience developing and implementing evaluation and research studies to examine the effectiveness of STEM programs and initiatives. She has also worked on computational thinking across grade levels. Weinberg is a PhD candidate at Colorado State University's School of Education.

Binbin Zheng
University of California, Irvine
Project: Interactive Science and Technology Instruction for English Learners
PI: Mark Warschauer

As a graduate research assistant with the "Interactive Science and Technology Instruction for English Learners" project, Binbin Zheng has been responsible for collecting and analyzing data on standardized test scores, student and teacher survey data, and student writing samples from both experimental and control schools. With a research focus in the use of technology in teaching and learning, Binbin is interested in how different kinds of digital media can be incorporated into science instruction, how students develop their scientific/academic language proficiency, and how students write about science, especially English learners who are less familiar with the language of science. She has prior research experience on the use of wikis in instruction. Binbin is a doctoral student at the University of California, Irvine, specializing in language, literacy, and technology.

2012-2013

AJ Stachelek
Teachers College, Columbia University
Project: Teacher Learning Communities: Centering the Teaching of Mathematics on Urban Youth
PI: Laurie Rubel

AJ Stachelek is currently a fifth year doctoral student in the Mathematics Education program at Teachers College, Columbia University. Prior to pursuing his doctoral degree, he spent several years teaching mathematics at community colleges in both rural and urban settings, at a private boarding school, and at a public advanced mathematics and science school. During these years, his interest in the process of teaching and learning grew. As a graduate research assistant for the "Centering the Teaching of Mathematics on Urban Youth: Teacher Learning Communities" project, he assists in collecting data that captures some of the differences in teaching methods, mathematical tasks, perspectives, and classroom dynamics in urban classrooms. His current research interest revolves around observing and investigating interactions and activities in the mathematics classroom that potentially influence the learning experience and cognitive development of students.

Angela Shelton
North Carolina State University
Project: The Leonardo Project: An Intelligent Cyberlearning System for Interactive Scientific Modeling in Elementary Science Education
PI: James Lester

Angi Shelton earned her doctorate in Curriculum, Instruction, and Technology in Education with a major emphasis on Science Education at Temple University in 2012. She is currently serving as the postdoctoral scholar on The Leonardo Project at North Carolina State University. This research study is examining the use of an intelligent cyber learning system embedded within an electronic science notebook as a support for elementary student's scientific content and inquiry knowledge. In her graduate studies, she worked for three years on the SAVE Science grant that focused on using situated virtual environment-based assessments to evaluate student's scientific inquiry understanding. Prior to graduate school, Shelton taught high school Chemistry, Physics, and Earth Science in Pennsylvania. Her research interests center on scientific inquiry, professional development, and technology integration. She also enjoys working with pre-service STEM educators and trying to determine what alters their preconceptions of teaching ideals.

Arnon Avitzur
New York University
Project: Measurement Approach to Rational Numbers (MARN)
PI: Martin A. Simon

Arnon Avitzur is a fourth-year doctoral candidate in Mathematics Education at New York University. He is a research assistant to Dr. Martin A. Simon on the project "Measurement Approach to Rational Numbers" (MARN) which is supported by an NSF DR K-12 five-year grant. His dissertation work is focused on explaining how students call upon their knowledge in Geometry when solving non-routine problems. Avitzur has been teaching and tutoring middle- and high-school students in mathematics and physics for 18 years in the U.S. and Israel. He served as an adjunct professor at Touro College, teaching methods and content courses to prospective secondary mathematics teachers, and was also a teaching assistant at New York University in methods classes for prospective elementary teachers. On top of his education-related experience, Avitzur holds a B.S. in Computer Science and Operation Research and an M.B.A with a marketing specialization, both from Tel Aviv University. He worked in the hi-tech industry for 15 years as a software team leader, system architect, and a world-wide marketing manager at Microsoft Corporation.

Courtney Arthur
Education Development Center, Inc.
Project: Implementing the Mathematical Practice Standards: Enhancing Teachers' Ability to Support the Common Core State Standards
PI: Al Cuoco

Courtney Arthur is a Curriculum and Instructional Design Associate for Education Development Center, Inc. She is currently working on a DR K-12 grant project entitled "Mathematical Practices Implementation Study (MPI)", focusing on teachers' implementation of the CME Project, a high school mathematics curriculum organized around mathematical habits of mind and accompanying professional development in supporting teachers' mathematical knowledge for teaching. Arthur has a Bachelor's

degree in Human Biology, a M. Ed. in Curriculum and Instruction, as well as an M. Ed. in Educational Leadership. She has extensive classroom experience as a teacher and a Math and Science Curriculum Coordinator for Chicago Public Schools. She has developed a variety of materials for the CME Project, in addition to facilitating workshops on Algebra and Common Core across the country for various partner districts. Her career goals are focused around researching how students' learning, development, and instruction influence what they are able to do, how they think and eventually what they believe and who they become.

