11th ANNUAL GRADUATE STUDENT EDUCATIONAL RESEARCH SYMPOSIUM (AGSERS)

Purdue Memorial Union North Ballroom

March 27, 2017  1:30 pm—5:30 pm
About the Symposium

Purdue University’s College of Education and the Graduate Student Education Council (GSEC) are sponsoring the 10th Annual Graduate Student Educational Research Symposium (AGSERS), a research symposium for graduate students in education-related research from across the campus to present their work and network with others within and outside their fields.

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Keynote Speaker

Dr. Mitzi Lewison, co-author of Creating Critical Classrooms: K-8 Reading and Writing with an Edge, is a distinguished Professor of Literacy, Culture, and Languages at Indiana University Bloomington. She teaches literacy methods courses in the elementary teacher education program, and master’s level literacy and children’s literature courses. She has also taught the doctoral seminars on “Issues in Language Education” and a “Seminar on Critical Literacy.”

Dr. Lewison’s research interests include: critical literacy, critical discourse analysis, teaching language arts in culturally diverse settings, and exploring non-traditional, more empowering forms of professional development. Her current research focuses on investigating the problems and potential of using critical literacy practices in elementary and middle school classrooms, the multiple and often contradictory identities that teachers and students take on during literacy and math activities, and the issues surrounding the use of controversial children’s literature and topics in elementary classrooms.

She also served as the IU English Director for two USAID projects in Afghanistan. The programs, run through the Center for Social Studies and International Education were focused on the English component of a grant designed to help rebuild teacher education programs at 16 Afghan Universities. As part of the program, twelve Afghans were brought to IU, who went on to receive their master’s degrees. Another part of the project was focused on English programs for students and faculty at the Kabul Medical University and regional medical schools in Afghanistan.

Dr. Lewison’s experience and achievements in both the local and international educational arena, aligns well with the theme for the 2017 Annual Graduate Student Educational Research Symposium (AGSERS), Knowledge to Action: Global and Local Education.

Among her many achievements is winning the 2013 Burton Gorman Teaching Award, The School of Education’s award for distinguished teaching at Indiana University.

Her educational qualifications include:

Ph.D., University of Southern California, in Curriculum and Teaching--Language, Literacy, and Learning
M. A., California State University, Los Angeles, 1984, in Educational Administration
M. S. University of Southern California, 1975, Counselor Education
B. A. University of Southern California, 1970, Urban Studies

We are very pleased to have her as the keynote speaker for the Eleventh Annual Graduate Student Educational Research Symposium (AGSERS) at Purdue University.
Session 1
1:30-3:00 PM
Temitope F. Adeoye

*One for all: The role of other-regulation for shaping a group achievement goal*

Collaborative group work is driven by the reciprocal influence of individuals and their learning context. This study aims to explore the individual’s role in negotiating shared motivational norms during collaborative activity. We draw on the construct of other-regulation to consider how a group member facilitates (guides/promotes group goal focus) or directs (controls group goal focus) the group’s motivation (Rogat & Adams-Wiggins, 2014). This case study examines three 7th graders who endorsed varying individual goal orientations at the pretest and evidenced efforts to other-regulate their group’s shared goal. We previously demonstrated that their groups differed in shared achievement goals (mastery vs. performance-approach) (Adams-Wiggins, et al., accepted). Running records of videotaped observations of collaboration during an inquiry-based science unit were coded for (a) students’ employed other-regulation of motivation and (b) groupmates’ responses to regulation. Follow-up analysis richly describe and contrast how individual’s goal orientation and other-regulation quality relate to shaping their group’s motivation.

Adegoke Adetunji

*A Complex Amalgam: Learning, Appropriation, and Identity of Six International Graduate Students*

According to the International Institute of Education, over one million international students enrolled in US colleges and universities in the 2015-2016 academic year. Despite the boom, there are nagging questions about international students’ academic satisfaction, international focus of the US curriculum, unique goals and needs of international students, and relevance of international students’ training to their home country’s needs. Within the context of university/curriculum internationalization, this study investigates how international graduates in the college of education in a Midwestern university appropriate classroom examples or case studies often drawn from American education system to meet their career/academic trajectories; how they negotiate between their “local” identity/experiences and being graduate students (budding scholars/researchers) in an American university; and processes of self-remaking, enculturation, or hybrid identity construction. The purpose of this study is to learn from lived experiences of participants, their specific challenges, and appropriation strategies. Six international graduate students (Africa, Asia, Europe, and the Middle East), who have completed at least two semesters of coursework in the College of Education at Purdue University, are sampled for this study. The author concludes with a discussion/analysis of emergent themes and trends in the interviews, drawing from social constructivist theories of education.

Harsh Wardhan Aggarwal

*Using Survey Responses for Academic Preparedness to Predict Advanced Nanotechnology MOOC Learners*

The purpose of this research is to examine the effect of academic preparedness and intention to fully utilize course materials on learner usage in an advance engineering MOOC? To answer our question, we analyzed pre-survey data (n = 694) and clickstream data for a nanotechnology related MOOC. A path analysis was conducted to determine whether pre-survey variables significantly predict user behavior. Our study found that learners with a prerequisite of calculus and previous coursework, were less likely to be sporadic learners. We also found that learners who had a goal for achieving high grade in the course were less likely to be sporadic learners. We believe the results of our study will showcase that identifiers related to academic preparedness, learner goals and intentions can be used to predict different learner types in the course.

Amir Ahmadi

*A Socioeconomic Analysis of the Determinants of Academic Achievement for English Language Learners in Rural Secondary Schools: The Case of Clinton County, Indiana*

The study considers secondary school data of Clinton County Indiana and analyzes the relationship between foundational characteristics and student performance. Students’ foundational characteristics such as race, gen-
der, cultural, social-economic and linguistic background play important roles in their school achievement/success. Students are often treated and taught equally regardless their foundational characteristics. However, academic outcomes differ from student to student. Multilinear regression is performed on four years of data from 2010-11 to 2013-school years to examine impacts of ELL programs on student achievement while controlling for socioeconomic factors. Findings are consistent with theory of critical multicultural education and there is a greater tendency for low-achievement to occur in students from diverse backgrounds than from students belonging to a dominantly white American social group. This study brings out the need for teachers' sensitivity to the diverse population of learners in the classroom to guarantee suitable pedagogic practices that lead to student success.

Murat Akarsu

*Exploring Pre-Service Teachers’ Motion and Mapping View in Geometric Reflections*

In the mathematics education literature, there is little research specifically on how learners understand geometric reflections. This study examines how schema development occurs in the movement from a motion view to a mapping view and determining what factors are critical to transition from one level of understanding to the next. Clinical interview methodology will be used to investigate PTs current mental constructions, and designed a genetic decomposition of PTs’ current reflections schema to understand how schema development occurs. The research questions that will guide this study are as follows: How does PTs’ motion view of geometric reflections develop into a mapping view? What factors facilitate PTs’ motion view of geometric reflections into a mapping view? The findings and conclusions of this study will answer questions raised by the research community in regard to how motion view evolves and generate mapping view.

Murat Akarsu and Lizhen Chen

*Preservice Teachers’ Assessment of Kindergarten Students’ Understanding of Subtraction Problems*

A challenge for pre-service teachers (PSTs) is to determine what students know about a topic through asking appropriate questions and being thoughtful about the wording of these questions so as to capture and reframe students’ spontaneous mathematics thinking. This article examines PSTs’ understanding and assessment of kindergartners’ overall subtraction understanding. We examined four pre-service teachers’ individual interviews with four kindergarten students at an elementary school to assess students’ subtraction understanding. Drawing on their plans, interview transcripts, and reflection papers, the data suggests that PSTs’ wording of subtraction questions, their sequences of asking these questions, and their strategies of re-framing these questions interact with students’ problem-solving strategies, and uncover varying amounts of students’ subtraction knowledge. Results of this article indicate the importance of helping PSTs learn how to dig into students’ subtraction thinking and provide insights into areas where PSTs’ instructors can improve pre-service training.

