

**SCIENCE, TECHNOLOGY
ENGINEERING, ARTS,
MATH, & EDUCATION
8TH ANNUAL CONFERENCE**



JUNE 6,7,8 2018

STEM STEAM



HONOLULU SUNSET

Sponsored by



WELCOME ADDRESS

Aloha and welcome to the annual Science, Technology & Engineering, Arts, Mathematics and Education Conference held at the Prince Waikiki Hotel on the island of Oahu. We trust that you will gain new experiences and new insights in your field of study while interacting with your peers. This is an exciting opportunity to meet with educators from different universities throughout the nation and throughout the world. They bring with them a wealth of knowledge and experience in their particular disciplines to share with each and every one.

We hope you enjoy your stay with our host, the Prince Waikiki Hotel, located a block from the Ala Moana Shopping Center offering a wide variety of shops and attractions.

The famous Waikiki Beach and prime restaurants are close by for your convenience. Be sure to check with the hotel's activity desk for all the latest adventures and tours to make your trip to the Hawaiian Islands a memorable experience.

The Islands of Hawaii offer a very unique experience for all people who visit to gain a better understanding of the Hawaiian culture and its spirit only found in these islands. Enjoy some of the best weather and beaches found anywhere in the world, and take your experiences home with you to return another day.

E' Komo Mai!

(All are welcome!)

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Please visit our website for more details on the next conference.

www.huichawaii.org

stem@huichawaii.org; education@huichawaii.org

Contact Number: 1-808-537-6500

CONFERENCE SCHEDULE

Registration Hours

June 05 - Tuesday	Lobby/Foyer	1:00 pm - 6:00 pm
June 06 - Wednesday	3rd Floor	6:30 am - 4:30 pm
June 07 - Thursday	3rd Floor	6:30 am - 4:30 pm
June 08 - Friday	3rd Floor	11:00 am - 1:30 pm

HAWAIIAN STEEL GUITAR OPENING PRESENTATION

June 06, Wednesday: 6:30 am - 8:30 am, Naio Room

KEYNOTE SPEAKER ADDRESS

June 07, Thursday: 7:30 am - 8:00 am, Naio Room

Dr. Mary Jo Parker

Executive Director

Scholars Academy/College of Sciences & Technology

University of Houston-Downtown

Texas

CONCURRENT SESSION TIMES

8:15 - 9:45am * 10:00am - 11:30am * 12:45 - 2:15pm * 2:30 - 4:00pm * 4:15 - 5:45pm

BREAKFAST- Naio Room

(Complimentary for registered participants)

June 06 - Wednesday	Naio Room	6:30 am - 8:30 am
June 07 - Thursday	Naio Room	6:30 am - 8:30 am

TEA & COFFEE BREAK - Naio Room

Wednesday and Thursday - 10:30am - 12:30pm / 2:30pm - 4:30pm

LUNCH BREAK

11:30am - 12:30pm (**Lunch is not provided on Wednesday and Thursday**)

11:30am - 1:30pm, Friday - **Appreciation Lunch**

POSTER EXHIBITS

June 07, Thursday: 11:00 am - 12:30 pm, Naio Room

NOTE for SESSION CHAIRS

- Introduction of Participants.
- Start and complete sessions on time.
- Chair leads the discussions and holds question and answer period at the end of each session.

**We are proudly sponsored by the Louisiana Tech University
Science and Education Center (SciTEC).**



UTeachTech



The UTeachTech STEM educator preparation program at Louisiana Tech University has been incredibly successful as a result of partnerships and grant programs that enhance the educational experience of students PK-16. In 2017-2018, contributions to the success of STEAM educational outreach projects serving students from PK-12 have totaled more than 1 million in funding and included service to more than 400 students. This session will showcase ways to create a STEM support and outreach networks.

The Cyber Innovation Center, in conjunction with the Louisiana Tech University's Science and Technology Education Center (SciTEC) in the College of Education, offers an online Cyber Education Certificate program for K-12 educators and administrators.

Courses within the Cyber Education Certificate program prepare educators to confidently teach cyber and computer science content in their classrooms. Teachers who complete the program will not only be ideal candidates to become STEM and cyber leaders at their schools, they will also be able to connect students with the cyber careers of tomorrow through 21st century learning techniques. Limited scholarships are available.



DAY 1

Wednesday - June 06, 2018

HAWAIIAN STEEL GUITAR PERFORMANCE

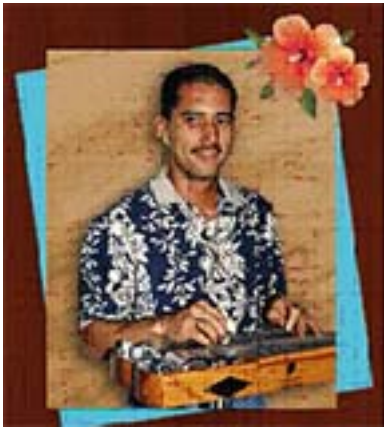
Wednesday - June 06, 2018

Naio Room

6:30 - 8:00am

HSGA

Hawaiian Steel Guitar Association



Mr. Paul Kim
Hawaii, President

OFFICIAL SPONSOR

The Hawaiian Steel Guitar Association is a worldwide organization promoting traditional Hawaiian music and the signature sound of the Hawaiian steel guitar.

Our site contains information for HSGA members and for non-members who wish to learn about and listen to the beautiful music of the Hawaiian steel guitar.

We welcome you and encourage you to explore HSGA. If you enjoy your experience here, please let us know. We are always looking for new friends and new members.



Wednesday - June 06, 2018

Room: Palolo 1

Time: 8:15 - 9:45am

Session: STEM across the Curriculum; Biological Education; Technology in Higher Education and Mathematics; Applied Calculus

Session Chair: Dr. Boris Handal

I. Integrating STEM into the Curriculum: Dimensional Models

This paper describes a new model of STEM curriculum integration with various combinations of schooling levels and curricular modal integration. Several examples of STEM curriculum integration from around the world are presented characterising distinct educational scenarios for each type of STEM integration within this model. In presenting these case studies this paper re-conceptualises the role of STEM in teaching and learning and provides recommendations for future endeavours.

Q: Is there more than one way to integrate STEM in schools?

A: We need to look across the curriculum and consider students' age.

**Authors/Presenters: Dr. Boris Handal
Dr. Kate Winchester
Dr. Kevin Watson
Dr. Marguerite Maher**
Sydney School of Education
The University of Notre Dame Australia
New South Wales, Australia



Dr. Boris Handal

II. CURE Biology: Analyzing Microbes Using a Collaborative STEM Approach

We developed a Course-based Undergraduate Research Experience (CURE) to emphasize applied STEM and promote scientific communication. Students use the scientific process, microbiology, and analytical chemistry to characterize microbes encountered in their daily lives. They communicate their findings in an exercise that illustrates the collaborative nature of science and the supporting curriculum.

Q: What skills do students gain from your CURE?

A: Students gain practical experience with microbiology, isolate characterization, and scientific communication. They leverage biology and chemistry knowledge in a directed exercise to illustrate the collaborative nature of STEM.

**Authors/Presenters: Lieutenant Colonel Melissa Eslinger
Ms. Elizabeth Kent
Ms. Elizabeth Mentis**
US Military Academy, West Point
West Point, New York



LTC. Melissa Eslinger

Wednesday - June 06, 2018

Room: Palolo 1

Time: 8:15 - 9:45am

Session: STEM across the Curriculum; Biological Education; Technology in Higher Education and Mathematics; Applied Calculus

Session Chair: Dr. Boris Handal

III. Applied Calculus and Gateway Assessments

Applied Calculus draws a large number of non-majors with widely varying mathematical backgrounds. In the past students often completed Applied Calculus without a mastery of basic calculus skills. The implementation of gateway assessments has alleviated this problem, however the implementation has been challenging with over 1000 students enrolling in the course each year. We look at the implementation of gateway assessments over the past few years at West Virginia University.

Q: What problems have you seen with a non-majors calculus course?

A: Applied calculus presents a very unique set of challenges. One of these is the lack of mastery of basic calculus skills. Our gateway assessments are our attempt to address this issue.

Authors/Presenters: Prof. Doug Squire
Prof. Cody Hood
Prof. Erin Goodykoontz
Department of Mathematics
West Virginia University
Morgantown, West Virginia



Wednesday - June 06, 2018

Room: Palolo 2
Time: 8:15 - 9:45am
Session: Education Policy and Leadership; General Education Science;
Inter-disciplinary Areas of Sciences; Inter-disciplinary Areas of Mathematics;
Leadership and Academic Minors; Construction Science
Session Chair: Dr. Richard Ford

I. Addressing Quantitative Reasoning in the California State University, Part I

In August 2017 the Chancellor's Office of the California State University issued new Executive Orders that require alternative approaches to placing and supporting underprepared students relative to college academic preparation in quantitative reasoning. The evolving policy perspectives and research results that precipitated these Executive Orders will be presented. This session is the first of a two-part presentation series.

Q: Does research support changing remediation policy?

A: Changing remediation policy? Yes, corequisite models show positive results relative to student success.

Authors/Presenters: **Dr. Richard Ford**
Department of Mathematics and Statistics
Cal State University, Chico
Chico, California
Dr. Elizabeth (Betsy) Boyd
College of Agriculture
Cal State University, Chico
Chico, California



Wednesday - June 06, 2018

Room: Palolo 2
Time: 8:15 - 9:45am
Session: Education Policy and Leadership; General Education Science;
Inter-disciplinary Areas of Sciences; Inter-disciplinary Areas of Mathematics;
Leadership and Academic Minors; Construction Science
Session Chair: Dr. Richard Ford

II. Addressing Quantitative Reasoning in the California State University, Part II

The Chancellor's Office of the California State University issued new Executive Orders in August 2017 that require implementation of a prescriptive curricular approach by August 2018 for students not academically prepared for college-level quantitative reasoning. This is the second of two successive sessions, and will highlight CSU, Chico's innovative curricular approach to supporting underprepared students and will provide insights into logistical coordination of this large-scale undertaking.

Q: How can severely underprepared students earn legitimate college credit preparing for college level mathematics?

A: One approach is to couple general education science with developmental mathematics support.

Authors/Presenters: **Dr. Elizabeth (Betsy) Boyd**
College of Agriculture
Cal State University, Chico
Chico, California
Dr. Richard Ford
Department of Mathematics and Statistics
Cal State University, Chico
Chico, California



Wednesday - June 06, 2018

Room: Palolo 2

Time: 8:15 - 9:45am

Session: Education Policy and Leadership; General Education Science;
Inter-disciplinary Areas of Sciences; Inter-disciplinary Areas of Mathematics;
Leadership and Academic Minors; Construction Science

Session Chair: Dr. Richard Ford

III. Establishing a Leadership Minor: Soft Skills for Tomorrow's STEAM Leaders

In 2015, Texas A&M University's College of Architecture, the largest college of architecture in the nation, responded to industry and donor feedback and began the creation of a leadership minor for "Leadership in the Design and Construction Professions." The minor is unique in that it is manned by faculty from across the interdisciplinary programs comprised in the Departments of Architecture, Visualization, Construction Science, and Landscape Architecture & Urban Planning.

Q: How many students take the minor annually?

A: Approximately 80 students graduate with the minor annually.

Author/Presenter:



Dr. Patrick Suermann

Department of Construction Science
College of Architecture
Texas A&M University
College Station, Texas

Wednesday - June 06, 2018

Room: Palolo 3
Time: 8:15 - 9:45am
Session: Broadening Participation; Student Persistence and Success; STEAM Education; Chemistry, Biology, Natural Sciences; Civil, Mechanical, and Electrical Engineering; Mathematics, Applied Mathematics
Session Chair: Dr. Lesia Crumpton-Young

I. Supportive Interventions for the Completion of URM Students in STEM Graduate Programs

The purpose of this research study is to capture information from URM graduate students in the STEM fields regarding their academic initiatives, sources of motivation, stress coping skills, and support systems. The objective of this study is to use these results to develop a comprehensive model to support the matriculation of URM graduate students pursuing STEM degrees.

Q: What are strategies for broadening participation of underrepresented minority students in STEM nationwide?

A: Providing student perspectives to identify best practices for broadening participation for underrepresented students in STEM.

Authors/Presenters: Dr. Lesia Crumpton-Young
Mrs. Shabnam Etemadi Brady
Ms. Germysa Emily Little
Ms. Brandi Slaughter
Tennessee State University
Nashville, Tennessee



Wednesday - June 06, 2018

Room: Palolo 3

Time: 8:15 - 9:45am

Session: Broadening Participation; Student Persistence and Success; STEAM Education; Chemistry, Biology, Natural Sciences; Civil, Mechanical, and Electrical Engineering; Mathematics, Applied Mathematics

Session Chair: Dr. Lesia Crumpton-Young

II. Increasing the Number of Underrepresented Students in STEAM Disciplines at the Graduate Level

This paper highlights various components of the McNair Scholars Program at Loyola Marymount University (LMU), that successfully support underrepresented students in STEAM disciplines. Here we give an overview of McNair Scholars Program at LMU and give details of the various components of the programs that have led to its success. In addition, we will address the rewards and challenges when providing mentorship at multiple levels.

Q: How can we increase graduate school enrollments of U.S. citizens and permanent residents in STEAM disciplines?

A: Our approach: Through the McNair Scholars Program, we recruit academically talented, dedicated STEM students from LMU's diverse student body of qualified group of first generation, low-income, and underrepresented participants and provide them a structure necessary to sustain a support system consisting of close mentoring, rigorous research experience, engagement with families, and help with the graduate school application process.

Authors/Presenters:



Dr. Thomas M Zachariah
Department of Mathematics
Loyola Marymount University
Los Angeles, California



Dr. Edward Mosteig
Department of Mathematics
Loyola Marymount University
Los Angeles, California

Wednesday - June 06, 2018

Room: Palolo 1
Time: 10:00 - 12:00pm
Session: Chemistry and Biology; Chemistry and Forensic Science; Criminal Justice; Primary, Elementary, High School and College Level Students Applying STEaM Learning Objectives and Skills from the Classroom; Forensics, Criminalistics, DNA; STEM projects using Technology and Engineering such as Computer Games, Drones, etc.; Legos, Computer Games, Other Projects; Play-doh and Facial Art Sculpting (forensic art) for Elementary and Primary Students; Communication, Rhetoric, Cultural Studies

Session Chair: Dr. Tiffany Wilson-Ardley

I. Increasing High School Students' Interest in STEM By Using Summer Research Projects in Science

The Florida Agricultural and Mechanical University's Program of Excellence in Science Technology Engineering and Math was designed to assist with the recruitment, retention and graduation of under represented students in STEM majors. Area high school 9th-12th graders participated in a three week Summer Academy and believe that participation in research projects has increased their interest in pursuing a STEM degree upon entering college.

Q: Did students participating in the summer program actively engage in research?

