

**THE COLLEGE of NEW JERSEY**

Office of Grants and Sponsored Research

*presents*



THE OFFICE OF GRANTS  
AND SPONSORED RESEARCH

FALL 2020

6th ANNUAL

**INTERDISCIPLINARY  
RESEARCH FORUM**

**ONLINE**

November 16- December 4, 2020

# Interdisciplinary Research Forum

November 16 - December 4, 2020



November 16, 2020

## **OPENING REMARKS**

Dr. Jeffrey Osborn, Provost and VP, Academic Affairs

November 18, 2020 & December 2, 2020

## **LIVE PRESENTATION POSTER SESSIONS**

November 16 through December 4, 2020

## **RESEARCH POSTERS & PRE-RECORDED PRESENTATIONS**

December 4, 2020

## **CLOSING REMARKS**

Dr. Kortnay Woods, Executive Director, OGSR



A special thank to all the faculty and student presenters who participated in this year's Interdisciplinary Research Forum.

### **Coping with Depression and its Relationship with Race, Age, and Income Levels in Low-Income and Ethnic Minority Mothers At-Risk**

**Rahshida Atkins (Assistant Professor, Nursing Health & Exercise Science), Tracy Perron (Associate Professor, Nursing ), Tami Jakubowski (Assistant Professor, Nursing), Helen Lewis , Daniella Fienkelstein, Arta Qosja, Tiffany Stellmacher (Undergraduate Students, Nursing, Health & Exercise Science)**

Exactly 88 multi-ethnic mothers of either low-income or of ethnic-minority status reported the strategies they use for coping with a depressed mood via an open-ended questionnaires. The relationship between these coping strategies and race, age, and income levels were also examined. Implications for promoting self-management and prevention of depressive symptoms are presented.

### **How do elementary preservice teachers choose tools for online teaching?**

**Alex C. Pan (Associate Professor, Elementary & Early Childhood Education) and Anthony Conte (Associate Professor, Elementary & Early Childhood Education)**

This project investigates how preservice teachers explore existing tools to address virtual instructional needs under Covid-19. The study examines the differences between the traditional instruction and the remote teaching approach, how preservice teachers conduct online instruction, as well as the feasibility of various tools to support the virtual instructional needs.

### **Building Epistemic Bridges: Illustrating Afrocentric Inquiry in a Kenyan Classroom**

**David Bwire (Assistant Professor, Special Education Language and Literacy)**

Academia faces a challenge of epistemic imperialism since theories and concepts developed in western(ized) contexts are often exclusively deployed in research on ethnolinguistically diverse peoples and places. Based on the assumption that non-western(ized) communities also generate knowledge, I propose decolonizing the academy through an inter-epistemic synergy approach in analyzing data.

November 18, 2020

## **LIVE PRESENTATION POSTER SESSIONS**

Schedule is as follows:

### **9:30 AM**

Collaboration Across Boundaries Year 1: Validating Measures and Collaboration in the Time of COVID-19

**Dr. Diane Bates**

### **10:30 AM**

Communicating COVID-19 Information on Tik Tok: A Content Analysis of Tik Tok Videos Created by International Non-Governmental Organizations

**Dr. Yachao Li**

### **11:00 AM**

Constructing and Communicating COVID-19 Stigma on Twitter: A Content Analysis of Tweets during the Early Stage of the COVID-19 Outbreak

**Dr. Yachao Li, Dr. Sylvia Twersky, Kelsey Ignace, Radhika Purandare, and Breeda Bennett-Jones**

December 2, 2020

## **LIVE PRESENTATION POSTER SESSIONS**

Schedule is as follows:

### **10:30 AM**

Organic Thin Film Transistor Characterization for Gas Sensing Application

**Dr. Wudyalew Wondmagegn**

### **11:30 AM**

Characterization of the Coronavirus Pandemic on Signalized Intersections Using Probe Vehicle Data

**Dr. Thomas Brennan**

### **Answering the Question: “ AmIOkay”: An Interdisciplinary Approach to a Trauma Informed Campus**

**Dara M. Whalen, (Assistant Professor, Nursing), Liza Woods (Assistant Director Clinical Services, Nursing Healthy & Exercise Science) and Yoseline Chiguil-Figueroa (Undergraduate Student, Public Health).**

The AmIOK program was developed based on a need for services identified in the 2018 TCNJ campus climate survey. Funding through the Victim of Crimes Act supported the provision of a campus based interdisciplinary program that provides medical assessment, education and counseling services to students who have experienced a crime.

### **Communicating COVID-19 Information on Tik Tok: A Content Analysis of Tik Tok Videos Created by International Non-Governmental Organizations**

**Yachao Li (Assistant Professor, Communication Studies), Paige Hammond (Undergraduate Student, Communication Studies)**

Tik Tok created an information hub to communicate COVID-19 information. This project examines the video format, content, and user engagement. Video types included acting, animated infographic, documentary, news, oral speech, pictorial slideshow, and dance. Video themes included anti-stigma/anti-rumor, disease knowledge, encouragement, personal precautions, recognition, societal crisis management, and work report.

### **Success for English Language Learners: In-District Teacher Education and Certification**

**Yiqiang Wu (Professor, Special Education Language & Literacy)**

This poster presents the research of a federally funded grant to train and certify K-12 educators in English as a Second Language and bilingual education. The research goals of the grant are to understand the viability of a scalable grant-funded model of teacher education.

### **Organic Thin Film Transistor Characterization for Gas Sensing Application**

**Wudyalew Wondmagegn (Associate Professor, Electrical & Computer Engineering)**

Low temperature processing, low cost, light weight, and flexibility are key advantages of Organic thin-film transistors (OTFTs). It brings electrical and mechanical benefits to a wide range of technologies such as flexible displays, RFIDs, and sensors. In this presentation current research on OTFT's application for gas sensing will be discussed.