Richard Aleong

*Applying Systems Thinking: The Analysis of an Instructional Course as a System of Learning*

Systems thinking is often applied as an interdisciplinary way of analyzing complex problems consisting of multiple elements and high degrees of uncertainty. The goal of systems thinking is to holistically consider the interrelationships of system agents, inputs and outputs, and transformation processes to achieve the system’s purpose. In education, the need for students and teachers to understand “systems and system models” is identified as a cross-cutting concept in the Next Generation Science Standards (2013). Systems thinking can also been used to address complex challenges in education. Through the analysis of an instructional course as a system of learning, this poster demonstrates how systems thinking can be applied in an educational context to understand one’s teaching practice. Using multiple systems perspectives, the language of systems thinking will be presented to explore new opportunities and insight into teaching, learning, course administration, and how these elements may work together to foster student success.
Ophelie Allyss Desmet

A Market in Education: How Autonomy, Choice and Accountability Relate to Excellence and Equity in Education

Starting in the 1980s, there was a wave of reform in the public sector, including education, trying to apply free market principles. In education this reform was based on the idea that combining school autonomy with school choice and school accountability would have a positive effect on the excellence in education. Many countries decentralised their educational policies, increased the number of private schools, introduced publicly funded private schools, charter schools, and began to introduce central exit exams as a way of holding these more autonomous schools/teachers accountable. Previous research has shown an overall increase of excellence following these reforms, but at the same time equity issues have remained or increased in most countries. Using PISA 2015 data this study is looking at how autonomy, choice, and accountability relate to excellence and equity in education.

Erica Ballmer

GM Foods

Polling by the Pew Research Center indicates there is a divide between the scientists and the general public on the safety of genetically modified (GM) food. Overall, 88% of scientists agree GM foods are safe, while only 37% of the public agrees. The studied is guided by the following research question:

RQ1: How does narrative structure inform the GM debate? Who frames the science?
What scientific content is included or excluded?
What are prominent social constructions of GM?
The study focuses on local, national, and agricultural newspapers in Northeast Indiana. Articles published June 1 - October 31, 2016 were collected through a web-based search using the keyword “genetically modified”. A mixed methods approach, including a content analysis will be taken for data analysis.

Future plans involve surveying consumers to determine their opinions, knowledge and purchasing behaviors, conducting an analysis to determine if frames relate to consumer opinions and knowledge.

Meghan Bednarek

The Effects of Socioeconomic Status of Kindergarten Students on Literacy Instruction

Federal accountability policies attribute student success to teachers’ effectiveness (TE). Whether TE is linked to students’ characteristics, however, is largely unexplored. Teachers’ instruction may be qualitatively different in kindergarten classrooms where students come predominantly from economically disadvantaged homes where literacy skills are typically lower compared to their more advantaged peers. It is unclear whether teachers’ practice differ and, if so, how the differences manifest in TE ratings.

I examine this issue with data from a large project on TE measures. I identified two schools with very different proportions of students receiving free lunch (S1: 79%; S2: 19%). I selected two kindergarten classrooms in each school. I used the Early Language and Literacy Classroom Observation measure to code 4 videotaped literacy lessons from each of the teachers in the Fall (2 lessons) and in the Spring (2 lessons). I document similarities and differences in instructional quality and content between the classrooms.

Cetin Kursat Bilir, Tamara Moore, Kristina M Tank, Anastasia M. Rynearson, and Elizabeth A Gajdzik

The national standards (e.g. NCTM, 2000; CCSSM, 2010) emphasized the importance of carefully organized real life context for teachings and learnings of mathematics. This research is part of a larger project about Science, Technology, Engineering, and Mathematics (STEM) learning, which is PictureSTEM that seeks to create instructional modules for grades K-5. Specifically, this study focuses on examining students’ use of prior mathematical knowledge about standard unit during a teacher implementation of one module of PictureSTEM, which is a designing toy box organizers. The research question for the study is: How do students use, reference, or make connections to prior mathematical knowledge during an integrated STEM unit? Video records are used as a main
data resource in this study. I analyzed pilot data in light of mathematics standards. The preliminary results provide some indications that PictureSTEM can be an efficient designed curriculum context to help students to use or reference their prior mathematical knowledge.

**Katherine Chartier**

*Designing for Disposition Development*

This poster will explore what dispositions are, how they are similar to or different from knowledge, skills, and competency, and their importance in education. Specifically, how education and training can implement methodologies that facilitate the development of dispositions for beginning instructional designers will be considered. Implications for future research, curriculum development, and training will be made.

**Hyun Jin Cho, Chantal Levesque - Bristol, Ph.D. & Mike Yough, Ph.D.**

*Secondary Students’ Motivational Beliefs and Beliefs about Assessment under High-stakes Testing: A Structural Equation Modeling Approach*

The purposes of this study are to test the empirical evidence of theoretical models to show how secondary students’ perception of learning environments and motivational factors (i.e., self-determined motivation & achievement goals) are related to beliefs about high-stakes assessment (study 1), and to investigate relationships between beliefs about assessment and the use of learning strategies in high-stakes second language assessment (study 2). Participants will be about 200 Korean high-school students who have taken the Preliminary College Scholastic Ability Test (PCSAT). Structural equation modeling (SEM) will be used to explore the relationship between variables. A major contribution of this study may be the empirical test of the theoretical models with variables elicited from the self-determination theory and achievement goal theory to show how motivational beliefs relate to adaptive beliefs about assessment under high-stakes assessment situations. Also, this study will discuss how to understand the secondary students’ motivational aspects under high-stakes testing situations.

**Human beings’ day to day life experiences can impact their motivations to do different tasks. The environment also plays an important role in our daily experiences which impacts our motivation. This study employs the use of a diary methodology to document undergraduate students’ day to day experiences inside and outside the classroom and its impact on their motivation for school work and well – being. We hypothesize that there is a dynamic relationship among situational factors inside the classroom (e.g. learning climate) and outside the classroom (e.g. perceived resources of time and socioeconomic status) which predict students’ day-to-day academic motivation, peace of mind, and classroom engagement. This presentation will focus on the use of diary methodology as a means of examining changes in day to day experiences and motivation as well as preliminary results of a pilot project to support the aforementioned hypothesis.**

**Evan Fox**

*The Promise of Mobile Learning in Higher Education: Where We've Been and Where We Need to Go*

At the forefront of emerging technologies in higher education is the ever-evolving mobile technology. However, in the field of learning design much is still unknown about the potential effects mobile technology can have in formal higher education. This review of the literature will discuss varying definitions of mobile learning, the state of the current research, highlight current advantages and disadvantages in higher education, and identify gaps in scholarly literature where future research can build.
Jairo Funez

*Neoliberal Capitalism, Education Reform, and Gentrification*

Neoliberal capitalism was meant to be the solution for the crisis of capital accumulation in the 1970s. Deregulating the public sector to create new markets was and is a major aspect of this solution. In Chicago, for example, the privatization of public housing and public education played a major role in the reconfiguration of space and the reorganization/privatization of schools. By drawing on decolonial theory, the complex relationship between the spatial reconfiguration of schools, neoliberal capitalism, and the coloniality of education reform is disentangled. The reorganization of schools, in other words, follows a colonial form of control that dictates where people of color will attend schools and what type of knowledge will be learned, while the centralizing of wealth and power remains unchallenged. The Chicago Teachers Union’s political discourse and activism, however, has proven that resistance is still possible and that hope is still alive.