A: Yes, the students did hands on science research using modern techniques and instrumentation.

Authors/Presenters: **Dr. Tiffany Wilson-Ardley**



Dr. Tiffany Wilson-Ardley

College of Pharmacy & Pharmaceutical Sciences
Florida A & M University
Tallahassee, Florida

Dr. Jason T. Black

Information Systems and Operations Management
School of Business and Industry
Florida A & M University
Tallahassee, Florida

Dr. Clayton J. Clark, II

Department of Civil and Environment Engineering
Florida A & M University
Tallahassee, Florida



Dr. Jason T. Black

Continued on next page

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Session Chair: Dr. Tiffany Wilson-Ardley

II. The Use of Forensic Chemistry in Law - Challenging the CSI Effect

This presentation will analyze the following questions: 1) To what extent should courts rely on chemical evidence in litigation? 2) How can procedural legitimacy be achieved when chemical evidence is being used? 3) Should scientists and scientific committees be making legal findings? 4) To what extent should the legal system change legal procedures to accommodate scientific evidence? 5) What methods will ensure judges and scientists make appropriate forensic interpretations of chemical evidence?

Q: *Is chemistry vital to forensic science? What methods will ensure judges and scientists make appropriate forensic interpretations of chemical evidence?*

A: *Yes.*

Authors/Presenters:



Dr. Dipesh Prema
Chemistry Department
Thompson Rivers University
Kamloops, British Columbia
Canada



Dr. Ruby Dhand
Faculty of Law
Thompson Rivers University
Kamloops, British Columbia
Canada

Wednesday - June 06, 2018

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Session Chair: Dr. Tiffany Wilson-Ardley

III A Glance at a Youth STEAM Conference - Arts, Humanities, and Social Science: Criminal Justice (Justice Administration) and Education

A youth conference is a perfect way to teach and encourage the use of STEaM. This presentation provides information on how to offer children and college students opportunities to learn the importance of STEaM and how to create, interact and design competitive and fun STEaM projects. Educators and professionals will also learn how to create and promote learning at a STEaM conference. This presentation will discuss, describe, explain, and provide a model for an interactive STEaM conference.

Q: How do you involve students in STEaM activities?

A: Design a youth STEaM conference for school-aged children and college students

Author/Presenter:



Dr. Quanda Watson-Stevenson
Criminal Justice Program
Athens State University
Athens, Alabama

Continued on next page

Wednesday - June 06, 2018

Room: Palolo 1

Time: 10:00 - 12:00pm

Session: Chemistry and Biology; Chemistry and Forensic Science; Criminal Justice; Primary, Elementary, High School and College Level Students Applying STEaM Learning Objectives and Skills from the Classroom; Forensics, Criminalistics, DNA; STEM projects using Technology and Engineering such as Computer Games, Drones, etc.; Legos, Computer Games, Other Projects; Play-doh and Facial Art Sculpting (forensic art) for Elementary and Primary Students; Communication, Rhetoric, Cultural Studies

Session Chair: Dr. Tiffany Wilson-Ardley

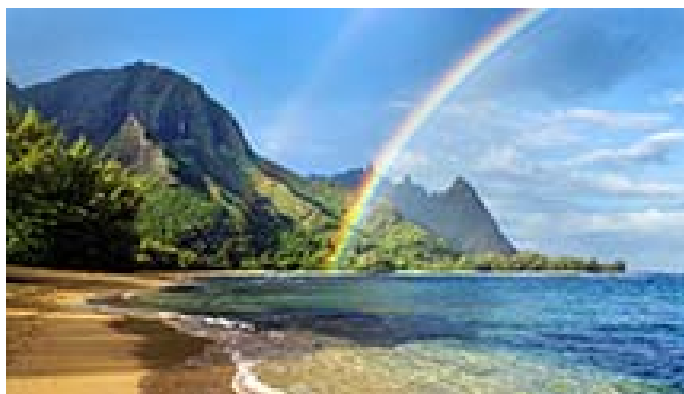
IV. 'Why Don't They Get It?': The (not so) Subtle Messages that Keep Americans at Each Other's Throats

We are confronted with considerable division in American Society. One cause of this division is a feeling of vulnerability resulting in a digging in of cultural identities. A we/they dichotomy is therefore glorified and serves as the stage on which we create our characters. The messages that allow us to dig in and reify our self-perceptions are particularly powerful. The worlds of politics, advertising, and entertainment supply us with messages that act as socializing forces of American culture.

Q: What can be done to combat this trend?

A: I'm not sure, but I believe it begins with understanding where these feelings come from.

Author/Presenter: **Dr. Bryan Fisher**
Department of Mass Communication
Francis Marion University
Florence, South Carolina



Wednesday - June 06, 2018

Room: Palolo 2

Time: 10:00 - 11:30am

Session: Educational Measurement and Evaluation; Technology, Engineering and Mathematics

Session Chair: Lieutenant Colonel Melissa Eslinger

I. Strategies to Evaluate Admission Criteria to Performance in STEM Coursework for Non-Science Majors

STEM classrooms challenge students to make conceptual applications across disciplines. The question is, can we predict STEM performance before they enter the classroom? We assessed standardized exam and individual predictors (i.e., demographics, athletics, etc.) along with the likelihood of graduation using the consolidated college entrance examination rank (CEER). Our data supports that composite predictors are more useful to identify students who may benefit from additional interventions to ensure successful progress towards graduation.

Q: What factors do the consolidated college entrance examination rank (CEER) scores consider?

A: CEER scores consider standardized exams (i.e., ACT and SAT), faculty recommendations, class ranking, extracurricular activities, and faculty evaluations for the whole-person concept.

Authors/Presenters: **Lieutenant Colonel Melissa Eslinger**
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West Point, New York
Dr. Timothy Hill
Department of Chemistry & Life Science
US Military Academy, West Point
West Point, New York
Dr. Marjorie Cowan
Department of Microbiology
Miami University
Oxford, Ohio



LTC. Melissa Eslinger

Continued on next page

Wednesday - June 06, 2018

Room: Palolo 2

Time: 10:00 - 11:30am

Session: Educational Measurement and Evaluation; Technology, Engineering and Mathematics

Session Chair: Lieutenant Colonel Melissa Eslinger

II. Effective Use of Assessment for Instructional Alignment

This paper will present a research study to design specialized Artificial Intelligence tools for engineering students. In the process of implementation, multiple assessments have been used to check the alignments of instruction to three aspects, 1) alignment to teaching objectives via a direct assessment of analyzing student learning outcomes in course activities; 2) alignment to meeting student expectations via an indirect assessment of student survey; and 3) alignment to nation-wide data in STEAM.

Q: Do you know if you have a good instructional alignment?

A: Yes, no or not sure.

Authors/Presenters: **Dr. Yachi Wanyan**

Texas Southern University
Houston, Texas

Dr. Youmei Liu

Division of Academic Affairs, Academic & Institutional Affairs
Texas Southern University
Houston, Texas



Wednesday - June 06, 2018

Room: Palolo 2

Time: 10:00 - 11:30am

Session: Educational Measurement and Evaluation; Technology, Engineering and Mathematics

Session Chair: Lieutenant Colonel Melissa Eslinger

III. Assessing the Effectiveness of Automated Personalized Feedback in an Undergraduate Biology Course

This paper compares the effectiveness of the implementation of two automated feedback systems in an undergraduate biology course at the University of Saskatchewan. Students were treated with either generic feedback, or personalized feedback. Personalized feedback took a learning analytic approach, and was tailored to individual students based on 40 distinct attributes. The effectiveness of these feedback interventions and their future potential are discussed.

Q: How did personalized feedback differ from the generic feedback?

A: The generic feedback was a simple statement about students' activity, but the personalized feedback was generated using information such as: student's performance in numerous assignment/test/course grades, student relative standing in the course, student expected grade, rural or urban origin, difference between actual and expected grade, and amount of self declared study time.

Authors/Presenters: **Mr. Matthew Schmidt**
Dr. Amin Mousavi
Dr. Vicki Squires
Dr. Ken Wilson
Educational Psychology and Special Education
University of Saskatchewan
Saskatoon, Saskatchewan
Canada



Wednesday - June 06, 2018

Room: Palolo 3
Time: 10:00 - 11:30am
Session: Gifted Education; Educational Technology
Session Chair: Dr. Katrina Eddles-Hirsch

I. The Lived Experience of Talented Students at the Tertiary Level

This Transcendental phenomenological study explored the lived experience of 8 talented undergraduate students by giving them a voice to describe how the social context of the university fostered, as well as impeded, their academic progress. While talented students are always present in the lecture hall, they may not always be visible, as giftedness, unlike other types of difference, can be hidden.

Q: What role does social context play in the talent development process in higher education?

A: Acceptance or rejection of difference: Stigma of giftedness; forced choice dilemma; social coping strategies; role of mentors.

Author/Presenter: **Dr. Katrina Eddles-Hirsch**
School of Education
University of Notre Dame, Sydney
Broadway, New South Wales,
Australia



Wednesday - June 06, 2018

Room: Palolo 3
Time: 10:00 - 11:30am
Session: Gifted Education; Educational Technology
Session Chair: Dr. Katrina Eddles-Hirsch

WORKSHOP

II. Danger Will Robinson! Using Floor Robots to Engage Elementary Students in Critical Thinking

This workshop will focus on the how floor robots in elementary classrooms can enhance students' understanding of programming and coding skills. During the workshop, participants will program a robot to perform specific tasks, engage multiple robots in activities that involve sensors, and discuss ways to incorporate similar activities in their own classrooms. Attendees interested in using a floor robot to increase STEM learning may find this session beneficial.

Q: How can floor robots enhance elementary students critical thinking skills and their knowledge and interest in coding?

A: Floor robots require students to complete tasks which require multi step planning and thinking. These processes introduce students to code building through hands on problem solving activities. Access to floor robots may increase students' awareness of technologies that are useful, educational, and geared towards careers in STEM fields.

Authors/Presenters: **Dr. J. Elizabeth Casey**
Dr. Lisa Pennington
Department of Curriculum and Pedagogy
Texas A&M International University
Laredo, Texas



Dr. J. Elizabeth Casey

Wednesday - June 06, 2018

Room: Naio
Time: 10:00 - 12:00pm
Session: Early Childhood Perceptions; Pre-K - 3 STEAM Education
Session Chair: Prof. Hongnam Im

I. How do Korean Children Perceive their "Younger Siblings"?

This study conducted interviews to see how Korean children perceive their 'younger siblings'. The study participants in this study are 10 four-year-old children who live in Korea and have younger siblings

Authors/Presenters: **Prof. Hongnam Im**
Prof. Eunju Kim
Department of Early Childhood Education
Pusan National University, Korea
Pusan, South Korea

WORKSHOP

II. Yesterday's Survival is Today's STEAM

Creating a "STEAM" curriculum from the Native Hawaiian perspective.

Q: *How did Native Hawaiians view STEAM?*

A: *Under current Western educational approaches, topics like science and engineering are separated out from day-to-day life as academic pursuits. However, when considering the genius of nâ kupuna, it becomes clear that their genius was driven by the day-to-day practicality of survival: if the 'auwai isn't built properly for the water to flow correctly through the lo'i, people will starve.*

Authors/Presenters: **Ms. Melissa Reeder**
Mr. Thomas Chock
Ms. Shela Mejia
Ms. Tiare Agpaoa
Keiki O Ka Aina Family Learning Center
Honolulu, Hawaii

Wednesday - June 06, 2018

Room: Palolo 1

Time: 12:45 - 2:15pm

Session: STEM, Focus on Science; All Science Disciplines (Biology, Chemistry and Physics); Online Curricula; Higher Education, Mathematics Education; STEM: Physics

Session Chair: Dr. Jennifer Fergusson

I. Effectiveness of Online Guided Inquiry STEM Resources on Secondary School Teaching and Learning

By critically examining a program's activities and outcomes, it improves the program's design and implementation as well as enhancing its impact. Employing a mixed methods approach that utilises data from surveys, interviews and classroom observations, this research investigated the effectiveness of the Science by Doing resources on teachers and students in Australian schools. Features of the program that impact positively on STEM engagement by students will be highlighted.

Q: What characterises online resources that motivate and engage students in learning STEM?

A: Interactivity, visual and user friendliness; guided inquiry, relevance and ease of adaptability of resources.

Authors/Presenters: **Dr. Jennifer Fergusson**
Dr. Wan Ng
School of Education
University of Technology Sydney
Ultimo, New South Wales
Australia



Wednesday - June 06, 2018

Room: Palolo 1

Time: 12:45 - 2:15pm

Session: STEM, Focus on Science; All Science Disciplines (Biology, Chemistry and Physics); Online Curricula; Higher Education, Mathematics Education; STEM: Physics

Session Chair: Dr. Jennifer Fergusson

II. Animating Explanations: Is it Funning Up or Dumbing Down?

Retaining and transferring information are the two cornerstones of learning. The mode and style of presentation affect understanding. In particular, animated explanations can reduce cognitive load and help students understand new material. In addition, students enjoy watching animated explanations on the Internet. The question we address is whether humorous animations support or detract from learning a STEM concept. We also introduce a novel methodology for gathering data and conducting interviews online.

Q: Do brief animations help students retain material in online courses?

A: Animations may help students remember information in much the same way as a storyline helps readers understand material.

Authors/Presenters: **Dr. Carla van de Sande**
Mr. Rolando Robles
School of Mathematical and Statistical Sciences
Arizona State University
Tempe, Arizona



Dr. Carla van de Sande

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Wednesday - June 06, 2018

Room: Palolo 1
Time: 12:45 - 2:15pm
Session: STEM, Focus on Science; All Science Disciplines (Biology, Chemistry and Physics); Online Curricula; Higher Education, Mathematics Education; STEM: Physics
Session Chair: Dr. Jennifer Fergusson

III. Implementing Hands on Activities and Online Simulations to Middle School Curricula: Electric Circuits

The combination of in class experiments with computer simulations is an excellent cost and time effective way of teaching middle school electric circuits, as well as many other required topics in physics.

Q: How do you teach abstract concepts?

A: Explain concepts using a combination of experiments and computer simulations.

Author/Presenter: **Dr. Carmen Cioc**
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Mrs. Elizabeth Buckholtz
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The University of Toledo
Toledo, Ohio
Dr. Sorin Cioc
Mechanical, Industrial, and Manufacturing Engineering
The University of Toledo
Toledo, Ohio
Dr. Judy Lambert
Educational Technology
Toledo Public Schools
Toledo, Ohio



Wednesday - June 06, 2018

Room: Palolo 2

Time: 12:45 - 2:15pm

Session: Two-Phase Flow; Induction Heating; Applied Differential Equations

Session Chair: Dr. Reza Madad

I. Comparison of Experimental Two-Phase Flow and Theoretical Poiseuille-Couette Flow at Low Reynolds Numbers

The fully developed air-water flow is studied experimentally in a high aspect ratio air-water tunnel facility with Pitot-tube and laser Doppler velocimetry (LDV) measurements. The experimental techniques and consideration are explained in this article. The Poiseuille-Couette flow (PCF) with solid moving wall is simulated to facilitate the comparison of air-water flow with the smooth water surface and PCF with a solid wall.