### **Constructing and Communicating COVID-19 Stigma on Twitter: A Content Analysis of Tweets during the Early Stage of the COVID-19 Outbreak**

**Yachao Li (Assistant Professor, Communication Studies), Sylvia Twersky (Assistant Professor, Public Health), Kelsey Ignace, (Graduate, Master of Public Health), Radhika Purandare, (Undergraduate, Communication Studies and Public Health), and Breeda Bennett-Jones, (Undergraduate, Communication Studies)**

This project analyzed 7000 COVID-19 related tweets. Results showed that about 1 in 4 tweets posted during the early stage of the COVID-19 crisis included at least one element of stigma communication. Stigma message content was more likely to appear in tweets with misinformation or conspiracy theories.

### **Putting Undergraduate Research Into Practice**

**Blythe Hinitz (Professor, Elementary & Early Childhood Education), Cynthia Holcombe (Undergraduate Student, Early Childhood Education) and Danielle Hutchinson (Undergraduate Student, Early Childhood Education)**

Undergraduate research can be put into classroom practice, even during COVID 19. The reviewers of a seventy-five page guide for The Anti-Bullying & Teasing Book continue to use it in their classrooms. A program was developed collaboratively between the college professor and two teachers to implement aspects online and in preschool children's homes.

### **The Relationship Between Socio-Demographic Factors, Coping Strategies and Depressive Symptoms Among Low-Income or Ethnic Minority Mothers At-Risk**

**Helene Lewis, Daniella Fienkelstein, Arta Qosja, Tiffany Stellmacher (Undergraduate Students, Nursing, Health & Exercise Science with Dr. Rahshida Atkins)**

Socio-demographic and coping correlates and predictors of depressive symptoms were identified among 88 multi-ethnic mothers of either low-income or ethnic-minority status. These mothers responded to open-ended questions and a demographic data sheet. Implications for preventive interventions at both the individual and societal level to reduce depressive symptoms are also discussed.

### **Culturally Responsive Educators: Rethinking Teacher Education Pedagogy**

**Tamara Tallman (Instructor, Elementary & Early Childhood Education)**

To change the future we must be engaged in the present. Lack of cultural literacy is a serious detriment to our future leaders and educators as they view students as single stories that are often over simplistic and often false. These false perceptions form stereotypes and lead to bias. Education becomes a flattened experience as we overlook other stories and conform to the racism of low expectations. This presentation will focus on strategies to conquer unintentional bias and generate future educators who are culturally responsive teachers.

### **Characterization of the Coronavirus Pandemic on Signalized Intersections Using Probe Vehicle Data**

**Thomas Brennan (Professor, Civil Engineering)**

The Coronavirus (COVID-19) pandemic presents a unique opportunity to establish a baseline for studying transportation performance metrics using probe vehicle data. Changes in traffic characteristics, 24-hours a day, 7 days a week, can be realized through the analysis of spatially located, temporal speed data before, during, and after the pandemic.

### **Cross-national Coverage of Mental Health Services: Community Structure Theory and "Buffered" Privilege**

**John Pollock (Professor, Communication Studies), Shad Yasin (Undergraduate Student, Communication Studies) and Miranda Crowley (Undergraduate Student, Communication Studies)**

Mental health is a major health crisis worldwide. To determine how media cover access to these services cross-nationally, we used community structure theory to connect national demographics to varying frames of coverage in major national newspapers. We found that primarily "privileged" countries reported mental health services as a government responsibility.

### **Higher Education's Role in Substance Use Disorder and Recovery Efforts**

**Natasha Patterson (Assistant Professor, Public Health)**

Higher education institutions can play a unique role in advancing education and awareness of substance use disorder and recovery. TCNJ Public Health Department and the Collegiate Recovery Center have formed a partnership in order to address issues of stigma and social justice. You will learn more during the presentation.

### **Geometry Optimization Calculations of Dinuclear Fe Active Sites in Bacterial Metalloproteins**

**Levi Ekanger (Assistant Professor, Chemistry), Alana Calello (Undergraduate Student, Chemistry), and Alexander Hanneman (Undergraduate Student, Chemistry)**

Antibiotic-resistant bacteria cause more than 2.8 million infections and 35,000 deaths per year in the United States. This human health challenge necessitates fundamental studies of bacterial survival mechanisms. Using the TCNJ high performance computing cluster, we modeled the Fe-containing active sites of proteins that help pathogenic bacteria survive.

### **Collaboration Across Boundaries Year 1: Validating Measures and Collaboration in the Time of CoVid-19**

**Diane C. Bates (Professor, Sociology & Anthropology), Kim Pearson (Assistant Professor, Journalism & Professional Writing) and Monisha Pulimood (Professor, Computer Science)**

This presentation outlines the research design for the NSF-funded Collaboration Across Boundaries pedagogical study, whereby we are evaluating the impact of interdisciplinary, community-engaged projects to enhance STEM learning in both science and non-science courses. After introducing the pedagogical model and research design, we can explain how we were able to validate our quantitative measures of student learning in the first year. We also use qualitative research drawn to explore how our collaborating professors adapted to the sudden transition to remote learning, including how projects changed given our limited ability to interact with community partners.

### **School Leaders and Community Equity Literacy**

**Linda K. Mayger, (Assistant Professor, Education Administration & Secondary Education)**

This qualitative study determined that 13 principals primarily defaulted to school-centric approaches when engaging with families and community residents and failed to fully conceptualize and enact underlying theories of action in regard to parent empowerment and deep systems-level change.