Fang Gao

*Content-Based Instruction in the ESP Classroom*

This paper illustrates the Content-Based Instruction (CBI) theory and the pivotal role it plays in the gradual transition from EGP (English for General Purpose) to ESP (English for Specific Purposes). CBI argues for placing content and language together for learners during their second language acquisition and development. The paper also discusses EGP teaching is an instructive means to construct the basic rules conforming to general language regulation, while ESP plays a more significant role to stimulate students’ language pragmatic consciousness and practical skills. English as a tool will not find its means for the practical output if not learned based on a particular aspect of content. Therefore, ESP should be implemented into the English teaching core curriculum so students can lace language and content together. This paper elaborates on aspects of the curriculum design, implementation, academic English pragmatic analysis and the integration of EGP and ESP instruction at Shenyang Pharmaceutical University. ESP instruction is gaining prominence in universities and therefore, understanding the rationale and related approaches to ESP is central to the quality of its implementation.

Anne Garcia

*Supporting ELLs in the Regular Classroom*

English Language Learners were shadowed and interviewed in a suburban Midwestern high school. From the observations and the students’ comments about their experiences, a list of suggestions was developed for content area classroom teachers to help ELLs learn English and acquire content area knowledge. In this presentation, participants will hear ideas about supporting ELLs in the regular classroom, based on those observations, interviews, and conversations with students.

Maryam Ghadiri

*Evidence that a Soundscape Science Camp Can Contribute to the Conceptual Understanding and Situational Interest of Middle-school-aged Participants*

This study investigated how participation in a 4-day, inquiry-based soundscape ecology camp contributed to the conceptual understanding of middle-school-aged participants of a new area of science called soundscape ecology and their broader interest in STEM. The purpose of this study was to understand how primary attributes of the immersive soundscape camp affected participants cognitively and affectively. Descriptive interpretive approaches that we employed included data collected from a drawing activity, pre-post questionnaires, interviews, observations, and participant artifacts. Our study showed that factors such as direct experience with nature, access to authentic technology, collaborative teamwork, and having choice and control positively influenced participants’ conceptual understanding of soundscape ecology as well as influenced their interest broadly in STEM. Our results also suggested that scientific field work, combined with opportunities to engage in scientific practices with authentic tools, has the potential to foster an environment in which participants can learn science.

Seyedali Ghahari

*Improving Student Motivation, the Professional Development and Critical Thinking Skills of Construction Engineering and Management Students*

The research focuses on utilizing the industry profess
sional based apprenticeship with case study instruments in the classroom improving student motivation, the professional development and critical thinking skills of the student. A byproduct of the research will include providing the instructor with scholarly reflection to meet the aforementioned objectives. Objectives considered in this study are answering to the questions such as, how should we prepare construction engineering students for professional practice? How can we link technical skills together with applied (experiential learning) and professional skills (soft skills) to produce the best construction engineering professional possible? The results offer the baseline insight that was sought relative to the student critical thinking related to the case study pedagogy. The research provides an opportunity for the researcher to self-evaluate the manner in which the instruction is developed and delivered.

Mehdi Ghahremani
Experts’ Attitudes regarding “Critical versus Creative” Thinking Tension

One of the central goals of contemporary education is to develop and improve students’ thinking skills, specifically critical and creative thinking. These goals of fostering critical thinking and of fostering creativity are generally considered to be quite separate and distinct. Although, based on previous literature, creative and critical thinking often seem to be opposite forms of thought, some scholars have claimed that this is a false dichotomy and a close interconnection between these two types of thinking exists. The purpose of this mixed-method study is to explore (1) dimensions of critical thinking and creative thinking, (2) personality characteristics of individuals who think critically and creatively, and (3) experts’ attitudes regarding critical-creative thinking tension.

LaMarcus Hall
Lack of Black Male Faculty in the Academy

The purpose for this research is to find solutions to increase black male faculty in the Academy. From the founding of our first colleges and universities and even today, black males are in low numbers. LaMarcus has engaged in research, finding that many black males have various challenges in pursuits of higher education. Some of the challenges in include: Chilly Climate, Isolation, Lack of Mentoring, Microaggressions, and more. LaMarcus will share his current research to not only gain feedback, but to gain knowledge on best practices for data sampling and completing his dissertation.

Nathan Hicks
Reliability of Undergraduate Teaching Assistants’ use of Standards-Based Rubrics

Reliable application of standards-based rubrics is essential to achieve grading fairness. This is a particular concern for large-scale, multi-section courses spanning many instructional units (i.e., teams of instructor and teaching assistants). The first part of this study determined that, in general, undergraduate teaching assistants struggle to apply rubrics in-line with the intentions of the assessment and rubric designers. This struggle appeared to stem from a lack of training, ambiguities within the rubrics, and inconsistencies in student responses due to an unclear communication of expectations in the assessments themselves. As such, the second, ongoing, part of this study is analyzing the real-time results of assessment and rubric revisions and the development and implementation of training modules. Current methods of data analysis provide means to identify degrees of systematic and random grader error for specific teaching assistants and to identify potentially problematic rubric items.

Jin Hu
iSign - a platform for sign language education based on Leap Motion

The deaf who cannot express their thoughts and feelings like ordinary people usually switch to use sign language for communication. This platform named "iSign" breaks the traditional sign language education barriers as expensive tuition, no feedback and fixed schedule. “iSign” provides an easy access with real-time feedback to learn sign language for not only deaf people but anyone who is willing to acquire sign language. “iSign” has two main modules as teaching and practicing. For the teaching part, it provides guidance on sign language via standard-ized visual instructions and detects the mimicked gestures from users, then tell their correctness in a real-time manner. Referred to the practicing part, this module of-
fers an efficient way for users to memorize signs, like involving tests in speed, accuracy, etc., and thus help users to generate their own sentences in a natural way.

**Shalyse Iseminger**

*Applying Multicultural Education in churches*

In this poster, churches are discussed as a site for multicultural education. As a voluntary organization, churches play a unique role in education as a site of public pedagogy. Using a case study of a Christian conference that was focused on racial unity, I described how Banks' Five Dimensions of Multicultural Education were present in the conference, and how churches can join in the efforts to create a more equitable society. It is only through a more equitable society at large that we can hope to achieve the promise of equal educational opportunity.

**Ashley Jacobs**

*A Web-Based Application to Improve the Food Security Status and Diet Quality*

Government nutrition assistance programs, such as the Supplemental Nutrition Assistance Program-Education (SNAP-Ed), play an essential role in providing educational resources to help participants make healthy food choices within their budget. However, a web-based application based upon the SNAP-Ed curriculum and designed for older adolescents and young adults, does not exist. This study will determine the effect of SNAP-Ed curriculum on the dietary intake and food security status of college students (ages 17-24 years old) at university in Midwestern Indiana. SNAP-Ed will be the intervention implemented among a sample (n=30) of participants in a randomized, cross sectional study design. Assessment of the intervention will be compensated and will include a characteristics questionnaire and repeated 24-hour dietary recalls to calculate usual dietary intake. The food security status of the participants will be determined and the knowledge related to nutrition, meal preparation, meal planning and financial literacy will be assessed before and after the two week intervention phase. After the intervention, participants will participate in focus groups to determine the effectiveness of the SNAP-Ed curriculum in efforts to inform the development of a web-based nutrition application designed to improve the food security status and diet quality of adolescents. Development of a nutrition education web-based application that is targeted to adolescents will allow for the impact of the SNAP-Ed curriculum to reach more individuals during a critical phase of develop and will aid in the reduction of food insecurity and promotion of a diet based on the 2015-2020 Dietary Guidelines for Americans.