Q: What are the similarities of airflow in two-phase flow and Poiseuille-Couette flow (PCF) with solid moving wall?

A: It depends on the Reynolds numbers and the order of statistics.

Author/Presenter: Dr. Reza Madad
Mechanical Engineering Department
The University of Akron
Akron, Ohio

II. Using Newton's Law of Cooling

How a solution was found for Cooling Rate outside of a High-Speed Induction Heater.

Q: What facts are necessary to solve a Cooling Problem?

A: The time and temperature at two points during the cooling process.

Author/Presenter:



Prof. Gerald A. Votta
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Glassboro, New Jersey

Wednesday - June 06, 2018

Room: Palolo 3

Time: 12:45 - 2:15pm

Session: Indigenous Education; Physics and Astronomy, Environmental Science; Inter-disciplinary and other areas of Technology and Engineering; Inter-disciplinary Areas of Mathematics, Topology and Algebra; Anthropology, Archeology

WORKSHOP

I. Indigenous Riverscapes and Mounds: The Feminine Relationship of Earth, Sky and Water

The focus of this research is on the burial and effigy mounds along the riverscapes of Turtle Island and the technology, wisdom, labor, and love needed to develop and interpret them. Many of these mounds contain Indigenous feminine, place-based knowledge and numbers. These mounds mirror earth with sky as interdisciplinary expressions of art, humanities, science, math, engineering, and technology. We also examine the strong feminine cosmology connected to these sites and the impact of colonial settler practices through a lens of ecofeminism and critical Indigenous pedagogy of place (CIPP).

Q: *Does the feminine cosmology related to the Indigenous mounds of Turtle Island have important knowledge to offer to the study of astronomy, environmental and Indigenous education?*

A: *Yes!*

Authors/Presenters: **Mr. Jim Rock**

Marshall W. Alworth Planetarium
University of MN-Duluth
Duluth, Minnesota

Dr. Roxanne Biidabinokwe Gould

Education Department
Ruth A. Meyer Center for Indigenous Education/Environmental Education
University of MN-Duluth
Duluth, Minnesota



Wednesday - June 06, 2018

Room: Naio
Time: 12:45 - 2:15pm
Session: STEM

WORKSHOP

I. Incorporating STEM for Students with Vision Impairments

USDB provides a STEM camp for students with vision impairments because they are often a low-represented population with the STEM community. This workshop will provide attendees with a brief overview of vision impairment and its impact on learning, resources for providing STEM instruction and examples of STEM projects completed by students with vision impairments. One example project is the PVC canoe project. Attendees will have some hands-on learning and view projects with pictures and videos.

Author/Presenter: **Mrs. Robbin Clark**
Coordinator, Expanded Core Curriculum
Utah Schools for the Deaf and the Blind
Ogden, Utah



Wednesday - June 06, 2018

Room: Palolo 1

Time: 2:30 - 4:00pm

Session: Mathematical Sequences; Science Education; Mathematics, Information and Computer Sciences; Calculus, Computational Mathematics, Numerical Analysis; Mathematical Function

Session Chair: Dr. Mulatu Lemma

I. The Magical Applications and Properties of Arithmetic Sequence

A sequence is a set of numbers in a specific order. The two simplest sequences which are interesting to work with are the classical arithmetic and geometric sequences. Since arithmetic and geometric sequences are so nice and regular, they have simple and friendly formulas. They have many interesting mathematical properties which are enjoyable and have exciting mathematical patterns.

Authors/Presenters: **Dr. Mulatu Lemma**
Dr. Jenny Smith
Dr. Napoleon Martin
Department of Mathematics
College of Science
Savannah State University
Savannah, Georgia

II. Practical Applications of the Infinite Series for Calculus Students

Algorithms will be developed for calculating the exponential, logarithmic, and Bessel functions. Properties and identities of each of the functions are incorporated in the algorithms, resulting in robust, versatile, and accurate calculations. The Bessel algorithm will use a unique application to the Taylor's Series, centered at a non-zero center, and is applicable for complex arguments.

Q: Are these algorithms understandable to the typical calculus student.

A: Yes, for the exponential and logarithmic algorithms. Given properties of the Bessel function, the student would be able to follow the process to be introduced.

Author/Presenter:



Dr. Gregory Goeckel
Department of Mathematics
Presbyterian College
Clinton, South Carolina

Continued on next page

Wednesday - June 06, 2018

Room: Palolo 1

Time: 2:30 - 4:00pm

Session: Mathematical Sequences; Science Education; Mathematics, Information and Computer Sciences; Calculus, Computational Mathematics, Numerical Analysis; Mathematical Function

Session Chair: Dr. Mulatu Lemma

III. The Telescoping Series-Examined

The telescoping Series is a method for examining the convergence of infinite series of the form:

$$\sum_1^{\infty} [f(x) - g(x)]$$

This method, combined with partial fraction decomposition, is frequently effective. This paper will examine when the telescoping series is appropriate and simplify the summation process involving rational and transcendental functions.

Q: How do your students determine when to use the telescoping series?

A: When the argument can be written as two functions $f(x)-g(x)$ with $g(x)=f(x+k)$ where k is a natural number.

Author/Presenter:



Prof. Mark Garrison
Department of Mathematics
Middle Georgia State University
Macon, Georgia

Wednesday - June 06, 2018

Room: Palolo 2

Time: 2:30 - 4:00pm

Session: Broadening Participation; Ensuring Student Persistence; Science Education and Differentiation at the Tertiary Level; Introductory University Quantum Mechanics

Session Chair: Dr. Lesia Crumpton-Young

I. Meeting Engineering Students' Needs Through the Investigation and Development of Effective Mentoring Practices

The present research study was comprised of students who have successfully obtained a STEM (Science, Technology, Engineering, and Math) undergraduate degree. The researchers were interested in capturing the mentoring practices that led to the successful completion of their undergraduate degree. The present study aims to share an innovative model of mentoring from these findings. The model will include mentor and mentee perspectives and significant current literature on mentoring in STEM.

Q: What are the mentoring experiences of STEM undergraduate students and their mentors?

A: Providing perspectives of mentees and mentors in STEM to identify best practices.

Authors/Presenters: Dr. Lesia Crumpton-Young
Ms. Germysa Emily Little
Mrs. Shabnam Etemadi Brady
Tennessee State University
Nashville, Tennessee

II. Introducing Quantum Mechanics Using Two-State Systems

Five years ago a team of University of Washington physics faculty and graduate students decided to create a new introductory quantum mechanics course for sophomore physics majors with the goal of illuminating the primary features of quantum mechanics while avoiding unnecessary mathematical complication. This paper reports on the structure and content of this course as well as the modifications and adjustments made as the course evolved through ten separate offerings with three different faculty.

Q: Can anyone learn the basics of quantum mechanics?

A: Yes, but a year of classical physics background is very helpful.

Author/Presenter: Dr. R. Daryl Pedigo
Department of Physics
University of Washington
Seattle, Washington

Continued on next page

Wednesday - June 06, 2018

Room: Palolo 2

Time: 2:30 - 4:00pm

Session: Broadening Participation; Ensuring Student Persistence; Science Education and Differentiation at the Tertiary Level; Introductory University Quantum Mechanics

Session Chair: Dr. Lesia Crumpton-Young

III. Conceptually Speaking

Conceptual Physics at Wentworth Institute of Technology is an interdisciplinary collaboration between the departments of Sciences and Design. The goal of the course is to improve the ability of Interior and Industrial Design students to evaluate form and function through an understanding of general Physics principles. We have refined the experience to focus on physical interpretations of realistic design scenarios that students will encounter in the professional environment.

Q: What are the learning goals of a Conceptual Physics class?

A: This course strives to give students an intuitive understanding of topics without in-depth mathematical calculations. At WIT, our focus on the Design fields provides an interesting framework to analyze Physics concepts.

Authors/Presenters: **Dr. Franz Rueckert**
Department of Sciences
Wentworth Institute of Technology
Boston, Massachusetts
Prof. Derek Cascio
Prof. James O'Brien
Department of Industrial Design
Wentworth Institute of Technology
Boston, Massachusetts



Wednesday - June 06, 2018

Room: Palolo 3

Time: 2:30 - 4:30pm

Session: Educational Policy; Secondary Science Education; Biology - Blended Learning; Educational Measurement and Evaluation

Session Chair: Dr. Dick Carpenter

I. Choosing to Move: The Differential Effects of Nonstructural Mobility out of Charter and Traditional Public Schools

This presentation will address differences in the effects of student mobility based on the school type students leave—charter or traditional public schools (TPS). Results indicate charter leavers make significant test score improvements in math and see no significant difference in reading scores the following year. Entrance of mobile students into a TPS cohort reduces the achievement of students within that cohort; the negative effect is driven by those who move from TPS, not from charters.

Q: *Can student mobility between schools actually be beneficial?*

A: *Results from our research suggest there may be a type of mobility that is beneficial and that school choice may facilitate such mobility.*

Authors/Presenters: **Dr. Dick Carpenter**
Dr. Marcus Winters
Educational Leadership, Research, and Foundations
University of Colorado
Colorado Springs, Colorado

II. Increasing Biology Content Literacy and Digital Literacy with Minority Students Using Blended Learning

This paper exposes my experiences using blended learning to teach biology in 9th grade biology courses in South Texas to increase content and digital literacy of my students and myself. Students were predominantly Hispanic. The frameworks are social justice and new literacy studies. I obtained the data from 1) aggregate reports, 2) personal observations, and 3) anonymous feedback from former students. I observed increased content literacy and digital literacy of my minority students and myself.

Q: *Was there a noticeable increase in state assessment scores after using this method?*

A: *Advanced scores went from less than 20% to as high as 76% advanced.*

Author/Presenter: **Mr. Brent J. Burkott**
Department of Education
The University of Texas Rio Grande Valley
Edinburg, Texas



Mr. Brent J. Burkott

Continued on next page

Wednesday - June 06, 2018

Room: Palolo 3
Time: 2:30 - 4:30pm
Session: Educational Policy; Secondary Science Education; Biology - Blended Learning; Educational Measurement and Evaluation
Session Chair: Dr. Dick Carpenter

PANEL

III. A Nationwide Propensity: An Analysis of High Stakes Testing and its Impact on English Language Learners in Urban High Schools in Texas

The purpose of this article is to analyze the issues and challenges faced by English Language Learners (ELLs) and the public schools that absorb them. Ample research has been conducted on the intrinsic validity of standardized assessments, and separately, on the factors affecting the assimilation and integration of ELLs.

However, the reliability of these assessments as a universally applied tool to measure student learning, and as a basis for determining school performance needs to be more closely examined.

Q: *Are English language Learners handicapped by high stakes testing?*

A: *Yes they are if they are not given an equal opportunity to be successful.*

Author/Presenter:



Dr. Arthur Petterway
WRG College of Education
Prairie View A&M University
Prairie View, Texas

Wednesday - June 06, 2018

Room: Naio

Time: 2:30 - 4:00pm

Session: Increasing URM STEM Students' Science Identity, Belonging, and Persistence

WORKSHOP

I. Best Practices in Increasing URM STEM Students' Science Identity, Belonging, and Persistence: A Workshop for STEM Teachers, Faculty, and Advisors

In this workshop, conveners propose to address the benefits and mechanisms of targeted student support activities and programs designed to increase underrepresented minority participation in science, technology, engineering, and mathematics. A literature-based overview and justification for the use of the mechanisms will be presented. Conveners will utilize case studies from current student support programs and discuss how these programs have increased engagement and transfer/graduation rates.

Q: What challenges and barriers do your STEM students face regarding science identity, belonging, and persistence?

A: Answers will vary from each participant.

Authors/Presenters: Dr. Pamela Leggett-Robinson

Department of Chemistry
Perimeter College
Georgia State University
Decatur, Georgia

Dr. Cynthia Lester

Math/Computer Science/Engineering
Perimeter College
Georgia State University
Decatur, Georgia

Dr. Brandi Villa

Computer Science Department
Perimeter College
Georgia State University
Decatur, Georgia

Wednesday - June 06, 2018

Room: Palolo 1

Time: 4:15 - 5:45pm

Session: Loss of Human Capital from the African Economy and its Impact on Development; Terrorism and International Relations; Indigenous Education

Session Chair: Dr. Clemente Abrokwa

I. Conflict, Migration, and The Flight of Human Capital: The Case of The Lost Boys from Sudan Resettled in Philadelphia, and who Studied at Penn State University

Extant literature on conflict and the creation of streams of refugees, focuses mainly on refugee resettlement concerns, both for refugees as well as host countries, and the funding and resource provision involved. However, there is little discussion of the fact that, forced migration of refugees of conflict also amounts to the flight of human capital from the original economies of the countries of the refugees, which condition adversely affects development in those economies. This paper examines African conflicts and their accompanying refugee creation problem, especially the flight of human capital from the African economy, through the forced migration of sundry expertise from the continent.

Author/Presenter: **Dr. Clemente Abrokwa**
Department of African Studies
Penn State University
State College, Pennsylvania



Wednesday - June 06, 2018

Room: Palolo 1

Time: 4:15 - 5:45pm

Session: Loss of Human Capital from the African Economy and its Impact on Development; Terrorism and International Relations; Indigenous Education

Session Chair: Dr. Clemente Abrokwa

II. Terrorism and the Military Institution: How do you Justify Military Atrocities?

The role of the military institution, since its inception, is to protect and defend the society it serves. Unfortunately, over the years, the military as an institution has become a threat to societies while its technological advancement and financial investments by nations globally continue to soar. This means societies regularly fund ways to perfect military atrocities by justifying the institution's actions. As the Chinese philosopher, Mo Ti, asked about two thousand years ago, when will military killing be considered a murder instead of rewarding the killers? Individuals such as Napoleon Bonaparte (France), Jerry John Rawlings (Ghana), Iddi Amin (Uganda), Francisco Franco (Spain), Muammar al-Qaddafi (Libya), Augusto Pinochet (Chile) and many other coup makers have used the institution to ascend to power through military coups and have terrorised their own citizens. Additionally, powerful nations such as the United States, Israel, and Russia use their military might to threaten weaker ones and the former are more likely to justify their atrocities: For example, British colonization relied on its military to control the colonized. The underlying question is: Has the military become a tool for terrorism? Or should military crimes not be considered acts of terrorism?

Q: Has the military as an institution become a tool of terrorism for politicians?

A: Yes, powerful nations use their military to intimidate, threaten, and force weaker nations to bow to the demands of the former while individuals with political ambitions use the military in coups.