Dung Tran
University of Missouri – Columbia
Project: Center for the Study of Mathematics Curriculum (CSMC)
PI: Barbara Reys

Dung Tran is a Ph.D. candidate in mathematics education at the University of Missouri – Columbia with primary interests on mathematical knowledge for teaching, mathematical modeling, learning trajectories, statistical thinking and reasoning, and curriculum development and evaluation. Before joining the program, he worked as a lecturer at mathematics department at Hue University – College of Education, Vietnam. He has five years of experience training high school mathematics teachers back in Vietnam. He taught calculus, mathematics for high school teaching, mathematical logics, method courses, and mathematics for the gifted at high school. He also had ten years tutoring high school students to prepare his background for teacher training. Along with an extensive advanced mathematics coursework back in his country, he has finished course requirement for a Ph.D. minor in statistics at the University of Missouri to equip himself statistical skills for research, and statistical knowledge for teaching. Currently he is working on his dissertation about learning trajectories related to bivariate data in high school U.S. textbooks.

Jenny Dauer
Michigan State University
Project: A Learning Progression-based System for Promoting Understanding of Carbon-transforming Processes (CCE)
PI: Charles W. (Andy) Anderson

Jenny Dauer is a post-doctoral researcher working on the DRK-12 project that is known in-house as the "Carbon TIME (Transformations in Matter and Energy) Project." She works with middle and high school teachers who are piloting learning progression research-based curriculum and collecting student learning data for the project. Her multi-faceted post-doctoral work involves facilitating teacher professional development workshops, curriculum writing, teaching undergraduate science classes and research. Jenny is researching student learning about matter and energy and she is currently developing a learning progression framework about inquiry. Prior to this position, Jenny received a Ph.D. in Ecology from Oregon State University and M.S. degrees in Ecology from Penn State University. She also has a B.S. in Secondary Education and was certified to teach high school.

Kat Laxton
University of Washington
Project: Tool Systems to Support Progress Toward Expert-like Teaching by Early Career Science Educators
PI: Mark Windschitl

Kat Laxton is a second-year Ph.D. candidate at the University of Washington in Science Education with primary research interests in science curriculum development, science teacher education, and educational policy. In addition to working on the DR K-12 project, Tool Systems to Support Progress Toward Expert-like Teaching by Early Career Science Educators, Laxton works as the science content coach and teaching assistant in the teacher education program. As a teaching assistant and coach, she works primarily in helping support and develop ambitious and equitable teaching skills of the UW's teacher candidates. Laxton earned her B.S. and M.Ed. in Education and Earth Science at Louisiana State University. Throughout the 5-year teaching apprentice program at LSU, she taught science in grades 1-8 in Baton Rouge, Louisiana. In her research project while teaching, Laxton began developing a teaching model that emphasized the use of discourse and experience-based learning in the classroom. After earning her degrees, she taught 7th grade science in Nashville, Tennessee and founded the "Outdoor Adventure Club," an extracurricular club that allowed inner-city students to learn science through overnight outdoor experiences. Later, she moved to Houston, Texas and briefly taught 8th grade science in the Houston Independent School District before teaching 6th and 7th grade sciences at The Kinkaid School. Throughout her teaching career, Laxton has enjoyed working with students outside of the classroom while coaching swimming and cross-country.

Kyle R. Cheney
Virginia Polytechnic and State University
Project: Gateways to Algebraic Motivation, Engagement and Success (GAMES): Supporting and Assessing Fraction Proficiency with Game-Based, Mobile Applications and Devices
PI: Michael Evans

Kyle R. Cheney is a Ph.D. student in Curriculum and Instruction at Virginia Polytechnic and State University. His research interests include the interaction of Cognitive Psychology, Cognitive Science, and Instructional Design theories in multimedia pedagogical environments. Specifically, focusing on human-computer interactions, user interface design, and pedagogical agent design (e.g. race, gender, realism, voice) to increasing the viability of tutoring systems. Currently, Cheney is working as a graduate research assistant on the Gateways to Algebraic Motivation, Engagement and Success (GAMES) project. GAMES is a full research and development project addressing NSF DR K-12 challenge 5. This 3-year project investigates the means to strengthen algebra-readiness in middle school student by conducting research on the role of engagement in mathematics learning using game-based curricula on mobile devices.

Michelle Whitacre
University of Missouri – St. Louis
Project: Science Literacy through Science Journalism (SciJourn)
PI: Alan Newman

Michelle Whitacre is a Ph.D. candidate and graduate assistant in the College of Education at the University of Missouri-St. Louis. She has extensive experience in secondary science education having worked as both a teacher and an instructional coach. Michelle has a B.A. in English and Environmental Science from the University of Notre Dame, a M.A. in English from the University of Notre Dame-Australia, and a M.A.T. from Webster University. Her dissertation research is within the "Science Literacy through Science Journalism" project, looking specifically at the project's influence on teacher development and classroom practice. Michelle is particularly interested in improving science literacy, integrating writing into science classrooms, and developing successful professional development programs for teachers.