**Shamila Janakiraman**

*Designers for Learning*

Gain experience for good. Designers for Learning’s mission to provide support to underserved adult learners with low literacy and math skills. The course is offered as a MOOC and comprises of 3 parts. In the first part offered during Spring 2016, learners designed and developed a course suitable for learners who missed an opportunity to continue schooling. This course was aimed at preparing adult learners for taking the GED, to pursue their education. The MOOC was organized based on Merrill’s First Principles. In the second part of the MOOC, the OER materials created in the first part was converted into a course offered on Canvas. In the third part of the MOOC, learners will evaluate and revise open educational resources designed in prior instructional design courses. Learners are motivated by awarding digital badges at the end of each part. The poster will describe the instructional design experience gained in the real-world authentic instructional design challenge offered in the MOOC.

**Nesibe Karakis, Cetin Kursat Bilir, & Murat Akarsu**

*Exploring the Perspectives of Assessment from Pre-service and In-service Teachers*

Over the past decade there has been an increasing emphasis on using new approaches to assessment. The use of new approaches is highly dependent upon each math teacher’s own definition of assessment and how to use it in the classroom. In this study, we will examine whether there is a difference in definitions of assessment between preservice and in-service teachers, and also examine the difference in how they plan to implement their assessment knowledge in the math classroom. Data includes six individual teacher interviews that focus on each teacher’s definition of assessment and what they think about the various methods of assessing students. Video recorded interviews
and observer notes allow for an in-depth exploration of each teacher’s thinking about assessment and its uses.

Sareh Karami

The aim of this study was to investigate and compare the relationship between different dimensions of perfectionism (i.e. self-oriented, other oriented, and socially prescribed) and different dimensions of locus of control (i.e. other-directed, inner-directed, lack of constraints on behavior, and predictability of behavior) in a sample student in students from gifted schools and students from public schools.

The research result suggested that there was no significant difference between students from gifted and public schools in self-oriented perfectionism and other oriented perfectionism. However, there was a statistically significant difference between students from gifted and public schools in socially prescribed perfectionism. There was no significant difference in other oriented locus of control, lack of constraints on behavior, and inner-directed locus of control between students from gifted and public schools. But there was a statistically significant difference between students from gifted and public schools in predictability of behavior.

Colleen Kelly

Rural Educational Reform in Colombia: Can Agricultural Education and Integrated STEM Play a Role?

This case study examines the barriers confronting youth in participating in the cacao sector and the paucity of agricultural programming in rural, post-conflict Colombia. In the course of conducting a baseline analysis of the cacao supply chain in Colombia, an interdisciplinary team of researchers from Purdue University and the International Center for Tropical Agriculture encountered a recurrent theme; many key stakeholders expressed concern about the lack of youth participation in the cacao sector. The average age of a “cacaotero” is 57, and few seek to replace them. Initial findings suggest that the 52-year civil conflict spurred large-scale rural to urban migration, changed rural youths’ aspirations, eroded the educational infrastructure, and disrupted youths’ ability to pursue their education. Several existing programs which provide agricultural and entrepreneurial training show signs of success, suggesting that agricultural education and integrated STEM education may play an important role in rebuilding educational programming in rural Colombia.

Soo Jung Kim

Mathematics Computer-Assisted Instructions for Students with Learning Difficulties: A Systemic Review

The aim of this study is to analyze the effect of computer-assisted instruction (CAI) to facilitate the mathematics performance for students with or at risk for learning disabilities in mathematics at the elementary and secondary level. Research articles published between 2008 and 2016 were identified from electronic databases, major journals, and ancestral searches according to a pre-determined search strategy and selection criteria. This study examined a total of 13 mathematics CAI articles. The results of these studies indicated that CAI was effective with varying degree in promoting mathematics performance for students with or at risk for LD. However, there was no statistically significant difference between outcomes of CAI and teacher-delivered instruction. Overall, this study suggests that the use of CAI to improve the mathematics performance is a promising practice. Limitations found in the reviewed studies are described and future directions for research and recommendation for practitioners using CAI are discussed.

Shalin Krieger

Engaging Resistance, Redefining Safety, and Navigating Difficult Dialogues and in Social Justice Education: Moving Toward a Pedagogy of Discomfort

This preliminary review of literature seeks to explore the potential of Megan Boler’s (1999) pedagogy of discomfort, as well as modern offshoots advanced by Boler and Michelinos Zembylas and other scholars, as a theoretical framework for use in social justice education courses. This review of literature focuses specifically on pedagogies of discomfort within the context of social justice education courses and training programs. I identifying the primary tenets of a pedagogy of discomfort, examine ways educators and scholars are interpreting, using, and building upon pedagogy of discomfort within higher education, and conclude a brief discussion of strategies being used, as well as the potential of moving toward a pedagogy of discomfort as a way to engage students with conflicting worldviews. The purpose of exploring this pedagogy is to determine the potential efficacy of establishing a productive classroom environment and navigating difficult dialogues using pedagogy of discomfort as a theoretical framework.
Hyeseong Lee

Disproportion of Subject Areas in Enrichment Programs: What About Gifted Children Interested in Non-STEM courses?

Regarded as a power of nation, leading countries including the U.S have strongly supported and invested the field of STEM (Atkinson & Mayo, 2010; National Governors Association, 2007). No one can deny the importance of STEM, however, other gifted students exist who still require programs and services in other areas such as arts, music, languages, and humanities (Subotnik, Olszewski-Kubilius, & Worrell, 2011). To provide equal opportunity, it is necessary to broaden research and look in new directions. In this study, we examined course registration rates of one university-based enrichment program from 2013 through 2017. We analyzed the responses from parents about which courses they want offered in the future. To learn more about the tendency toward STEM courses, we searched and reviewed the course distributions in other university-based programs for the gifted. Based on this analysis, we discuss strategies and future directions to develop more diverse and well-balanced enrichment program.

Hyeseong Lee, Alissa Salazar, Juliana Tay

Parents’ Perspective on Their Young Children’s Participation in an University-based STEM Enrichment Program

Pre-kindergarten and kindergarten curricula can be challenging and engaging, but few are strongly grounded in STEM education (Siemer, 2009). However, researchers have shown that young children can benefit greatly from early introduction to STEM education (Aronin & Floyd, 2013; Kazakoff, & Bers, 2013; Samarpungavan, Patrick, & Mantzicopoulos, 2011). In their 2006 position statement, the National Association for Gifted Children (NAGC) highlighted the need for young gifted children to be served during their early childhood years in order to maximize their learning potential. In this study, the authors examined parental perception (n=55) of the influences of an university-based Saturday enrichment program on pre-kindergarten and kindergarten students and their attitudes towards STEM learning. Using survey data collected from 2013–2016, the authors examined parental comments about benefits, drawbacks, and memorable moments they observed from their children’s experiences during the program.

Qingli Lei

Using Literacy Theories to Improve Students’ Understanding and Literacy on Math Problems

Reading ability is an indispensable skill for language learners, not only for learners learning their native language, but also for learners’ reading and comprehension in studying math. Sometimes reading and understanding math problems can be harder than doing the math itself, and some children have deficiencies in literacy with math problems. The aspects affecting children’s reading ability on math problems are various. In addition, English as a second language (ESL) learners often have challenges both with understanding the target language (English), due to lack of proficiency in English, as well as with solving the math problems, due to their varied cognitive abilities with math. This research focuses on synthesis of existing literature pertinent to the challenges and needs of learners who experience difficulties with reading math and analyzes how Inquiry Learning Theory shed some light on intervention programs to help these students improve their skills in reading math.

Chen Li

Dialogic Teaching Approach with intermediate level of English Language Learners to Enhance higher level of reading comprehension and critical thinking abilities.