Author/Presenter:



Prof. Kwame Badu Antwi-Boasiako
Department of Government
Stephen F. Austin State University
Nacogdoches, Texas

Continued on next page

Wednesday - June 06, 2018

Room: Palolo 1

Time: 4:15 - 5:45pm

Session: Loss of Human Capital from the African Economy and its Impact on Development; Terrorism and International Relations; Indigenous Education

Session Chair: Dr. Clemente Abrokwa

III. Connectedness - Voices from the Gutters

In New Zealand, Māori Alternative Education students' perceptions of themselves are that of 'bottom feeders' and 'second class citizens'. How did they arrive at this description of themselves? Best yet, how are these students now performing academically and enjoying their learning journey? What can we learn from alternative education students' voice on connectedness, their perceptions of themselves, and how they rise to the challenges in their learning journeys?

Q: How do educators create connectedness with their indigenous students?

A: Educators seriously impact their students' mana and future educational direction either positively and/or negatively through their choice of teaching practices, actions, and dialogue with their students. The narratives of the student participants within this study support such a statement. From the findings of this study I can conclude that there are six ways in which teachers can help create connectedness within their learning environments, and therefore improve their Māori students' self-efficacy. These are identified as: Culturally responsive practice; relational practice; flexibility; creating a sense of belonging and whānau; creating high trust; and being non-judgemental.

Author/Presenter:



Dr. Katrina Lemon

Academic Development
Toi Ohomai Institute of Technology
Tauranga, Bay of Plenty
New Zealand

Wednesday - June 06, 2018

Room: Palolo 2

Time: 4:15 - 5:45pm

Session: Science Education; Inter-disciplinary Areas of Sciences; Entrepreneurship Development; Product Design; Technology-enhanced; Inquiry-based Learning & Preservice Science Teacher Education; Higher Education, Inter-disciplinary and other areas of Education; Technology, Engineering and Mathematics

Session Chair: Dr. So Young Han

I. Designing High Impact Curricular Practices Utilizing Makerspaces

Sonoma State University is leading efforts across the California State University system to advance Maker pedagogy. This talk introduces methods to successfully create dynamic makerspaces, campus wide DIY culture, and curricular connections. The talk is ideal for those looking to attract underrepresented STEM groups and interdisciplinary collaborations. The presentation includes lessons learned and methods for funding, assessment, entrepreneurial integration, and institutionalization.

Q: How much money is needed to create a makerspace?

A: Makerspaces can be ran as cheap pop-up spaces for less than \$10k , however to have the greatest impact you will want at least \$30-50k for equipment and \$15k for furniture/setup. If you want a full VR or AR setup expect \$2k more for each setup. Also budget for any infrastructure renovations the space needs in term of electrical and ventilation (based on space footprint). If you use student techs it can reduce the cost versus having a full time tech (which isn't necessary for most spaces).

Authors/Presenters: Dr. So Young Han

Dr. Jeremy Qualls

Dr. Edward Lyon

Dr. Joel Gould

Department of Physics and Astronomy

Sonoma State University

Rohnert Park, California

Continued on next page

Wednesday - June 06, 2018

Room: Palolo 2

Time: 4:15 - 5:45pm

Session: Science Education; Inter-disciplinary Areas of Sciences; Entrepreneurship Development; Product Design; Technology-enhanced; Inquiry-based Learning & Preservice Science Teacher Education; Higher Education, Inter-disciplinary and other areas of Education; Technology, Engineering and Mathematics

Session Chair: Dr. So Young Han

II. Developing Preservice Science Teachers' Understanding of Inquiry-based Learning in STEM with New Technologies

In science teacher education programs, constraints in time and equipment lead to inadequate education of pre-service science teachers to develop a clear understanding of inquiry-based learning (IBL). Using a case study approach, this research investigated the use of specialised technology to assist preservice science teachers to develop that understanding. The results showed that affordances enabled by the technologies helped the preservice teachers understand IBL in its totality.

Q: How can new technologies enable better development of skills/knowledge in IBL in preservice science teachers?

A: Affordances of technology allows for individuals to take different pathways to solve a problem. It allows students to test designed products in simulated environments that physical classrooms are not able to afford.

Authors/Presenters: **Dr. Wan Ng**
Dr. Jennifer Fergusson
School of Education
University of Technology Sydney
Ultimo, New South Wales
Australia



Wednesday - June 06, 2018

Room: Palolo 2

Time: 4:15 - 5:45pm

Session: Science Education; Inter-disciplinary Areas of Sciences; Entrepreneurship Development; Product Design; Technology-enhanced; Inquiry-based Learning & Preservice Science Teacher Education; Higher Education, Inter-disciplinary and other areas of Education; Technology, Engineering and Mathematics

Session Chair: Dr. So Young Han

III. An Entrepreneurial Workshop to Improve Engineering Transfer Student Retention

Engineering transfer students that join four-year programs mid-degree face unique hurdles to matriculation. We discuss an innovative entrepreneurship workshop targeting engineering transfer students designed to enhance their entrepreneurial knowledge and increase retention towards graduation. We discuss common pitfalls encountered by transfer students and how the workshop helps to address them. Our workshop improved the retention of our engineering transfer students from 74% to 90.9%.

Q: How can my institution increase student retention and graduation rates?

A: We discuss a successful student workshop that utilizes the value proposition, product market fit, prototyping, and the engineering design process to increase retention rates of engineering transfer students.

Authors/Presenters: **Dr. Rolfe Sassenfeld**
Prof. Luke Nogales
Dr. Donovan Fuqua
Department of Engineering Technology
New Mexico State University
Las Cruces, New Mexico



Wednesday - June 06, 2018

Room: Naio
Time: 4:15 - 5:45pm
Session: Higher Education

WORKSHOP

I. Engaging and Preparing Teacher Candidates for Multicultural Discussions through Book Clubs: Results and Tips from a Pilot Study

This workshop will focus on book clubs as an instructional strategy to actively engage college students in their methods courses, while equipping them with resources and response strategies like multigenre for their future classrooms. During the workshop, we will share our strategies for implementing book clubs into our education methods courses and discuss how we incorporate pedagogical and content knowledge into the book clubs. Attendees will participate in a mock book club session.

Q: What are the benefits of using book clubs as an instructional strategy in education methods courses?

A: Book clubs actively engage students at the university level, while allowing them to practice pedagogical strategies, review content information, and review resources for future classroom use.

Authors/Presenters:



Dr. Mary Tackett
Social Sciences Division
Sweet Briar College
Sweet Briar, Virginia

Dr. Lisa Pennington
Department of Curriculum and Pedagogy
Texas A&M International University
Laredo, Texas



DAY 2

Thursday - June 07, 2018

KEYNOTE SPEAKER - DR. MARY JO PARKER

Thursday - June 07, 2018

Room: Naio

7:30 - 8:00am



Dr. Mary Jo Parker
Executive Director
Scholars Academy/College of Sciences & Technology
University of Houston-Downtown
Houston, Texas

Mary Jo Parker, Ed.D., a first-generation, Hispanic, is currently a faculty member in the Natural Sciences department at University of Houston-Downtown, a federally designated Hispanic-serving and Minority-serving institution. She also is the Executive Director of the Scholars Academy, an academic unit in the College of Sciences & Technology supporting STEM majors through scholarships and a mentoring network system.

She has been in higher education for 10 years, one year at Rice University Center for Science and Technology and nine years at UHD. She currently is PI on two active federal grant awards, Nuclear Regulatory Commission MSIP and Office of Texas Governor Wagner Peyser Workforce Training (\$1.4M). She brings extensive experience in curriculum and development, supervision and leadership at K-12 and higher education, K-16 outreach and STEM recruitment, online instruction, teaching non-majors biology in the online environment, and closing the achievement gap for minority STEM students.

Dr. Parker has incorporated service learning into the University Seminar (Transfers) and Human biology online core courses successfully. Her research focuses primarily on understanding mentoring of underrepresented STEM undergraduates and effective learning in online environments.

Thursday - June 07, 2018

Room: Palolo 1

Time: 8:15 - 9:45am

Session: Education Technology, Science Education, Secondary Education; Anatomy, Biochemistry & Physiology, Health Science

Session Chair: Prof. Irene Gaither

I. Mathematics in Nursing / Bilingual Nursing Fellowship Program

Mathematics as a subject always deals with knowledge and critical thinking, proportional-reasoning, and correctness of calculation which include dimensional analysis. Nursing degree needs as much as mathematics in their field in order to be able to excel in their career toward Registered Nurse (RN), or Nurse Practitioner.

The focus of this research study is to enhance the Bilingual Nursing Fellowship Program (BNFP) in South Mountain Community College graduation rate and transfer program to MAPP at Arizona State University and other 4-year college; or at least to CNA degree. MAT 141/142, College Mathematics, is therefore the required mathematics course for this degree. The one-hour workshop Prevention and Remediation on HESI A2 was offered every Friday and then comparing pre- and post-test results.

Authors/Presenters: **Prof. Irene Gaither**
Dr. Jacqueline Levy
Ms. Loida Gutierrez
Department of Math Science & Engineering (MSE)
South Mountain Community College
Phoenix, Arizona



Thursday - June 07, 2018

Room: Palolo 1

Time: 8:15 - 9:45am

Session: Education Technology, Science Education, Secondary Education; Anatomy, Biochemistry & Physiology, Health Science

Session Chair: Prof. Irene Gaither

II. Design, Implementation and Delivery of Customized Digital Resources in Large Multi-section Anatomy & Physiology Laboratory to Improve Outcomes on Laboratory Assessments

Assessment in our 2 semester Anatomy lab consists of lab exams testing working knowledge of human anatomy. Covering over 1000 items per lab exam, 8 exams total, we developed custom resources to prepare our students. Our resources include visual model reviews and quizzes to incentivize early, consistent study, narrated model videos for auditory reinforcement, customized image banks and full practice exams. All resources are available online via Blackboard. This can be a model for other courses.

Q: *In a course with an extremely large volume of material and lots of memorization, how can we prepare our students most directly for exams, and ensure retention of material?*

A: *Give students the most directly relevant material to study for assessments, and do mini-assessments or quizzes to incentivize earlier mastery and study over longer periods leading to better memory formation and thus retention.*

Authors/Presenters:



Mr. Todd Miller
Department of Biological Sciences
Hunter College
City University of New York
New York



Mr. Frank Martinez
Department of Biological Sciences
Hunter College
City University of New York
New York

Thursday - June 07, 2018

Room: Palolo 2
Time: 8:15 - 9:45am

WORKSHOP

I. Neuro-plasticity and Haptic Engagement/Craft and Climate Change

This is a workshop in neuroplasticity and climate change using wool as the material to engage these subjects. Participants will learn basic wool working techniques including spinning and felting and come away with an object they've made, but will also learn and discuss the value of haptic learning and the importance of material narrative - i.e. where wool comes from, how it is used, what happens in its life cycle. We will explore the potential of thinking about craft materials in the larger context of climate change so as to use it as a source of activism and action.

Q: *How does the spinning wool affect the brain?*

A: *Our brains are ever developing connections of neuronal activity. As we engage with materials haptically we establish new pathways and reinvest in those already existing. Using our hands is an essential component to our development. Wool is the earliest textile humans ever made, it is linked intrinsically to our evolutionary relationship to materials. Learning to spin, felt, etc. is actually a process of haptic learning which increases the plasticity of the brain, assisting in maintaining and building flexibility and also reducing anxiety and increasing comfort with play. Play in this instance means - trying to make a material do something and perhaps not succeeding at first - it allows us to fail without it having the weight that word usually implies.*

Author/Presenter:



Ms. Seema Goel
Faculty of Science
University of Manitoba
Winnipeg, Manitoba
Canada

Thursday - June 07, 2018

Room: Palolo 3

Time: 8:15 - 9:45am

**Session: Environmental/Engineering; Teacher Education; Technology; Education
Technology, Logic; Inter Disciplinary**

Session Chair: Dr. Maged Malek

I. The Economic, Social and Environmental Benefits Derived From The Redevelopment Of Brownfields

Brownfields are defined as former industrial or commercial properties that have been abandoned, idled or are no longer in use. These properties may be compromised with contaminated water and/or toxic materials. This paper demonstrates that Brownfields may however, be salvaged and redeveloped. Redeveloping brownfields has challenges. Financial barriers and liability concerns are often cited as the main concerns, but this strategy can also have many economic, social and environmental benefits.

Q: *What are the steps to be followed in the redevelopment process?*

A: *The US Environmental Protection Agency suggests four major steps in the redevelopment process: pre-development, securing the deal, clean up and development, and property management.*

**Authors/Presenters: Dr. Maged Malek
Mr. Chaise Matev**
College of Engineering, Construction and Computing
University of North Florida
Jacksonville, Florida



Thursday - June 07, 2018

Room: Palolo 3

Time: 8:15 - 9:45am

**Session: Environmental/Engineering; Teacher Education; Technology; Education
Technology, Logic; Inter Disciplinary**

Session Chair: Dr. Maged Malek

WORKSHOP

II. Technology Tools: Everyday Uses for the Classroom

As a professor of teacher educators, I would like to introduce technology usage that would be helpful in any classroom. Some of the tools to be introduced are: Prezi, Powtoons, Kahoot.it, PPT game sites, etc. This technology would engage any student in any classroom at any level.

Q: *Is this conference beneficial if I teach in a K12 private or public school?*

A: *Yes, it is beneficial for both K12 and higher education (public and private).*

Authors/Presenters: **Dr. Andrea P. Beam**
Faculty of Science
School of Education
Liberty University
Lynchburg, Virginia
Prof. Allen Hackmann
Science/SPED
Jefferson Forest High School
Forest, Virginia



Thursday - June 07, 2018

Room: Palolo 4

Time: 8:15 - 9:45am

Session: Early Childhood Education; Elementary Education; Mathematics Education; Inter-disciplinary and other areas of Arts and Humanities; Social Sciences

Session Chair: Dr. Sharon Davies

I. STEM for Infants and Children Under 2 Years Old: Identifying the Mathematical Demands and Opportunities in Young Children's Play and Interactions

This Action Research project was conducted with teachers working with infants and children under two years in an Early Childhood Education and Care Centre in Western Australia.

The presentation will share Early Learning Centre action and teacher written 'Learning Stories'. These illustrate STEM experiences (using a 'mathematical lens') and opportunities for supporting and encouraging mathematical concept and skill development during child-initiated play, routines, schedules and care giving.

Q: *Can you really teach STEM concepts and skills to infants?*

A: *Infants and young children are constantly exploring their world. Everyday activities offer the opportunity to develop many different STEM skills and concepts. Teachers working with young children in Long Day Care centres (open from 6am-6pm) are in the unique position of being with their learners most of the day. Teachers need to capitalise on the children's early interests and experiences. When teachers are knowledgeable about STEM concepts and skills they are better able to raise young children's awareness of their own actions and interactions which can motivate and cultivate interest in STEM subjects.*

Author/Presenter:



Dr. Sharon Davies
School of Education
Curtin University
Perth, Western Australia
Australia

Continued on next page

Thursday - June 07, 2018

Room: Palolo 4

Time: 8:15 - 9:45am

Session: Early Childhood Education; Elementary Education; Mathematics Education; Inter-disciplinary and other areas of Arts and Humanities; Social Sciences

Session Chair: Dr. Sharon Davies

II. Convergence Education in Art and Literature through Self-portraits

The purpose of this study is to suggest an example of convergence education of art and literature through self-portraits of Frida Kahlo and Yun Dong-Ju. They found their life's purpose in painting and in writing poetry while they suffered from tremendous pains throughout their lifetime. They portray their pains as a fate that has to be endured as women and poets of a colonized land. They depict their figures with plural images which they derive from their struggle to explore their identities.

Q: *What is the reason for comparing Frida Kahlo and Yun Dong-Ju?*

A: *Firstly, they made the best use of the reflexivity of the genre of 'self-portrait'. Secondly, they described the suffering of the colonists who were exploited as self-portrait. Thirdly, similar images can be found in two people's paintings and poems.*

**Authors/Presenters: Prof. Jeonghee Ko
Ms. Ying Jin**
Department of Korean Language Education
College of Education
Seoul National University
Seoul Special City
South Korea



Thursday - June 07, 2018

Room: Palolo 4

Time: 8:15 - 9:45am

Session: Early Childhood Education; Elementary Education; Mathematics Education; Inter-disciplinary and other areas of Arts and Humanities; Social Sciences

Session Chair: Dr. Sharon Davies

III. Through Their Eyes: A Samoan Perspective on Child Wellbeing

This presentation provides preliminary findings of research on the wellbeing of Samoan children in Wellington, New Zealand. Working closely with Samoan children, parents and community partners, this research explores how:

1. Samoan children and their parents conceptualise child wellbeing and how this view fits with the national approach to child wellbeing, and
2. The wellbeing of Samoan children is supported by their parents, the community, and by government policy and service provision.

Q: *What happens when you ask children how they conceptualise their wellbeing?*

A: *Children are able to articulate clearly what wellbeing means to them, when they are asked.*

Author/Presenter:



Ms. Emma Dunlop-Bennett
Pacific Studies Department
University of Otago
Wellington, North Island
New Zealand



Thursday - June 07, 2018

Room: Palolo 1

Time: 10:00 - 11:30am

Session: Reflective Practice in Primary Science Education; Math Education; Geometry; Synchronous Discussion, Online Discussion Group

Session Chair: Dr. Alison Casey

I. Reflective Practice for Primary Education Students in Science

Primary Education students often struggle with the pedagogy of teaching Science. This paper describes the development of and positive effect of introducing a reflective practice to one of their Science teaching assessments.

Q: *What holds back primary teachers from successfully teaching Science?*

A: *It's complex, but a lack of confidence in their own knowledge and in constructivist pedagogy*

Author/Presenter:



Dr. Alison Casey

School of Education

The University of Notre Dame Australia

Broadway, New South Wales

Australia

II. The Role of Definitions in Geometry for Prospective Middle and High School Teachers

Does verbalizing a key definition before solving a related problem help students in solving the problem? Perhaps surprisingly, the answers turns out to be NO, based on this yearlong ex-periment conducted with mathematics education majors and minors in two geometry classes. This article describes the experiment, the results, suggests possible explanations, and derives some pedagogical conclusions that are useful for teachers of any mathematics or science course.

Q: *Does verbalizing a relevant definition help students solve related problems?*

A: *NO.*

Author/Presenter:

Dr. Tamas Szabo

Department of Mathematics

University of Wisconsin

Whitewater, Wisconsin

Continued on next page

Thursday - June 07, 2018

Room: Palolo 1

Time: 10:00 - 11:30am

Session: Reflective Practice in Primary Science Education; Math Education; Geometry; Synchronous Discussion, Online Discussion Group

Session Chair: Dr. Alison Casey

III. Facilitation Strategies for Synchronous Group Discussions in Educational Virtual Worlds: How to Become an Expert Moderator of Virtual Learning Events Used in Teacher Training

This presentation reports on an exploratory case study investigating strategies to facilitate group discussions in a three-dimensional virtual world. The participants were sixteen in-service teachers enrolled in a graduate level technology class. The purpose was to identify best practices for discussion facilitation in-world. The study discusses several themes that emerged from the qualitative data analysis of four chat logs and two debriefings between the lecturer and the facilitator.

Q: *What are the key factors in facilitating a robust virtual world lecture and discussions?*

A: *The key factors are the communication modality (i.e., text chat versus voice chat), the critical need for a facilitator, and the need for clear participation and facilitation guidelines.*

Authors/Presenters:



Prof. Kevin Oh

Department of Learning and Instruction
University of San Francisco
San Francisco, California
University of Applied Sciences and Arts
Northwestern Switzerland

Dr. Natalie Nussli

Institute for Primary Education (IP)
University of Applied Sciences and Arts
Northwestern Switzerland

Thursday - June 07, 2018

Room: Palolo 2

Time: 10:00 - 11:30am

Session: Interpersonal Communication; Chemistry and Forensic Science; Visual Arts; Graphic Design; Music Education; Mathematics; Technology, Engineering and Mathematics; Computer Science, Education Technology

Session Chair: Dr. Cheryl Pawlowski

I. The World-Wide Addiction to Smart Phones

With the ever growing world-wide addiction to smartphones, this study addresses the WHY we are becoming more and more dependent on technology leading to the breakdown of face-to-face communication.

Q: *Why are we Addicted to our smartphones?*

A: *Escape reality.*

Authors/Presenters: **Dr. Cheryl Pawlowski**
College of Humanities & Social Sciences
University of Northern Colorado
Lafayette, Colorado
Ms. Diane Matuschka
Department of Communication Studies
University of North Florida
Jacksonville, Florida

II. A Study on Young Children's Metaphorical Images of the Opposite Sex Peer as Represented by their Drawings

The purpose of this study is to explore how children perceive the opposite sex peer and express them metaphorically. For this purpose, 14 seven-year-olds read Anthony Brown's book, 'My Mum' and 'My Dad' and talked about metaphorical paintings together. Then, the children were asked to draw metaphorically pictures of the opposite sex peer and to explain what their pictures were and why.

Q: *Can children draw pictures as a means of metaphorical expression, not just for reproduction?*

A: *Yes. I think children are capable of painting and expressing metaphorically.*

Authors/Presenters: **Ms. Joeun Lee**
Prof. Younsun Lee
BK21 Plus Eco-Edu System Research Team
Pusan National University
Busan, Pusan
South Korea

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Thursday - June 07, 2018

Room: Palolo 2

Time: 10:00 - 11:30am

Session: Interpersonal Communication; Chemistry and Forensic Science; Visual Arts; Graphic Design; Music Education; Mathematics; Technology, Engineering and Mathematics; Computer Science, Education Technology

Session Chair: Dr. Cheryl Pawlowski

III. STEAMed Music

This paper will present how STEAM can be useful to better understand and to explore music. It will cover topics from mathematical modeling of sound, musical tone systems, statistical analysis of musical compositions, to exploring new styles of creating music using computing. These topics are chosen from an interdisciplinary general education science course on STEAM and music, which the author designed and taught for USC Upstate's Honors program.

Q: If the digits of δ and $1/19$ are turned into amplitudes of sounds, which sound is more pleasing, the one of Pi or the one of $1/19$?

A: $1/19$.

Author/Presenter:



Dr. Dirk Schlingmann
College of Arts and Sciences
University of South Carolina Upstate
Spartanburg, South Carolina



Thursday - June 07, 2018

Room: Palolo 3

Time: 10:00 - 12:00pm

Session: Statistics; Science Education, Higher Education

Session Chair: Dr. Tao Zou

I. Covariance Regression Analysis

This article introduces covariance regression analysis for a p -dimensional response vector. The proposed method explores the regression relationship between the p -dimensional covariance matrix and auxiliary information. We study three types of estimators: maximum likelihood, ordinary least squares, and feasible generalized least squares estimators. We obtain the high dimensional and large sample properties of the corresponding covariance matrix estimators.

Q: *What will happen if the number of regressors is large in the covariance regression model?*

A: *We develop the AIC/BIC to select the regressors. But due to the length limit, we eliminate this part in the paper.*

Authors/Presenters: Dr. Tao Zou

Research School of Finance, Actuarial Studies and Statistics
The Australian National University
Acton, Australian Capital Territory
Australia

Dr. Wei Lan

Statistics School and Center of Statistical Research
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Chengdu, Sichuan
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Prof. Hansheng Wang

Department of Business Statistics and Econometrics
Guanghua School of Management
Peking University
Beijing, China

Prof. Chih-Ling Tsai

Graduate School of Management
University of California Davis
Davis, California

Continued on next page

Thursday - June 07, 2018

Room: Palolo 3
Time: 10:00 - 12:00pm
Session: Statistics; Science Education, Higher Education
Session Chair: Dr. Tao Zou

II. Hyperspherical Functions Method with Applications

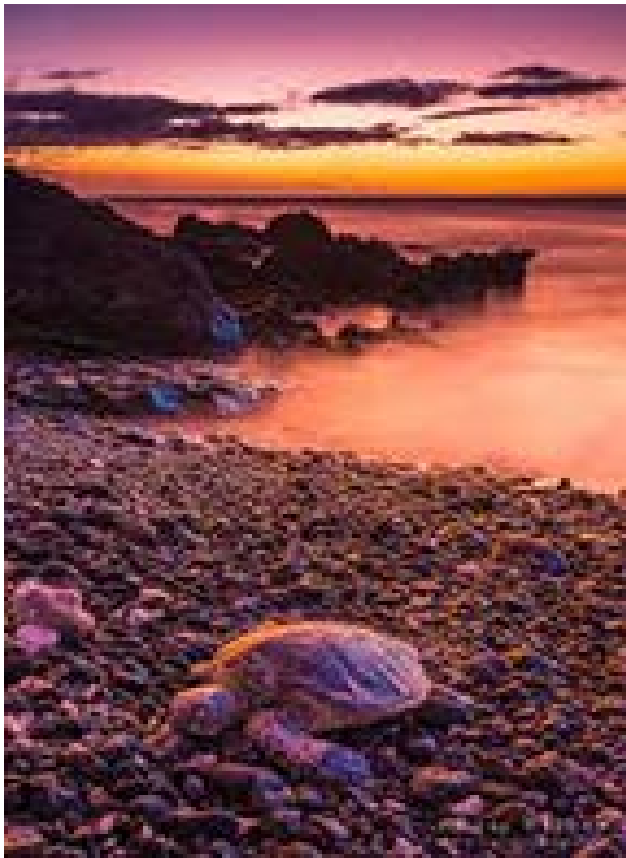
The choice of the Jacobi coordinates may be graphically illustrated in the form of a “Jacobi tree”. The free ends of this graph correspond to the nucleon coordinates r_i . Each internal line denotes the coordinates of the centers of mass of the group of p nucleons whose numbers are marked at the free ends “stemmed” from this internal line. The internal line and the free end corresponds masses p and m , respectively. The “trunk” of the tree is the coordinate of the center of mass of the system R . To each node of the graph there corresponds a definite Jacobi coordinate composed of the coordinates of the centers of mass of the two nucleon groups p and q represented by the lines directed upwards from this node. If the line is directed to the left, a plus sign is associated with the corresponding coordinates, while a line directed to the right, with the minus sign.

Q: *Why is method with application important?*

A: *This results of calculations was importantly used for the analyssis of the experimental results within reactions of the heavy ions.*

Authors/Presenters: **Dr. Klara LaGrance**
Ms. Hyejeong Shin
Mr. Shaiku Jalloh
New York Institute of Technology
New York





Thursday - June 07, 2018

Room: Palolo 4

Time: 10:00 - 11:30am

Session: Three-D Dissection, Virtual Reality, and Forensic Dissection; Differentiated Learning Outcomes; Computer Algebra Systems (CAS) Technology in the Mathematics Classroom; Algebraic Links within a Geometric Diagram

Session Chair: Dr. Cleveland Lane

I. Students and Teachers Enhancing Performance in Science (STEPS)

The purpose of the exploratory study is to evaluate the impact of an innovative technology integrated summer camp. The camps merged anatomical concepts with various forms of technology. The participants were middle and high school students and teachers from the surrounding school districts. The participants used virtual dissection tables, mini-drones, and virtual reality goggles. Data was gathered from the participants' completed exercises, questionnaires, and open-ended questions.

Q: *What type of STEM activities are used in a Summer Program to increase diverse students' interest in STEM careers?*

A: *Integrating various technological activities in STEM.*

Authors/Presenters:

Dr. Cleveland Lane

Department of Biology
Prairie View A&M University
Prairie View, Texas

Dr. Pamela Barber-Freeman

Ms. Lucyll Freeman

Green College of Education
Prairie View A&M University
Prairie View, Texas

Ms. Sefenia Mndeme

Department of Biology
Brailsford College of Arts and Sciences
Prairie View A&M University
Prairie View, Texas



Thursday - June 07, 2018

Room: Palolo 4

Time: 10:00 - 11:30am

Session: Three-D Dissection, Virtual Reality, and Forensic Dissection; Differentiated Learning Outcomes; Computer Algebra Systems (CAS) Technology in the Mathematics Classroom; Algebraic Links within a Geometric Diagram

Session Chair: Dr. Cleveland Lane

WORKSHOP

II. Volivoli Fish: Mathematics Embedded in Commercial Design

This paper describes the development of a mathematically-rich task with multiple entry levels, inspired by the geometry and algebra embedded in a commercial logo. The author's experience in researching the use of technology in the secondary mathematics classroom, along with many years of teaching mathematics to students of a variety of age and ability levels, led him to discover a number of possible geometric and algebraic investigations for students, enhanced through the use of CAS technology.

Q: *My mathematical knowledge is not as strong as I'd like it to be. Will the presentation be "over my head"?*

A: *The beauty of this talk is in how a wide range of knowledge - from simple ruler measurement and percentage calculations to functional representation - can be drawn upon to enable participants to appreciate the teaching and learning opportunities created through exploration.*

Author/Presenter:



Mr. Roger Wander
Mathematics Education Group
Melbourne Graduate School of Education
University of Melbourne
Melbourne, Victoria
Australia



POSTER SESSION

Thursday - June 07, 2018

11:00 am - 12:30 pm

Naio Room

Thursday - June 07, 2018

Room: Naio Room
Time: 11:00am - 12:30pm
Session: Posters

1. Community Aid for Hispanic STEM Students: Support through Success Workshops

The goal of the College of Arts & Sciences Community-aid (CASC-aid) project, a National Science Foundation (NSF) grant funded study (2016-2021), is to develop, implement, and evaluate a program that fosters a community of academic success for Hispanic STEM students by enveloping mathematics courses with academic and student support services. Initial data collection on the success workshops demonstrate positive outcomes for CASC-aid scholars.