The purpose of this study is to identify hidden constructs of reading comprehension and analyze ELLs’ meaning negotiating processes with the text. We focus on examining college ELLs’ authentic reading experiences with multiple texts and designing an appropriate teaching model to improve their academic reading skills while cultivating their ability in reading and thinking critically.
Catharine Lory

*Play Interventions Involving Children with Autism and Neurotypical Peers: A Review of Research Quality*

Play is vital for children’s developmental growth and provides a context for social interaction. However, children with Autism Spectrum Disorders (ASD) struggle to acquire appropriate play behaviors, which impedes the development of cognitive, language and communicative abilities. As children with ASD are increasingly educated with typically developing peers in inclusive settings, it becomes pertinent that they learn to play with their typical peers. Our review examined the quality of play interventions for children with ASD that involved neurotypical peers as interventionists or play partners. Through a three-step systematic search process, 13 studies were included and coded for eight components based on quality indicators developed by the Council of Exceptional Children. Twelve out of 13 studies met five quality indicators (i.e., context and setting, participants, description of practice, outcome measures, data analysis), while seven to eight studies met the remaining three quality indicators (i.e., intervention agent, implementation fidelity, internal validity).

Yaheng Lu & Qian Li

"Math gives me a tummy ache": Measuring Young Children’s Math Anxiety

Math anxiety is associated with negative attitudes towards math and poor math performance in adolescent and adult samples. However, children in the early grades are underrepresented in the research on math anxiety, due in large part to the lack of a developmentally appropriate measure. Therefore, there is still much to be learned about the beginnings and early course math anxiety. To address this need, the objectives of our study are to: (a) develop a developmentally appropriate, individually administered measure of young children’s math anxiety, (b) administer the scale to a diverse sample of kindergarteners, (c) examine the scale’s construct validity using both factor analysis and children’s qualitative responses to open-ended questions, and (d) provide evidence of the scale’s internal consistency reliability. The development and validation of a developmentally appropriate scale can contribute to further investigation of the potential source and development trajectory of math anxiety.

Taejung Ma

*The Relationship Between Second Language Acquisition and Mother Tongue Attrition*

This session is designed to critically examine the influence of English over the native languages of students and to identify various sociolinguistic factors that contributed to eight case studies’ participants’ first language loss. Many scholars have focused on the issue of first language attrition, but fewer researchers have drawn the connections between second language acquisition and mother tongue attrition or loss. This qualitative approaches values immigrants and ELLs’ life experiences in the United States.

Participants in this case study come from diverse cultural and linguistic backgrounds, so hearing about their personal accounts would allow the audience to acknowledge how diverse immigrants experience their move to the US. More importantly, the session will address contextual factors that caused them to place more emphasis on English development than native language maintenance. Ultimately, this session would enable the audience to contemplate multiculturalism and to look for ways to preserve one’s culture within the field of education.
Hillary Merzdorf

A Content Analysis of Engineering Assessment in Integrated STEM Curricula

Much attention has been given to defining quality pre-college engineering education, but there is a void in the literature for assessment recommendations. At the same time, the Next Generation Science Standards aim for higher-level thinking in technical contexts. This is challenging for teachers who are new to engineering and assessing higher-level learning. For students to receive quality engineering assessment, teachers must have assessments incorporated into curriculum units. This study investigated how engineering design skills are assessed in published integrated STEM curriculum, using a content analysis of 9 engineering curricula units from 3 publishers. Items were coded to the Process of Design (POD) and engineering or technology literacy. Early design steps were most frequently assessed, and several key engineering literacy concepts were extensively evaluated. However, assessments were typically used for guided activities instead of measuring learning.

Jocelyn Nardo and Matthew Wu

Making Chemistry More Accessible to Elementary Education Majors: Seeing the Finer Strokes in the Fresco of Everyday Life

This study evaluates the implementation of a curriculum for elementary education majors that encourages perceptions that transcend institutionalized practices of doing chemistry. Research has shown that preservice elementary teachers struggle with the communication of chemistry ideas to younger students and also perceive chemistry as divorced from real world activities. The disconnection may stem from the difficulties of visualizing unobservable molecular behavior in relation to observable phenomena. A pre-post analysis of student-generated representations shows that initially chemistry was portrayed as lab technicians and glassware at the macroscopic level. After taking the course, students depict chemistry as a bridge between submicroscopic and macroscopic features contextually situated in their everyday lives and environmental issues such as climate change. This study provides important implications for promoting a more personalized view of chemistry where elementary education majors can actively author and contribute to making science relevant to both themselves and their future students.

Hyejeong Oh

The Associations Between Teacher Support and Child math Outcomes in Kindergarten Class

How teachers support children instructionally and emotionally is an important issue for early math learning. However, there are few systematic studies that use multiple informants and multiple types of measures to investigate how teachers’ instructional and emotional support are associated, together, with young children’s math achievement, motivation, and engagement. In both Fall and Spring we asked 316 kindergarteners, individually, and their 20 teachers to rate the children’s motivation for math. At both times we also individually administered a standardized math achievement test to children, and had teachers rate children’s achievement on math standards. We coded 211 video-recorded math lessons with observational measures of teachers’ instructional and emotional support and children’s classroom engagement. Multiple regression analyses will examine associations of teachers’ instructional and emotional support with child achievement, motivation, and engagement, controlling for fall levels. In addition, associations between child characteristics (e.g., math achievement, motivation) and teacher support will be studied.

Emine Ozturk

An Examination of Benefits of a Saturday Enrichment Program for Gifted Students

A content analysis on 20 gifted programs was conducted by VanTassel-Baska (2006) and the results indicated that most of the programs experienced communication difficulties with parents. On the other hand, Colangelo and Kelly (1983) found that parents’ were willing to send their children to the programs including specialized activities for gifted students. Therefore, parents’ perceptions should be analyzed systematically to develop meaningful and well-developed interactions between program staff and parents. The purpose of this study to investigate parents’ perceptions regarding the benefits of a Saturday Enrichment Program. As a data collection tool, program’s Parent Evaluation Form was used. The participants of the study are parents (n=110) who have had a child enrolled in Pre-K through eighth grade Saturday programs for 2016. Open-ended questions of Parent Evaluation Form were analyzed with using NVivo software.
Andres Parra

*Developing Interests in STEM disciplines: Student experiences and role model influences*

This qualitative case study focused on the experiences of high-school students with interests in STEM and how these interests are developed and nurtured until they become actual career aspirations. Eight students, five males and three females, attending a residential high school with a STEM focus, and their parents were interviewed. Content analysis, axial and open coding of the interviews were performed by two different researchers. Salient themes of this research are student curiosity during the preschool stage, early interests in science, availability of resources and experiences that nurtured these interests. Motivation, parental investment, role models, and meaningful opportunities to learn about STEM in and out of school emerged as some of the reasons for pursuing a career in a STEM field. These findings expand the existing literature on student motivation, career paths, academic self-concept, and parental involvement.

Nielsen Pereira, Ophelie Desmet, & Nesibe Karakis

*The Effectiveness of the Gifted and Talented Endorsement (GTE) Program*

The purpose of this study is to evaluate the effectiveness of the Gifted and Talented Endorsement (GTE) program. This program provides GTE graduate students, who are already teachers, with the tools they need in working with gifted and talented students. The data collected includes GTE teachers’ portfolios (curriculum documents, reflections, and samples), interviews, lesson plans, and observation forms. Through mixed method analysis, we looked at the types of differentiated learning experiences and if teachers were successful in their planning and implementation of gifted and talented education strategies.

Ruqayyah Perkins-Williams

*Charter School Performance in Michigan: Policy Implications for Expansion into Rural Settings*

Charter school growth has exploded in urban centers around the United States due to a rallying call to close the achievement gap that persists between students of color and their white suburban counterparts. However, one group of students is consistently ignored in many education reform communities: rural districts. Using statistical analysis and building from the critique of neoliberalism by Wacquant, this study compares the achievement data of rural charter schools to urban charter schools in a Michigan as an example to make a case for continued expansion into rural districts, allowing all students the opportunity to have equal access to a quality education.

Yizhou Qian

*Misconceptions in Introductory Programming: A Data-driven Approach*

As computer science education expands in PK-12 schools in the U.S., CS teachers are challenged to help students develop their understanding of computer science and programming. Introductory programming courses are challenging, and students often exhibit misconceptions in the context of learning to program. While many researchers have investigated post-secondary students’ misconceptions in introductory programming and have developed tools to address these misconceptions, more information is needed to understand a broader range of misconceptions among pre-college learners. The purpose of this study is to examine high school students’ common misconceptions in introductory programming and have developed tools to address these misconceptions, more information is needed to understand a broader range of misconceptions among pre-college learners. The purpose of this study is to examine high school students’ common misconceptions in introductory programming and have developed tools to address these misconceptions, more information is needed to understand a broader range of misconceptions among pre-college learners. The purpose of this study is to examine high school students’ common misconceptions in introductory programming and have developed tools to address these misconceptions, more information is needed to understand a broader range of misconceptions among pre-college learners. The purpose of this study is to examine high school students’ common misconceptions in introductory programming and have developed tools to address these misconceptions, more information is needed to understand a broader range of misconceptions among pre-college learners. The purpose of this study is to examine high school students’ common misconceptions in introductory programming and have developed tools to address these misconceptions, more information is needed to understand a broader range of misconceptions among pre-college learners. The purpose of this study is to examine high school students’ common misconceptions in introductory programming and have developed tools to address these misconceptions, more information is needed to understand a broader range of misconceptions among pre-college learners. The purpose of this study is to examine high school students’ common misconceptions in introductory programming and have developed tools to address these misconceptions, more information is needed to understand a broader range of misconceptions among pre-college learners. The purpose of this study is to examine high school students’ common misconceptions in introductory programming and have developed tools to address these misconceptions, more information is needed to understand a broader range of misconceptions among pre-college learners. The purpose of this study is to examine high school students’ common misconceptions in introductory programming and have developed tools to address these misconceptions, more information is needed to understand a broader range of misconceptions among pre-college learners. The purpose of this study is to examine high school students’ common misconceptions in introductory programming and have developed tools to address these misconceptions, more information is needed to understand a broader range of misconceptions among pre-college learners. The purpose of this study is to examine high school students’ common misconceptions in introductory programming and have developed tools to address these misconceptions, more information is needed to understand a broader range of misconceptions among pre-college learners.

Xiaoyue Qin

*Effects of Hukou Status on Chinese Internal Migrant Children’s Academic Performance in Shaoxing City*

Many research studies have paid attention to the education problem of Chinese internal migrant children and this study was designed to compare the academic performances of two different groups of children—migrant children with non-local hukou status and children with local
hukou status in Shaoxing City, to see if hukou status (household registration status) has an impact on children’s academic performance. This study involved 87 7th grade students with non-local hukou status and 51 7th grade students with local hukou status from 12 different schools in Shaoxing City and their test scores in a standardized test were examined. Results of the study revealed that no statistically significant difference was found between the mean scores of the two groups.

Jawaria K. Qureshey
Multilingual Language & Literacy Experience, in the Early Childhood Years

In this research project, the experience of language and literacy are being explored in young children who natively speak multiple languages, deriving from their home and family settings. This review of literature delves into the natural strategies adopted by multilingual children when acquiring multiple languages simultaneously, and the social and multicultural factors that influence their language and literacy experience. Multilingualism, with all its facets, exposes people to broader visions of themselves and the world. Children from different kinds of diverse backgrounds, different levels of development, literacy skills & abilities, and linguistic repertoires, all experience literacy in intriguing ways, revealing valuable insights. Wordless Picture Books are a useful resource for exploring literacy experiences in young children. This study aims to shed further light on ways of incorporating multiculturalism in education, based on the learning experiences of multilingual children; as well as implications for early childhood perspectives, teaching strategies and education policies.

Dhinesh Radhakrishnan
Qualitative Study on Former Street Youth Characteristics in an Active, Blended and Collaborative Engineering Class

In this poster, we report out the qualitative analysis results from student interviews that were conducted to reveal former street youth characteristics from an Active, Blended and Collaborative introduction to engineering class at an alternative school in Kenya. The high proportion of “street children” is a major human development problem for numerous countries across the Global South. UNICEF reports major causes of this phenomenon in Kenya include poverty, lack of access to education, and the effects of violence. To bridge the existing access gap in Kenya, a variety of informal education programs have begun to operate. Tumaini Innovation Center is a program that functions in Western Kenya as a residential alternative school for street youth. The center offers skills-oriented education, and tablets are used to provide an engineering skills course. Results from our study show that street youth expose a range of affective experiences and seek effective support structures.

Jeffrey Radloff
Mapping a teacher’s enactment of engineering design-based instruction and impact on student learning

Current science education reform in the United States reflects a shift in the teaching and learning of science, emphasizing the integration of engineering practices. This means encouraging children to engage in the phases of the engineering design process while simultaneously utilizing core disciplinary ideas to inform and explain their designs. Consequently, science educators must be equipped with the knowledge and skills necessary to teach science using the engineering design process. Equally important is the need to document and characterize how teachers enact these practices while describing impacts on student learning. Here, we both present a validated approach to documenting an elementary teacher’s implementation of engineering design and provide evidence of student performance on task-based knowledge assessments. Our aim is to provide a useful and informative approach to capturing the diverse ways a teacher attempts to implement different phases of the engineering design process, supported with evidence of student learning.

Sue Ellen Richardson
Early Childhood Teachers’ Experiences Learning and Teaching Mathematics as Seen through Dewey and Narrative Inquiry

Using initial and de briefing interviews around a photo visual narrative inquiry (Bach, 2007), this pilot study aimed to create space for 10 early childhood teachers to
explore and make sense of their experiences learning and teaching mathematics, as well as to hear their voices sharing detailed and nuanced views of their strengths, needs, and areas for growth related to mathematics teaching and learning. Components of Dewey’s (1938/1998) experience construct, including continuity, interaction, social control, and subject matter, as well as narrative inquiry constructs such as resonance and tensions (Clandinin & Connelly, 2000) were used to understand nuances of the teachers’ experiences learning and teaching mathematics. Initial findings indicate that these teachers had negative mathematics learning experiences, but are now enthusiastic early childhood mathematics teachers, indicating that their experiences should be valued and explored in training, and by those who determine their training, creating a rationale for the follow-up Photovoice study.

John Sherrill

Teaching Documentation through 3D Printing and Instructables

Growing ranges of industries, from manufacturing to surgery, demand 3D printing and technical communication literacies. Simultaneously, the “Maker Movement” promotes sharing knowledge about emerging technologies among diverse participatory communities. This case study explores how 3D printing and Instructables (online user-produced instructions) facilitate teaching documentation, participatory design, and rhetoric effectively, and will inform participants how they can start using 3D modeling and printing in technical communication classrooms and curricula. The study presents an assignment sequence that asks students to respond to a social issue by collaboratively designing and 3D printing an object, and documenting their process by publishing an Instructable.