Q: What types of activities are students engaged in that support their academic outcomes?

A: Success workshops, mentoring from faculty, learning support in early math courses.

Author/Presenter:



Dr. Jane Elizabeth Casey
Texas A&M International University
Loredo, Texas

2. College Education Students - Full STEAM Ahead

The push for STEM/STEAM education has been at the center of science education since the NGSS. With the emphasis on the development of STEAM curricula, there is a need to improve the confidence of preservice teachers teaching in this hands-on, engineering method. This study took preservice teachers into a local elementary school to actively involve them in a collaborative process of learning and discovery. Preservice teachers developed experience and confidence in their ability to teach.

Q: What is an obstacle that preservice teachers face when teaching STEM?

A: Preservice teachers are unsure of themselves and their classroom management. STEM teaching takes a great deal of management with all of the hand-on materials.

Author/Presenter:



Dr. Patricia Boatwright
School of Education
Francis Marion University
Florence, South Carolina

Continued on next page

Thursday - June 07, 2018

Room: Naio Room
Time: 11:00am - 12:30pm
Session: Posters

3. First-generation Latina/x College Student Support Systems for Persistence to Graduation

This poster is an overview of how Latina/x students at a predominantly white institution (PWI) navigate a hostile racial campus climate via support systems for persistence to graduation. This poster highlights research findings on what salient support systems (people and physical spaces) these students are utilizing in their persistence and retention efforts. Implications for practice and research are provided.

Q: Do you work with Latinx students & want to learn how to best help them succeed in college?!

A: Then come check out these research findings that will help you be the best support for your Latinx students!

Author/Presenter:



Mr. Stephen Santa-Ramirez
Mary Lou Fulton Teachers College
Arizona State University
Tempe, Arizona

4. Increasing the Comfort, Confidence, and Use of Digital Play in the Preschool Classroom: A Pilot Study

Digital Play for Preschoolers, was created as one way for preschool teachers to become more confident, comfortable, and effective in using digital technology in the early childhood classroom. This six-month program consists of monthly professional development webinars and in person coaching for best practices for using digital technology in the early childhood classroom, using nature with digital media, and a learning community where teachers share and learn from each other.

Q: How did Digital Play impact the children?

A: One teacher commented that, "It allowed my students to be the decision makers. It gave them the freedom to think about new things and the materials to then experiment with those new ideas. Even if their ideas didn't fit the materials available at first they adapted and changed either their thoughts or the original purpose of the materials to meet their needs."

Authors/Presenters: **Mrs. LaDonna Werth**
Dr. Holly Hatton-Bowers
University Nebraska Lincoln, Extension
Lincoln, Nebraska



Mrs. LaDonna Werth

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Thursday - June 07, 2018

Room: Naio Room
Time: 11:00am - 12:30pm
Session: Posters

5. How has Fit and Healthy Kids filled a void in rural Nebraska

Fit and Healthy Kids online series has been conducted throughout the state of Nebraska and some participants have been from South Dakota and Iowa. Because of the delivery, we are able to reach about 180 childcare providers both urban and rural. We are able to bring the research that is being done at the University on early childhood to all of our clientele in the state.

Fit and Healthy Kids received a national award at the NEAFCS conference this fall for Internet Education Technology.

Q: How has Fit and Healthy Kids filled a void in rural Nebraska?

A: These webinars provide childcare providers 6 early childhood credit hours a year. The rural providers are able to receive the same education and receive the latest research from the University Nebraska Lincoln without spending hours on the road. This provides high quality childcare throughout Nebraska.

Authors/Presenters:



Mrs. LaDonna Werth
Mrs. Lisa Poppe
University Nebraska Lincoln, Extension
Lincoln, Nebraska

6. A Relationship between Learning Style and Job-Related Self-Confidence: A Case of Japanese Employees

This paper examined how learning style affects job-related self-confidence through Kolb's experiential learning theory. We created two testable hypotheses. A total of 201 Japanese employees of a Japanese multinational corporation participated in this study. Results showed that those who used the acting mode more vs. the reflecting mode had a greater job-related self-confidence. However, there was no significant relationship between the thinking vs. feeling modes and self-confidence.

Q: How can we increase job-related self-confidence in a learning situation in organizations?

A: We should intentionally use action learning modes as much as possible.

Authors/Presenters: **Dr. Hitoshi Umemura**
Osaka University of Economics
Osaka, Japan

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Thursday - June 07, 2018

Room: Naio Room
Time: 11:00am - 12:30pm
Session: Posters

7. Use of Assistive Technology for Children with Sensory Impairments

This presentation will explain the concept of assistive technology and the legal requirement regarding its use for children with sensory impairments. Different types of assistive technology and examples will be illustrated and discussed including equipment, devices, and computer programs that can help children with sensory impairments learn and function in different environments. Suggestions will be given for selecting and using assistive technologies to teach children with sensory impairments.

Authors/Presenters: **Dr. Daqi Li**



Dr. Jiang Tan

Department of Educational Psychology, Counseling & Special Education
State University New York
Oneonta, New York

Dr. Daqi Li

8. Field Experience in the Cloud: An Open Globalized Teaching Experience

Students enrolled in EDUC 581 of the master's degree online Educational Technology Specialist Program are required to complete a 20-hour field experience in a PK-12 educational environment. They were engaged in a cloud-based global teaching practice with 10th grade students at a Canadian high school for the field experience. This research explored the impact of the globalizing teaching practice in the open online environment on students' pedagogical and technological knowledge.

Q: How do graduate students collaborate with high school students and teachers in a foreign country for their field experience?

A: Through cloud-based tools for learning.

Author/Presenter: **Dr. Jiang Tan**

Department of Educational Psychology, Counseling & Special Education
State University New York
Oneonta, New York

Continued on next page

Thursday - June 07, 2018

Room: Naio Room
Time: 11:00am - 12:30pm
Session: Posters

9. Project Contact: Joining the Grounding of Heritage, STEAM and the Future

Art can communicate concepts in a simple, distilled image and therefore, can act as an effective conduit of incredibly complex scientific processes and their results. We have developed challenging interdisciplinary activities that are centered on current societal problems and issues. By combining the interdisciplinary sciences with the arts and the students' cultural heritage and values we are hoping to assist underprivileged students in building a promising academic future and secure life.

Q: How does one make STEAM accessible to disadvantaged communities and increase intra-community science dialogue?

A: Intra-community science dialogue can be enhanced through grounding of the education in the heritage values of communities and using non-scientific disciplines to create a mechanism for creative engagement.

Authors/Presenters: **Ms. Krystyna Koczanski**

Ms. Seema Goel

Department of Chemistry/Faculty of Science
University of Manitoba
Winnipeg, Manitoba
Canada



Ms. Seema Goel



10. A Career of Teaching Calculus

I examine methodologies and outcomes in teaching Calculus at a large state university over a long career.

Q: What are best practices for teaching calculus?

A: Depends on many factors.

Author/Presenter: **Dr. David Rollins**
Department of Mathematics
University of Central Florida
Orlando, Florida

Continued on next page

Thursday - June 07, 2018

Room: Naio Room
Time: 11:00am - 12:30pm
Session: Posters

11. Conserve and Manage Habitat for Kauai's Endemic Endangered Birds Using High-Resolution Imagery to Develop Species Distribution Models and Establish Critical Habitat Areas

Two of Kauai's single-island endemics, the Akikiki (*Oreomystis bairdi*) and Akekee (*Loxops caeruleirostris*), are at a high risk of extinction. To institute better conservation management, this project will provide habitat models and predictive distribution maps for Akikiki and Akekee in unsurveyed, remote locations to locate potential populations of these species with high-resolution imagery and remote sensing techniques.

Q: What are the main threats and causes for the species' declining population?

A: In the 1990s, the population of both birds was classified as a low, but stable population of around 20,000 of each species. At the turn of the century, the Akekee and Akikiki faced a severe decline in population where they were placed on the Endangered Species List in 2010 due to projected extinction dates before 2050. The crashing population is attributed to a tolerance threshold that was crossed, exerting pressure on the populations. Threats include non-native plants, feral pigs, predation by rats, mosquitos and malaria, exotic birds, and climate change. Future research will help dictate which threat has the highest contribution to the species' decline to inform management decisions.

Authors/Presenters: **Mr. Ryan Lam**
Dr. Lisa Crampton
Dr. Thomas Gillespie
Geography Department, Kauai Forest Bird Recovery Project
University of California, LA
Alameda, California



Mr. Ryan Lam

Continued on next page

Thursday - June 07, 2018

Room: Naio Room
Time: 11:00am - 12:30pm
Session: Posters

12. Engaging High School Students in STEM Ideation and Innovation through Summer Program App Development Challenge

The Program of Excellence in STEM (PE-STEM) is a 9th-12th grade Summer Program and Academic Year Enrichment Program focused on increasing excitement and enthusiasm for pursuing careers in STEM among underrepresented students. As part of the Summer Program, computer science-focused students participated in a mini-app challenge, designing apps for social good. Students participated in Design Thinking and Ideation, and presented working apps to university community in poster session.

Q: What were your major challenges in getting students who had never worked with apps to the level of creation of working apps?

A: We introduced the students first to the Design Thinking methodologies, to allow them to develop a clear understanding of the problem; then, students were teamed up with other students (some of whom had minor experience), so that they could develop in teams. Students used AppyPie, which is a novice-based app development environment, to design the front end and some minor backend capability.

Authors/Presenters: **Dr. Jason Black**
Information Systems and Operations Management
School of Business and Industry
Florida A&M University
Tallahassee, Florida
Dr. Tiffany Wilson-Ardley
College of Pharmacy and Pharmaceutical Sciences
Florida A&M University
Tallahassee, Florida
Dr. Clayton Clark, II
Department of Civil and Environment Engineering
FAMU/FSU College of Engineering
Florida A&M University
Tallahassee, Florida



Dr. Jason Black



Dr. Tiffany Wilson-Ardley

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Thursday - June 07, 2018

Room: Naio Room
Time: 11:00am - 12:30pm
Session: Posters

13. The Effectiveness of a Computer-Assisted Intervention on the Letter Recognition and Reading Fluency of African American Kindergarten Students and Implications for Instructional Leaders

This quantitative research study investigated the effects of computer-assisted instruction on reading performance of African American kindergarten students at risk of failing, comparing that to the reading performance of African American kindergarten students at risk of failing who are evaluated using only traditional methods of reading instruction. The findings will assist administrators and teachers in implementing computer-based intervention programs for struggling kindergarten readers.

Q: What types of computer-based intervention programs may be implemented for struggling kindergarten readers?

A: Istation Computer Program

Author/Presenter: **Dr. Danyelle Reece**
Prairie View A&M University
Houston, Texas

14. Improving Classroom Learning Through Interleaved Pretests

A growing trend in teaching practices is to combine instructional techniques to optimize learning. If two instructional techniques can independently facilitate comprehension, it may be reasonable to assume that their combination would contribute to even greater learning. We examined the efficacy of two techniques: using interleaved practice and pretesting on student learning in an undergraduate abnormal psychology course.

Q: Is this finding subject dependent?

A: We are unsure, but we think it is. We know why interleaving is effective (it promotes between-concept differences) and we know why pretesting is effective (it directs learners attention to the to-be-taught information). Based on these two mechanisms, there is no reason to believe that they can't be implemented in courses where you are trying to discriminate between highly confusable concepts.

Authors/Presenters: **Dr. Faria Sana**
Department of Psychology
Athabasca University
Alberta, Canada
Dr. Veronica Yan
Department of Educational Psychology
University of Texas at Austin
Austin, Texas

Continued on next page

Thursday - June 07, 2018

Room: Naio Room
Time: 11:00am - 12:30pm
Session: Posters

15. The Use of Multisensory in Schools Today

This thesis paper investigates how teachers use a multisensory learning approach in special education classes in three schools in Indiana. The purpose of this paper is to examine the actual use of the multisensory method as well as teachers' understanding of this method. The research is qualitative in nature and employed thematic analysis. The data, which came from three teachers in three different schools, was collected via observation and interview.

Q: Who is going to benefit from this paper?

A: Teachers and parents of special education students

Author/Presenter: **Dr. Sarah Abdullah Alwaqassi**
Department of Special Education
Indiana University
Bloomington, Indiana

16. Implementation of Software Curriculum for General Education

As software education, which is the basis of intelligent information technology, became important, universities began to strengthen SW education for non-cs (computer science) major students. Yonsei University established a software field in the required Liberal Arts area and opened SW foundation courses, and has a plan to expand SW education in the future.

Q: Is software education necessary only for computer majors?

A: No, every students should learn it as general education.

Author/Presenter: **Prof. Jeong Eun Nah**
University College
Yonsei University
Incheon, South Korea



Thursday - June 07, 2018

Room: Naio Room
Time: 11:00am - 12:30pm
Session: Posters

17. Case Study on the Development of Card Game for the Promotion of Food Education

The purpose of this study is a case study of card game development aiming to promote food education. A card game is any game using playing cards as the main device with which the game is played, regardless of whether they are traditional or game-specific. In this study, we created a prototype of the card game to promote food education.

Q: What is the purpose of this study?

A: The purpose of this study is case study of card game development aiming to promote the food education.

Authors/Presenters: **Mr. Akira Sato**
Prof. Masao Toyama
Faculty of Social Systems Science
Chiba Institute of Technology
Narashino, Chiba, Japan

18. Case Study on the Development of Sugoroku for the Promotion of Food Education

The purpose of this study is a case study of sugoroku development aiming to promote food education. Sugoroku is a game in which players use dice and advance the piece placed on the board on which the picture is drawn according to the number so that it approaches the goal. In this study, we created a prototype of the sugoroku to promote food education.

Authors/Presenters: **Ms. Kyoka Taniguchi**
Prof. Masao Toyama
Faculty of Social Systems Science
Chiba Institute of Technology
Narashino, Chiba, Japan

19. Case Study on the Development of Board Game for the Promotion of Food Education

The purpose of this study is a case study of board game development aiming to promote food education. There is a view that board games have good effects in advancing children's sociality and personality, and that it is useful for acquiring knowledge. Therefore, there is a case for using board games in education. In this study, we created a prototype of the board game to promote food education.