Todd P. Shuba

Development of Efficacy Beliefs in a Problem-Based Learning (PBL) Environment

There are challenges to obtaining collaboration characterized by explanation and mutual negotiation, given students’ limited previous experience with group work and lack of skills for effective collaboration. Accordingly, students may initially experience low individual and collective efficacy for collaborative tasks, which may limit their efforts going forward and discourage them from persisting when presented with more challenging tasks. However, engaging in authentic and complex collaborative tasks may encourage students’ efficacy for collaboration. The current study investigates the development of efficacy in first-year veterinary medicine students across several problem-based learning (PBL) units, as well as subsequent implications for students’ conceptions of effective group processes. Analyses examined changes in efficacy beliefs from the first (Time 1) to the sixth (Time 2) PBL unit using paired t-tests. Two groups were selected for qualitative analysis based on Time 1 efficacy report disparity in order to explore related differences in students’ conceptions of group process.

Lisa Lambert Snodgrass

The Effects of Experiential Curriculum on Cultural Intelligence

Employers desire and expect universities to prepare candidates who are experienced internationally and exhibit cultural intelligence. This study sought to determine the effects of internship abroad curriculum experiential interactions on the cultural intelligence of program participants. Results indicate a significant increase in participants’ cultural intelligence in programs that intentionally include experiential curricular methods.

Marquetta Strait

College Readiness and Digital Badges for First Generation High School Students

Although postsecondary education is encouraged for growth and career opportunities, the funding for resources focused on promoting college varies at each school district. Unfortunately, this often leaves many high schools fending for themselves and making do with what their district has. The top reasons high school students have either not applied or accepted college offers are because they 1) could not afford it, 2) felt they earned good money at their jobs, 3) were incompetent, 4) were unsure of their career plans, 5) thought since their parents did not attend why should they (Scholarships 2017). However, based on prior studies, high school students need and desire a better comprehension of the requirements for college success (Drotos & Cilesiz 2014).
First generation students would be an example population needing guidance for college success. First generation students’ parents have either not attended or not completed their college education. Contrary to popular belief, not all first-generation college students are in the lower socio-economic class, a number of students are in the middle and upper SES levels. However, there are higher percentages of lower and middle class students in the lower SES levels (Collegeboard 2016). These students are often unaware of their options regarding applying and attending college along with having many misconceptions about the application process (Collegeboard 2016). Although there are some first generation students that are fixated on pursuing college, there are many students that perceive applying to college as a complicated process and they feel defeated before even considering to complete the college application.

Elizabeth Suazo-Flores

Planning and Implementing Area Lessons: A Window into a Mathematics Teacher’s Personal Practical Knowledge

This study is the result of a four-year collaboration between an eighth-grade mathematics teacher and a Chilean PhD student in mathematics education. My insights into this teacher’s personal practical knowledge [PPK] (Elbaz, 1981, 1983) are first, a privilege, and second, are possible because of the collaborative relationship that we nurture. The concept of area is one of our common mathematics interests. This brought us to plan and implement four lessons that involved area models in algebra and data analysis. In this research, I seek to communicate ways this particular mathematics teacher’s PPK interacts with her personal experiences, the learners’ needs at the moment of teaching, her interpretation of school requirements, and the community that surrounds it. Rather than a researcher’s exploration of an external phenomenon, this study is an exploration into my knowledge, the teacher’s knowledge, and the knowledge that we both create by working together.

Euisuk Sung

How Young Students Solve Design Problems

The purpose of study was to investigate the process of problem solving in an engineering design task. Teaching and learning engineering, design is a critical piece of engineering. Many researchers view engineering is a complex cognitive process (Dym et al., 2005). However, due to the natures of engineering design, such as ambiguous, failure-laden, best, constraint, and trade-off (Koen, 2003; Petrosky, 1992), researchers insist that engineering design is further researcher field beyond the problem solving approach (Lawson & Cross, 2009). To investigate the detailed process of design, the study employed Concurrent Think-Aloud technique (Ericsson & Simon, 1993) and Behavioral Sequence Analysis (Bakeman & Gottman, 1986). The participants of the study were 27 fourth grade elementary students. The analysis of the behavioral sequence showed that young students use multiple pathways of iterative pattern strategies. To better illustrate the design thinking pathways, the researcher will present design process pathway models.

Juliana Tay

Art Teachers’ Perceptions of Gifted Art Students: A Singapore case study

In 1984, Clark and Zimmerman wrote about the victims of art education, talented young artists who were ignored and forgotten. More than 30 years later, how has art education for the talented art students changed? Are these students better identified and served? In this study, I interviewed 13 art teachers what they perceived to be attitudes and behaviors that characterize gifted visual arts students and how the identification processes used in their schools align with their perceptions. Results from the interviews highlighted similar observations from the teachers about their high ability art students. Art teachers considered students who are able to take charge of their learning process, willing to put in the extra effort, and are genuinely passionate about the subject as gifted. The teachers also acknowledged the limitations of the selection process used to identify students for the program.

Juliana Tay

Classroom Practices Survey: Revised for current classrooms

The Classroom Practices Survey (CPS; Archambault et al., 1993) is an instrument developed to collect information on educators’ use of differentiated educational practices in regular classrooms for general and gifted students. The purpose of this study was to investigate if the six constructs, developed more than 20 years ago, are still applicable in the current education climate. Over 600 elementary teachers, across different states, completed the CPS. Results of confirmatory factor analyses indicate that only four of the factors are still applicable with the current data. Recommendations for modifying the instrument and implications will be discussed.
Mavreen Tuvilla and Casey Wright

_Burmese Youth’s Identity Negotiations in an After-school STEM Program_

Youth from non-dominant racial and linguistic backgrounds have limited access to school science learning opportunities. Afterschool settings may provide learning environments in which they improve science knowledge and construct positive science identities. With this premise, our research team designs and provides an afterschool program that engages Burmese refugee youth in STEM learning. Here, we seek to understand how refugee youth construct and reconstruct identities as learners. We adapt a micro-ethnographic perspective in our research and analyzed afterschool STEM program video recordings through multimodal discourse analysis. Our analysis suggests youth positioned themselves as both contributors to their learning communities and learners who agentively decide what is relevant to their science learning. They also leveraged their ethnic experiences as valuable resources in shaping their science discursive practices. We discuss insights that can potentially advance our understanding of refugee youth identities and transform our ways of supporting their science learning.

Jamison Wills

_Evidentiary Reasoning: An Examination of Elementary and Middle School Students’ Knowledge of Scientific Evidence_

Despite the broad consensus on the value of evidentiary knowledge, decades of educational research have traditionally relied on oversimplified notions of scientific evidence. The goal of this project was to examine students’ knowledge through an assessment comprised of rich and multifaceted notions of evidence. In this paper, I present the early results of a study on fifth and seventh graders’ knowledge of scientific evidence. The study was conducted in two fifth and two seventh grade classrooms in suburban public schools in the mid-west. Data sources include student outcomes on an Evidential Reasoning Assessment (ERA) that examines students’ knowledge across varied dimensions of scientific evidence, individual interviews with high and low performing students, teacher interviews, and classroom lessons and activities. Results from the sources will be used to examine aggregate differences between the two populations as well as more granular examinations of students’ knowledge.

Liwei Zhang

_Adaptive Comparative Judgement as a Peer Assessment Tool for Open-ended Design_

The literature suggests adaptive comparative judgement (ACJ) as a reliable and valid assessment tool. We will introduce ACJ as a peer review and self-assessment tool in an engineering/technology teacher education course at the undergraduate level. Our research will focus on how creating digital portfolios and participating in ACJ assessment of peer work will influence student learning during open-ended design problems. In the study, students, working in groups, will be guided as they build e-portfolios during three design projects. At the end of each project, students will act as judges to compare their submitted portfolios and provide feedback and comments justifying their choices using ACJ. Emerging rank orders for students will not be utilized in grading, rather the ranking and feedback will be delivered to students as a formative learning tool.