Authors/Presenters: **Mr. Ryoto Sonoda**
Prof. Masao Toyama
Faculty of Social Systems Science
Chiba Institute of Technology
Narashino, Chiba, Japan

Thursday - June 07, 2018

Room: Palolo 1

Time: 12:45 - 2:15pm

Session: Visual Arts; Graphic Design; Curriculum, Research and Development; Inter-disciplinary Areas of Science, Technology, Engineering and Math; Entrepreneurship Development; Psychology of Teaching and Learning Mathematics

Session Chair: Prof. Shawn Meek

I. Templated: The Argument for Conceptual Representation in Responsive Landscapes

The contemporary landscape of the web is oversaturated with template-based, repetitive layouts all served conveniently to a multitude of devices. This research seeks to challenge the normalizes and possibilities of responsive web design by identifying the decline of conceptual experiences lacking in contemporary user interface design, and to seek how these two worlds can co-exist. Pedagogical integrations, inclusive of instructional premises, methods and student design results will be discussed.

Q: *How can responsive web design (the ability to display online media on desktop, tablet and mobile devices) and conceptual precedents live in a contemporary user interface design solution?*

A: *By aligning concept, design and responsive formats, we may work toward redefining a more balanced web, one free from reliance on templates and prebuilt systems.*

Author/Presenter:



Prof. Shawn Meek

Department of Art, Communication Design
Metropolitan State University of Denver
Denver, Colorado

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Thursday - June 07, 2018

Room: Palolo 1

Time: 12:45 - 2:15pm

Session: Visual Arts; Graphic Design; Curriculum, Research and Development; Inter-disciplinary Areas of Science, Technology, Engineering and Math; Entrepreneurship Development; Psychology of Teaching and Learning Mathematics

Session Chair: Prof. Shawn Meek

WORKSHOP

II. The STEAM Collaborative

I have a passion for STEAM due to my upbringing in dance, math, and engineering. While presenting at numerous STEAM camps internationally, I have uncovered many of the successes and shortcomings for STEAM.

As a Quality Engineer and MBA Candidate, I recognize my real value to facilitate a space for leaders, educators, and city officials to collaborate effectively. Also, I create opportunities to help bring STEAM in concert with entrepreneurship for a larger impact in the STEAM ecosystem.

Q: Do you feel like your STEAM Programs are being run in silos and could use some help to be more effective?

A: The STEAM Collaborative has set out to solve this problem by bringing together key stakeholders in STEAM and create an environment where they are able to share resources among educators, researchers, administration, and passionate program leaders.

Author/Presenter:



Ms. Jasmine Sadler
Point Loma Nazarene University
San Diego, California

Thursday - June 07, 2018

Room: Palolo 2

Time: 12:45 - 2:15pm

Session: Advanced Calculus; Analytical Evaluation of Triple Integral in Complex Domains; Higher Education, Secondary Education; Applied Mathematics, Calculus, Psychology of Teaching and Learning Mathematics

Session Chair: Prof. Don Liu

I. On Analytical Evaluations of Triple Integrals in Complex Domains

Evaluation of triple integrals in complex volumes could be difficult for college students due to several complexities. This paper presents several alternatives for setting up triple integrals in complex volumes and perspectives for assessing triple integrals with diverse coordinate. Not only could these provide cross-checks for complex integrals, but also stimulate students' enthusiasm to sparkle thoughts after class so as to enhance the understanding of triple integral evaluations.

Q: *Could teachers use multiple ways to evaluate triple integrals?*

A: *Yes by linear integral or triple integrals and different coordinates.*

Authors/Presenters: Prof. Don Liu



Prof. Don Liu

Mr. Wennan Ma

Department of Mathematics & Statistics and Mechanical Engineering
Louisiana Tech University
Ruston, Louisiana

Prof. Hui-Li Han

School of Mathematics and Statistics
Ningxia University
Yinchuan, Ningxia
Peoples Republic of China

II. Take it to the Limit: Calculus with an Applied Approach

Making calculus relevant to non-majors while maintaining legitimate calculus content is a unique challenge. We will discuss our attempt at designing a calculus course for non-majors.

Q: *How do you make calculus accessible to students in business and other fields outside of math?*

A: *We focus on applications first but insist on basic skills and on understanding relevant math theory.*

Authors/Presenters: Prof. Doug Squire

Prof. Cody Hood

Prof. Erin Goodykoontz

Department of Mathematics
West Virginia University
Morgantown, West Virginia

Thursday - June 07, 2018

Room: Palolo 4

Time: 12:45 - 2:15pm

**Session: Science Education/Academic Advising and Counselling/Careers; Biology;
Science Education, Higher Education; General Biology**

Session Chair: Dr. Teresa Mutahi

I. Biology Careers in a Changing Careers' Landscape

In this paper, we present career pathways as analyzed from data from biology major graduates from one university in the United States in the past twenty years. Career trends in traditional and non traditional careers are presented. This information is very useful to both biology major students and academic advisers as new careers have risen with technological advances that could be realized with a degree in biology.

Q: *How has technology influenced modern careers?*

A: *We have careers in biotechnology, bio nuclear materials, technology transfer for bio start ups that were not options in the past.*

Authors/Presenters: **Dr. Teresa Mutahi**
Mr. Michael Sanders
Dr. Sakura Maekawa
Department of Biology
University of Florida
Gainesville, Florida

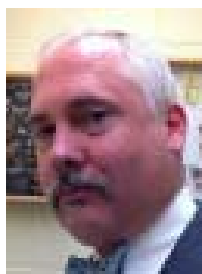
II. Incorporating Scientific Teaching Into an Undergraduate Biology Curriculum

Science courses typically follow a formula of lectures, textbooks, and multiple choice exams. Professional scientists do not engage in the natural world in this way, and students often have difficulty transitioning into the creative side of science. Active, scientific teaching presents students with problem-based approaches to learning. In this presentation, examples of simple and more complex problems will be demonstrated.

Q: *What is an appropriate size class for this approach?*

A: *10 groups of six students would probably be a maximum.*

Author/Presenter:



Dr. James W. "Djibo" Zanzot
Department of Biological Sciences
Auburn University
Auburn, Alabama

Thursday - June 07, 2018

Room: Naio

Time: 12:45 - 2:15pm

Session: Creating STEAM Networks through Outreach and Innovation; STEAM

PANEL

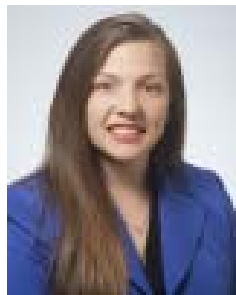
I. Design and Implementation of Comprehensive STEAM Programming and Networks to Support Formal and Informal Educators

SciTEC in the College of Education at Louisiana Tech University has been incredibly successful as a result of partnerships and grant programs that enhance the educational experience of students PK-16. This session will showcase ways to create a STEAM support and outreach networks in your region.

Q: *What essential partners are cornerstones of an effective STEM Network*

A: *TBD.*

Authors/Presenters: **Dr. Lindsey Keith-Vincent**
Mrs. Diane Madden
Dr. Laura Bostick
Mr. Glenn Larson
Mr. Chris Campbell
Dean Don Schillinger
Dr. William C. Deese
Dr. Chuck Gardner
Mr. Kevin Nolten
College of Education
Louisiana Tech University
Ruston, Louisiana



Dr. Lindsey Keith-Vincent

Thursday - June 07, 2018

Room: Palolo 1

Time: 2:30 - 4:30pm

Session: STEM Education; Education Technology; Science Education; Engineering Education; Higher Education

Session Chair: Dr. Mary Jo Parker

I. Undergraduates and Mentored Research –Early Career Experiences and Workforce

UHD's Brown Foundation grant-funded research project entitled Career to Workforce Readiness, utilized a program that encourages, prepares, and supports minority STEM students, to successful completion of the baccalaureate STEM degree, targeting the first and second years as well as the first-semester and second-semester courses through interactive on-site early career research. In June 2013, UHD expanded the "College to Career Ready" components of the Scholars Academy to further prepare and ensure its membership's readiness to enter graduate or professional school programs or industry world as highly competent and productive STEM graduates. This expansion was made possible through a \$200,000 grant from The Brown Foundation that was awarded in mid Spring 2013.

Q: *How can early college to career assist student persistence?*

A: *Creating deep, lab-based relationship support connections to the university and its faculty.*

Author/Presenter:



Dr. Mary Jo Parker

Scholars Academy/College of Sciences & Technology
University of Houston-Downtown
Houston, Texas



Continued on next page

Thursday - June 07, 2018

Room: Palolo 1

Time: 2:30 - 4:30pm

Session: STEM Education; Education Technology; Science Education; Engineering Education; Higher Education

Session Chair: Dr. Mary Jo Parker

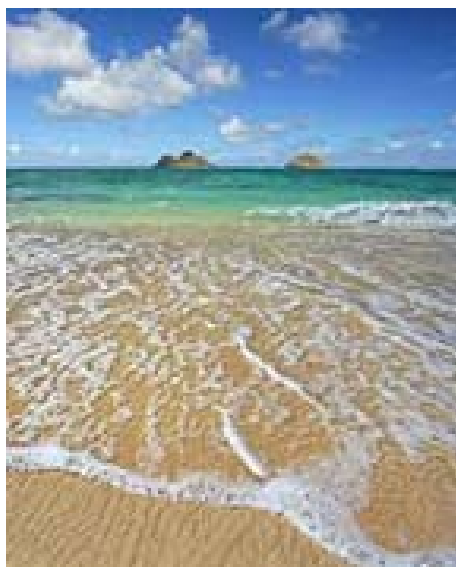
II. The Bridge: Serving First Generation Hispanic Students through Professional and Technical Writing

At Our Lady of the Lake University in San Antonio, Texas, a Hispanic Serving Institution, we serve a population that is 70% Hispanic and 60% first generation. Using a Title V Grant, we have created a 16-seat Technical Writing Lab and an 18-hour Tech Comm minor. Our goal with the Technical and Professional Writing program is to prepare our students, a marginalized population, even among Hispanic university students, for entrance into graduate school or the work world as Technical Writers.

Q: *How is technical communication a bridge to post-baccalaureate success for first generation Hispanic students?*

A: *Technical communication skills can be taught, and as well, there is a shortage of technical communicators in the workplace.*

Author/Presenter: Dr. Wallis Sanborn
Department of English, Drama, & Mass Communications
Our Lady of the Lake University
San Antonio, Texas



Thursday - June 07, 2018

Room: Palolo 1

Time: 2:30 - 4:30pm

Session: STEM Education; Education Technology; Science Education; Engineering Education; Higher Education

Session Chair: Dr. Mary Jo Parker

III. Evaluation of Hands-On Research and Mentoring of Traditionally Underrepresented Students in STEM Education at an HBCU

A program designed to increase the number of traditionally underrepresented students recruited to, retained in, and graduating from STEM majors at a Historically Black College and/or University (HBCU) was evaluated over a four year period. The Program of Excellence in STEM (PE-STEM) at Florida A&M University (FAMU) utilized hands-on research activities and faculty mentoring over this time period to motivate minority students to succeed in STEM disciplines.

Q: *What factors are effective in minority student success in STEM majors?*

A: *The program's evaluation of recruitment, retention, and graduation.*

Authors/Presenters: Dr. Clayton Clark, II
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Dr. Jason T. Black
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Continued on next page

Thursday - June 07, 2018

Room: Palolo 1

Time: 2:30 - 4:30pm

Session: STEM Education; Education Technology; Science Education; Engineering Education; Higher Education

Session Chair: Dr. Mary Jo Parker

IV. Graduate Education and Microaggressions of Students (GEMS) Enrolled at a HBCU

When we think about creating and developing educational programs, we usually talk about what we teach, then we may ask how we teach and occasionally we ask why we teach, but seldom if ever do we talk about and honor the “who” – the self of who’s being taught. At its simplest level, the objectives of this research simply honor those graduate students attending HBCUs; and, are also “the who” in teaching.

Q: What is the influence of microaggression on graduate students?

A: The highest possible score on the scale is 5, which equals a frequency of over nine times and an extreme effect. For frequency of microaggressions, our participants had a maximum score of 3.3 to 3.7 for all constructs of microaggression.

Authors/Presenters: Dr. Pamela Barber-Freeman
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Prairie View A&M University
Prairie View, Texas
Ms. Lucyll Freeman
Department of Educational Leadership & Counseling
Prairie View A&M University
Prairie View, Texas



Thursday - June 07, 2018

Room: Palolo 2

Time: 2:30 - 4:30pm

Session: Science Education; Computer Science - Cybersecurity; Computer Science; User Interface Evaluation; Partnership between Academia and the Corporate World; Education Technology

Session Chair: Dr. Ronald Uhlig

I. Enriching Responsiveness to Enhance Student Learning in Online Courses

This paper assesses the effectiveness of three specific processes to enhance student interaction and collaboration by comparing their effectiveness for online courses with on-site courses. The processes include: 1) a full set of recorded lectures available in indexed segments of 5-10 minutes per segment, 2) mentored assignments, and 3) pre-recorded small group project presentations. Students find the recorded lecture segments very effective for reviewing and mastering concepts they had difficulty grasping when they were presented initially. The mentored assignment process enables online students to interact more effectively with other online students, by focusing their interaction on a few others rather than the whole class. Data is presented showing that quality of research, original thinking, understanding of the subject, and thoroughness of work is as good as or better for online students when compared with onsite students. Similar results are presented showing the effectiveness of having small groups work together to develop a recording of their findings. The process of developing the recorded presentation enables effective collaboration and frees students from obstacles that have been encountered in trying to make small group projects work in online courses. Data is presented showing that, using this approach, small group project quality is comparable for online and on-site courses. A survey focusing on student perception of the small group process, shows that most, but not all students find that the process improves their learning, their critical thinking and the quality of their work.

Q: How can you have effective student interaction with each other in online courses?

A: By the use of mentored assignments as discussed in this paper.

**Authors/Presenters: Dr. Ronald Uhlig
Dr. Shatha Jawad
Dr. Dey Pradip
Dr. Amin Mohammad
Dr. Sinha Bhaskar Raj**
Department of Applied Engineering
School of Engineering and Computing
National University
San Diego, California

Continued on next page

Thursday - June 07, 2018

Room: Palolo 2

Time: 2:30 - 4:30pm

Session: Science Education; Computer Science - Cybersecurity; Computer Science; User Interface Evaluation; Partnership between Academia and the Corporate World; Education Technology

Session Chair: Dr. Ronald Uhlig

II. User Interface Evaluation: Comparison of Novices to Upperclass Computer Science Students

This study examines whether coursework in computer science changes how a student thinks about user interfaces. Our data collection consisted of asking experienced students to evaluate two on-line user interfaces for temperature conversion using prompts which differed only in the amount of context provided. Student responses were coded based on exhibited features believed to be used in expert evaluations of user interfaces, as well as whether they provided suggestions for improvement.

**Authors/Presenters: Dr. Tammy VanDeGrift
Dr. Tzu-Yi Chen**
Shiley School of Engineering
University of Portland
Portland, Oregon



Thursday - June 07, 2018

Room: Palolo 2

Time: 2:30 - 4:30pm

Session: Science Education; Computer Science - Cybersecurity; Computer Science; User Interface Evaluation; Partnership between Academia and the Corporate World; Education Technology

Session Chair: Dr. Ronald Uhlig

III. Academia - Industry Engagements Framework for the Computing Undergraduate Degrees

Future of academic learning and teaching is becoming increasingly shaped by successful partnerships between the academic institutions and business corporates. Through the retrospective scenario analysis, this research develops a framework for the implementation of industry engagements to three-year undergraduate university courses.

Q: *What are the most crucial factors that can determine success of the industry – academia engagements?*

A: *A number of factors can determine the success of the engagement. Crucial is the Domain in which activities are happening – in this case the industry sector. Following this, it is essential to define the Context or who in this case students are and what it is that they will be learning. Next, it is essential to define the process, that needs to allow for scaffolding and authenticity. Such engagements can include learning via case studies, simulations, industry projects as well as internships. All study activities need to be aligned to learning objectives and accordingly assessed, so students can gain feedback about their progress (these can be as completed assessments, units, degrees or even requirements for the certifications).*

Author/Presenter: Prof. Ana Hol
School of Computing, Engineering and Mathematics
Western Sydney University
Parramatta, New South Wales
Australia



Thursday - June 07, 2018

Room: Palolo 2

Time: 2:30 - 4:30pm

Session: Science Education; Computer Science - Cybersecurity; Computer Science; User Interface Evaluation; Partnership between Academia and the Corporate World; Education Technology

Session Chair: Dr. Ronald Uhlig

IV. Student-Built Websites: Raising the Bar on Engagement and Course Content Mastery

Dr. Mary A. Hollingsworth is an assistant professor at the University of West Alabama. She has experience as a counselor with populations across the life span as well as settings of academia, community mental health, and primary health care and as an educator in both undergraduate programs in counseling and education. Her primary research interests and innovative work have been with counseling, human growth and development, and helping work through a paradigm of wellness.

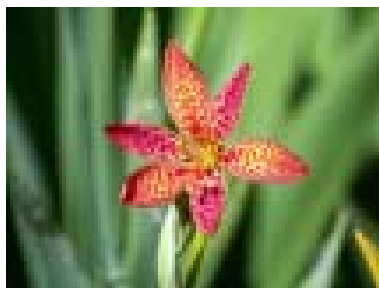
Q: How can students integrate evidence of course content mastery, engage in service learning, and network with fellow students or practicing professionals at the same time?

A: Through student-built websites on course constructs.

Author/Presenter:



Dr. Mary Ann Hollingsworth
Instructional Leadership and Support
University of West Alabama
Livingston, Alabama



Thursday - June 07, 2018

Room: Palolo 3

Time: 2:30 - 4:00pm

Session: Educational Administration; Science Education and Differentiation at the Tertiary Level; STEM Related Curriculum for At-risk and Truant Children to Create a Community Garden; How to Build and Maintain a Community Garden by Utilizing Math, Technology and Engineering Techniques

Session Chair: Dr. Arthur Petterway

I. School Administrators as a Successful Change Agent in America's Schools with the Application of Postmodernism

This paper examines the impact of postmodernism on school transformation. Moving away from rigid paradigms of structural reform, the postmodern approach suggests a fluid acceptance of discordant voices and diversity, as necessary ingredients in the construction of meaningful change. Transformation implies interconnectedness, which by itself is inconsistent with the notion that the process of change can be truncated to convenient and easily identifiable compartments.

Q: *Are you a successful change agent or the agent that needs to be changed?*

A: *Read my article to see if you fit the bill.*

Author/Presenter:



Dr. Arthur Petterway
WRG College of Education
Prairie View A&M University
Prairie View, Texas

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Thursday - June 07, 2018

Room: Palolo 3

Time: 2:30 - 4:00pm

Session: Educational Administration; Science Education and Differentiation at the Tertiary Level; STEM Related Curriculum for At-risk and Truant Children to Create a Community Garden; How to Build and Maintain a Community Garden by Utilizing Math, Technology and Engineering Techniques

Session Chair: Dr. Arthur Petterway

II. Community Garden: An Interdisciplinary STEM Project

During the Summer of 2016, students enrolled in the TIP of Alabama program participated in an interdisciplinary, community garden STEM project. This project provided at-risk and truant youth and their parents with an opportunity to complete community service hours while also learning the importance of STEM in relationship to creating and harvesting a community garden. This paper will describe and explain the overall design, execution, and benefits of the STEM garden project.

Q: *How was the community garden used to teach kids about STEM?*

A: *The community garden was a great STEM project to teach kids more about the interdisciplinary approach to creating and maintaining a garden using all of the components of STEM. A community garden provided several opportunities to teach kids about the science, technology, engineering, and mathematics of gardening.*

Author/Presenter:



Dr. Quanda Watson-Stevenson

Criminal Justice
Athens State University
Athens, Alabama



Thursday - June 07, 2018

Room: Palolo 3

Time: 2:30 - 4:00pm

Session: Educational Administration; Science Education and Differentiation at the Tertiary Level; STEM Related Curriculum for At-risk and Truant Children to Create a Community Garden; How to Build and Maintain a Community Garden by Utilizing Math, Technology and Engineering Techniques

Session Chair: Dr. Arthur Petterway

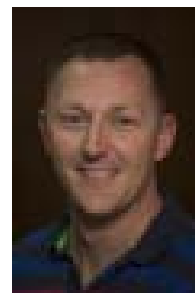
III. An Exploratory Study Investigating the Impact of a Differentiated Framework of Instruction on Generalist Pre-service Primary Education Teachers Perceived Confidence to Teach Science Education

This presentation reports on an exploratory study that addressed the low confidence levels of 250 pre-service primary education students enrolled in a mandatory science education course. Previous studies in this area have found that a cycle of neglect exists in Australia, as a result of educators' lack of confidence in their ability to understand scientific concepts and their ability to teach science following a constructivist approach. The study centred on applying the Tomlinson Model.

Q: How does a differentiated model of instruction impact students' confidence levels to teach science at the undergraduate level?

A: This exploratory study was carried out in response to the continuous cycle of neglect in the delivery of science education at the primary school level. Previous research has outlined how primary-school pre-service teachers enter tertiary institutions with low confidence in their ability to teach science (Murphy & Smith, 2012); this lack of confidence is then carried forward to their own primary classrooms (Murphy & Smith, 2012; Skamp & Preston, 2018). If a change in culture to improve science education is to occur, the problem must be tackled at the tertiary level, where pre-service primary school teachers receive their training in science education. An alternate model of instruction, such as differentiated instruction, may allow students the opportunity to better access the subject content and subsequently develop their science content knowledge, as well as their pedagogical content knowledge to teach science. Whilst differentiated instruction has been successfully applied at primary and secondary schools, it has not been commonly applied at the tertiary level (Dosch & Zidon, 2014). Current research indicates that tertiary educators generally deliver instruction through lectures using teacher-centred, rather than student-centred approaches (Tulbure, 2013; Santangelo & Tomlinson, 2012).

Authors/Presenters: **Mr. Tryon Francis**
Dr. Katrina Eddles-Hirsch
Dr. Alison Casey
School of Education
The University of Notre Dame Australia
Broadway, New South Wales
Australia



Mr. Tryon Francis

Thursday - June 07, 2018

Room: Naio
Time: 2:30 - 4:30pm
Session: Art in STEAM; Music Education; Music, Collaboration, Psychology
Session Chair: Dr. Alexandra Mascolo-David

I. Making STEAM a Priority in a STEM-Oriented Society: Ideas for an Innovative and Inclusive University Curriculum

An art and a science, music engages the entire brain. We argue that music can serve as a vessel to connect and integrate STEM and STEAM learning. At our institution, we developed and included neuroscience and psychology-based courses in the general education and music curricula; student interest in these classes resulted in high enrollment, frequent offerings, and successful student outcomes. This paper will discuss the benefits reaped from the symbiotic relationship between Arts and Sciences.

Interdisciplinary courses combining music with psychology, neuroscience, and service learning can aid in understanding the symbiotic relationship between the Arts and Sciences and exemplify the importance of a STEAM-oriented education.

Author/Presenter:



Dr. Alexandra Mascolo-David
Prof. Jennifer Kitchen
School of Music
Central Michigan University
Mt. Pleasant, Michigan

Continued on next page

Thursday - June 07, 2018

Room: Naio
Time: 2:30 - 4:30pm
Session: Art in STEAM; Music Education; Music, Collaboration, Psychology
Session Chair: Dr. Alexandra Mascolo-David

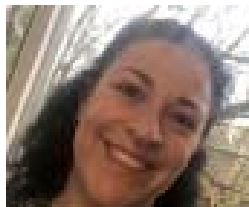
II. The Role of Music in an Elementary STEAM Based Unit

Year 5 students at an elementary school in Brisbane, Australia did a music project based on the instruments of the orchestra. They looked at conventional instruments of the orchestra, then at ancient and unconventional instruments such as the shakuhachi and sitar, and finally they designed and made their own instrument, sampled sounds from theirs and others instruments and using MadPad, made a composition using these sounds. This study looks at the journey that the children took to be innovators.

Q: *What creative/innovative approaches did the children employ to design and develop a musical instrument?*

A: *The children started by adapting things that they knew and then branched out to add different features to their instruments.*

Author/Presenter:



Mrs. Belinda Dolan
Department of Music
University of Queensland
Brisbane, Queensland
Australia



Thursday - June 07, 2018

Room: Naio
Time: 2:30 - 4:30pm
Session: Art in STEAM; Music Education; Music, Collaboration, Psychology
Session Chair: Dr. Alexandra Mascolo-David

PERFORMANCE

III. Personality and Performer: Defining a Satisfying Collaborative Relationship

The presenters will report on the results from a survey of singers and pianists about the most satisfying collaborative partnerships they have encountered, focusing primarily on Meyers-Briggs personality criteria.

Q: *What personality criteria may predict a successful musical collaboration?*

A: *Personality factors, as defined by Meyers-Briggs, may inform potential collaborators about the opportunities and challenges present in their musical partnership.*

Authors/Presenters:



Dr. Jamie Reimer

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Lincoln, Nebraska

Prof. Stacie Haneline

College of Communication, Fine Arts and Media
University of Nebraska Omaha
Omaha, Nebraska



DAY 3

Friday - June 08, 2018

Friday - June 08, 2018

Room: Naio

Time: 11:30 am - 1:30 pm

Onolicious Grindz

Appreciation Lunch



ACKNOWLEDGEMENT

Hawaii University International Conferences would like to thank the following people and organizations who have made our 2018 STEM/STEAM and Education Conference a success!

Maps: Courtesy of Hawaii Visitors & Convention Center

The Prince Waikiki Hotel for the beautiful conference venue.

SPONSORS

We would like to extend our heartfelt appreciation to our sponsors, The UTeachTech STEM Educator Preparation Program at Louisiana Tech University. With their support we are able to improve the conferences to better serve our attendees and presenters allowing us to provide a platform for their academic pursuit and discovery.

KEYNOTE SPEAKER

We would like to thank **Dr. Mary Jo Parker**, Executive Director, Scholars Academy/College of Sciences & Technology, University of Houston-Downtown, Texas for sharing her knowledge and skills with us.

HAWAIIAN STEEL GUITAR ASSOCIATION

We would like to thank **Mr. Kamaka Tom** for the splendid introduction and music performance at the conference. His dedication to academic endeavors and sharing his knowledge and skills with us is greatly appreciated.

REVIEWERS

We thank the dedicated professionals who reviewed the papers submitted by our presenters to be included in our programs, for the conference proceedings. Your work is of utmost importance to make sure those accepted meet the highest academic standards of presentation.

Dr. Allen, Donald	Prof. Heljakka, Katrina	Dr. Rago, David
Mr. Alvaro, Joe	Dr. Hogue, Michelle	Dr. Rauchwerk, Susan
Dr. Alwaqassi, Sarah	Dr. Houlahan, Michael	Dr. Richards, Danielle
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Dr. Fritts, Mary Lou	Dr. Park, Eui	Prof. Yaklich, Christine
Dr. Hay, Lain	Dr. Parker, Mary Jo	

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THE SESSIONS CHAIRS

Thanks to all the Session Chairs for your guidance of the participants and presenters in each session to maximize the experiences of the session attendees, to convey the thoughts and new ideas each brings to our conference. All timely presentations are important to expand the overall knowledge offered from many perspectives.

Dr. Abrokwa, Clemente	Dr. Lemma, Mulatu
Dr. Barber-Freeman, Pamela	Prof. Liu, Don
Dr. Carpenter, Dick	Dr. Madad, Reza
Dr. Casey, Alison	Dr. Malek, Maged
Dr. Crumpton-Young, Lesia	Dr. Mascolo-David, Alexandra
Dr. Davies, Sharon	Prof. Meek, Shawn
LTC Eslinger, Melissa	Dr. Mutahi, Theresa
Dr. Eddles-Hirsch, Katrina	Dr. Pawlowski, Cheryl
Dr. Fergusson, Jennifer	Dr. Parker, Mary Jo
Dr. Ford, Richard	Dr. Petterway, Arthur
Prof. Gaither, Irene	Dr. Uhlig, Ronald P.
Dr. Han, So Young	Dr. Watson-Stevenson, Quanda
Dr. Handal, Boris	Dr. Wilson-Ardley, Tiffany
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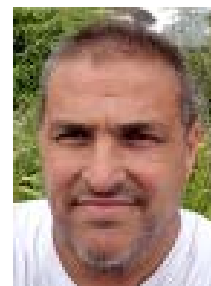
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Continued on next page

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Louisiana Tech University
Ruston, Louisiana



Dr. Alexandra Mascolo-David
Prof. Jennifer Kitchen
Central Michigan University
Mt. Pleasant, Michigan

We also want to thank each and every one who attended our conference for their contributions to the knowledge bases presented and the interactions of the attendees who generously shared their knowledge and expertise to enhance the conference experience for all who attended. We hope to see all of you back in Hawaii again one day in our continuing effort to bring those together in conferencing here in this magnificent environment as we look to the future of educational efforts in all parts of the world!

Mahalo!



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Prince Waikiki (Hawaiian Prince Hotel Waikiki)

100 Holomoana St, Honolulu, HI 96815



ADDENDUM

ADDITION: Wednesday June 06, 2018

Room: Palolo 3 (8:15-9:45am)

III. Make Yourself Uncomfortable: Teaching a Diversity Perspective to Business Students

The business case for diversity of peoples and perspectives in business is well understood theoretically by students. It is more challenging, however, to teach them to think critically about how to bring diversity into their own professional practice. Participants in the session will see illustrations of two assignments that I use in business classes to teach diversity: The Diversity Postcard and an experiential based activity nicknamed: "Make Yourself Uncomfortable."

Q: Why is it important that students explore their own values regarding diversity?

A: We are increasingly dealing with a diverse workforce. It is important that students see diversity as a broad construct incorporating race, sex, sexual orientation, but also a myriad of other ways that we as people are both similar and different.

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