Shuqi Zhou

_Pre-service math teachers’ training on assessment and their beliefs on assessment preparedness across 16 Countries_

This study examines the training of assessment on pre-service teachers across 15 countries and its effect on teachers’ belief about their preparedness on the assessment. 22,079 preservice math teachers from TEDS-M (The Teacher Education and Development Study in Mathematics) data are analyzed via structural equation modeling. The preliminary result shows that measures of each construct positively predict its own construct. The pre-service math teachers’ opportunity to learn about the assessment knowledge and assessment application influence their beliefs about how are they prepared for the assessment. The opportunity to learn about the assessment application have a larger effect on their beliefs about how are they prepared for the assessment than the opportunity to learn about the assessment knowledge.

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Interested in joining GSEC, please email Marquetta Strait at straitm@purdue.edu for more information.
Session 2
(Oral Presentations)
3:00-4:00 PM
Mahtob Aqazade  
Learning Integer Addition: Is Later Better?  

We investigate thirty-three second and fifth-grade students' solution strategies on integer addition problems before and after analyzing contrasting cases with integer addition and participating in a lesson on integers. The students took a pretest, participated in two small group sessions and a short lesson, and took a posttest. Even though the results reveal significant gains for both grades from pretest to posttest, second graders gained significantly higher than fifth graders. We explored students' treatment of the negative sign and describe this gain difference.

Helen Bentley  
Re-energizing Reluctant Writers By Providing a Space to Just Write  

This presentation will explore the findings of an ongoing longitudinal study on how to motivate and re-energize reluctant writers in order to produce spontaneous and organic work that they truly care about. The study takes place in an alternative setting within a mid-western high school English classroom. Initial findings and analysis suggest that when provided with a space to free write and subsequently share writing about a topic of their choosing, students communicate ideas articulately and energetically, listen respectfully to peers, and become oral editors of their own work therefore furthering their literary skills.

Hayden Fennell  
Enhancing Student Meaning-Making of Threshold Concepts via Computation: The Case of Mohr Circle  

Computational literacy has become a necessary skill for engineering professionals in many modern workplaces. As such, demand for students with the ability to work with computational tools and methods has increased dramatically in recent years. However, such training is often provided in isolation, with little connection to practical applications. This study presents a method for simultaneously teaching fundamental civil engineering concepts and computational literacy by having students solve a Mohr circle stress/strain transformation exercise using a programming approach in which students are asked to construct, operate, and interpret results from a computational simulation to analyze a real world stress transformation problem. Students' challenges and learning gains during the activity were identified, and results show that the exercise was perceived as very useful by the students, suggesting that this approach can be used as a framework for improving learning of difficult threshold concepts using computational methods.

Corinne Green  
I've Already Read This Supporting Accelerated Student Development with Recreational Reading  

Recreational reading has been shown to have many developmental benefits. Stories for recreational reading allow students to take on the personality of a character and experience conflict and emotional development they may not experience otherwise. For advanced students, it may be difficult for them to find stories that best connect with their individual struggles and needs. It may be even more difficult for their instructors to identify these books when they need to focus on all students. In this presentation, we will explore book selecting strategies for advanced readers and teachers with advanced students that will support the students' emotional and academic needs through recreational reading.

Damji Heo, Saira Anwar and Muhsin Menekse  
Exploring the Relationship Between Engineering Students Achievement Goals and Reflection Behaviors by Using a Mobile Learning Environment  

The goal of this study was to investigate the relationship among achievement goals, reflection behavior and learning outcome of engineering students. The results indicated that there was a significant effect of mastery approach on the number of reflections. Performance approach had a significant effect on final exam only. Although mastery approach and performance approach have limited significance on some of response variables, the results align with some of previous research studies on achievement goals, reflection behavior and learning outcome [15-16]. That is, performance approach is positively correlated with learning outcome and mastery approach is positively correlated with students learning style and strategies. This research study addressed the necessity of research studies regarding achievement goal theory and engineering students decision making for learning strategies and the outcome. Our findings corroborate the numerous research studies that were performed in Educational Psychology field about the achievement goal theory and its influence on students reflection behavior and learning outcome.
**Oral Presentations Session**

**Tiffany Karalis**  
*Teaching Content Area Literacy*

This panel will discuss the significance of teaching literacy across the content areas, based on the year-long experience of a graduate teaching assistant and her students completing their final semester of classes prior to (or, for some, during) the student teaching experience. The purpose of this panel is to learn from the experiences of an instructor who seeks to explain why literacy across the content areas is crucial to students' comprehensive education, while also modeling how these theories and ideas can be practically applied in the classroom. Specific strategies for incorporating interdisciplinary/cross-curricular methods will be discussed.

**Kylie Lowenberg-DeBoer**  
*Training for Retention of Human Service Volunteers*

Nonprofit human service organizations rely heavily on volunteers, and the expenses incurred through the volunteer training process amplifies the importance of retention. A review of the literature on human service volunteer retention shows that motivation, satisfaction, and socialization are key factors in retaining volunteers. The three factors recur around the globe and across fields of research, further emphasizing their importance. This review explores motivation, satisfaction, and socialization as well as their relationships to each other. When viewed through a training/learning lens, the implications of each factor for training program design become clear. The small number of studies focused specifically on retention as it relates to training illustrates a gap in the recent research and may be an appropriate avenue for future research.

**Ruqayyah Perkins-Williams**  
*Charter School to Prison Pipeline: The Unintended Consequence of Educational Neoliberalism*

Scholar Michelle Alexander documented the mechanisms for expansion of the prison industrial complex in *The New Jim Crow: Mass Incarceration in the Age of Colorblindness.* One aspect of this phenomenon that was largely overlooked in the book was the concept of the School-to-Prison Pipeline, which deals with the ways in which youth of color are channeled out of the educational system into the juvenile and adult justice system. Drawing upon the concept of neoliberalism, this talk explores the relationship between the neoliberal educational reform movement and the neoliberal prison industrial complex and the ways that mass incarceration is predicated in charter schools through their discipline policies.

**Damji Heo, Saira Anwar and Muhsin Me-nekse**  
*Exploring the Relationship Between Engineering Students Achievement Goals and Reflection Behaviors by Using a Mobile Learning Environment*

The goal of this study was to investigate the relationship among achievement goals, reflection behavior and learning outcome of engineering students. The results indicated that there was a significant effect of mastery approach on the number of reflections. Performance approach had a significant effect on final exam only. Although mastery approach and performance approach have limited significance on some of response variables, the results align with some of previous research studies on achievement goals, reflection behavior and learning outcome [15-16]. That is, performance approach is positively correlated with learning outcome and mastery approach is positively correlated with students learning style and strategies. This research study addressed the necessity of research studies regarding achievement goal theory and engineering students decision making for learning strategies and the outcome. Our findings corroborate the numerous research studies that were performed in Educational Psychology field about the achievement goal theory and its influence on students reflection behavior and learning outcome.

**Erin Vaughn**  
*Enhancing Student Meaning-Making of Threshold Concepts via Computation: The Case of Mohrâ Circle*

The United States continues to become increasingly more diverse, requiring a citizenry that is capable of disrupting the status quo and enacting social change that contributes to a more equitable and just society. Education plays a vital role in this civic identity development; therefore, preservice teachers in university education programs must be prepared to teach for social justice oriented citizenship education. Using narrative inquiry, the proposed study explores how one preservice teacher who possesses critical civic knowledge, skills, and dispositions makes sense of teacher education experiences in relation to her ongoing civic identity development. The findings of the study address essential civic elements, such as agency and positionality, and continues the conversation regarding what type of teacher education experiences foster the construction of more critically conscious civic identities.