FACULTY DEVELOPMENT GRANTS - SUMMARY
ACADEMIC YEAR 2023-2024

Project Title: Taking It Up a Notch: Improving Workplace Ergonomic Assessment Beyond RULA and REBA
Faculty Investigator Name: Lito Amit
Faculty Investigator Department: SOHAS
Amount Awarded: $1,370

The workplace landscape is evolving, demanding a more comprehensive approach to ergonomic assessments. The article, "Taking it Up a Notch: Improving Workplace Ergonomic Assessment Beyond RULA and REBA," aims to explore and suggest advanced methodologies for evaluating ergonomic risk factors in the workplace. Traditional tools like the Rapid Upper Limb Assessment (RULA) and Rapid Entire Body Assessment (REBA) have been crucial but may fall short in addressing contemporary work challenges. This article delves into emerging techniques, technologies, and holistic strategies to enhance workplace ergonomics, fostering a healthier and more productive environment.

Project Title: Determining Hygrothermal Properties of Sustainable Adobe Bricks Reinforced with Cellulose and Timber Wastes: Simulation and Measurements of Prototypes
Faculty Investigator Name: Fernando Del Ama Gonzalo
Faculty Investigator Department: SPDA
Amount Awarded: $2,260

Throughout history, soil-based building materials have been a popular choice for construction. However, in recent years, there has been a greater focus on the use of eco-friendly materials for new construction, such as adobe and rammed earth, to promote sustainable architecture. This is due to the significant impact of the concrete and fired clay brick industries, which produce a high ecological footprint due to their use of clinker and the firing process. Adobe is a promising alternative because it has the potential to significantly reduce the ecological footprint of conventional building materials. In addition, the use of fibers for adobe reinforcement is a critical factor in improving adobe performance. By using residues from the paper and pulp industry to replace traditional fibers, the ecological footprint can be further reduced. This project intends to assess the thermo-hydrometrical properties of adobe bricks by building prototypes on the Keene State College campus. The second goal is to measure comfort conditions by analyzing different sources of heat in a full-scale prototype. The probes and sensors will provide us with data on the prototype throughout the year to assess comfort, energy consumption, and indoor air quality. Additionally, adobe properties on water resistance and toxicity will be analyzed.

Project Title: Conference Presentation: Toxic Masculinity, Documentary Film, and Activism in Chile and South Africa
Faculty Investigator Name: Lisa DiGiovanni
Faculty Investigator Department: HGS/Modern Languages
Amount Awarded: $3,500

In November 2019, the Chilean feminist collective called Las Tesis performed a piece titled Un violador en tu camino (A rapist in your path). It emerged within the context of the global #MeToo movement, as well as the "Estallido Social," or the nationwide uprising that responded to social inequality and police brutality in Chile. The title of the performance subverts the Chilean national police force slogan Un amigo en tu camino (A friend in your path). Performed in a public space, the piece consists of a choreographed dance accompanied by song lyrics vocalized in unison by women wearing blindfolds. The artistic intervention animated movements worldwide, attesting to the ubiquity of rape culture and the need for societal transformation. One year earlier, South African documentarian Lebogang Rasethaba and producer Jasmyn Asvat, produced the film The People vs Patriarchy. In dealing with the complexities of toxic masculinity and the multidimensional reality of women's lives in South Africa, the filmmakers take an intersectional approach that avoids neocolonialist interpretations. In this videographic essay, I juxtapose these massively popular feminist productions, examining both the issues as well as the specificity of film and media in their transmission.

Project Title: The Manila Galleon and Silver of Baja California Sur, 1745-1775
Faculty Investigator Name: Marie Duggan
Faculty Investigator Department: Business Management
Amount Awarded: $2,981

Present two papers to the Asociacion Mexicana de Historia Economica (AMHE) in Tijuana, Mexico, June 11-16, 2024: "The Manila Galleon and Baja, California Silver Trade," and also "Between British Opium and Mexican Silver: California 1825-1845," and to see two ports in northern Baja, California at which contraband trade occurred historically, and to visit Dr. Mario Alberto Maganas in Mexico.

Project Title: Wordless Instructions Proof of Concept - Wigwam
Faculty Investigator Name: Paul Fowler
Faculty Investigator Department: SPDA
Amount Awarded: $1,698

Over the last year I have been doing research, with student assistance, to create a set of wordless instructions of how to build a wigwam. Wigwams are traditional homes of the native people of the New England region, typically made with saplings covered by birch bark.
People around the world experience events that cause displacement from their homes and temporary, simple to build shelters like the wigwam, could protect people from the elements

during these events. These instructions being wordless is because it is intended for them to be distributed worldwide into areas that communicate using many different languages.

The instructions have been reviewed by multiple people and have been shown to the community at large of KSC asking for comments to improve the clarity of the instruction. It is now time to test the instructions' practicality and see if people unfamiliar with wigwams can make this type of shelter using only the instructions given. This study is being done as proof-of-concept that wordless instructions can guide people to build simple shelters. Without this proof the instructions are just theory vs reality.

Project Title: Implementation of a Non-Pharmacological Toolkit to Treat Pediatric Pain and Anxiety in Rural Emergency Departments (conference presentation_
Faculty Investigator Name: Rebecca Goldenberg
Faculty Investigator Department: Nursing
Amount Awarded: $1,096

Pediatric pain remains underrecognized and undertreated in health care. Providing effective pain management is an interdisciplinary process that requires accurate and timely identification of pain, familiarity with pediatric developmental stages, knowledge of evidence-based treatment protocols, and availability of resources to implement and evaluate the interventions.

Particularly, in rural healthcare facilities, access to pediatric specialty care is limited. Pediatric readiness surveys show that rural emergency departments lack the supplies, staff training, policies, and personnel necessary to consistently provide high quality care for pediatric patients, including timely and effective pain control.

Non-pharmacological techniques treat pain and accompanying anxiety with few known adverse effects. A multimodal approach to pediatric pain management that combines pharmacological and non-pharmacological interventions is most effective. The aim of this project is to implement a novel evidence-based non-pharmacological toolkit for emergency department staff to address patient-specific pain and anxiety needs. Toolkit components were derived from a literature review, and inclusion criteria considered portability, cleanability, availability, cost, and ease of use. In an environment that is typically overcrowded, financially strained, and understaffed, these criteria seek to maximize toolkit adoption by front-line staff. Contents encompass educational resources and tangible items to facilitate pain management in emergency care. The goals of the toolkit are to provide developmentally appropriate modalities to alleviate pain, promote patient comfort, and increase staff awareness and confidence in the management of pediatric pain and anxiety. It is intended for use in institutions where pediatric and financial resources are limited, such as rural healthcare facilities.

Project Title: First Annual Keene State College High Brass Day
Faculty Investigator Name: John Hart
Faculty Investigator Department: Music
Amount Awarded: $3,000

Led by Dr. John Hart and other world-renowned musician-educators, the First Annual KSC High Brass Day is a festival celebrating high brass instruments (trumpet, French horn) through masterclasses, workshops, and performances. Participants who play and study high brass instruments from throughout the Northeast, spanning any age (middle & high school, college, professors, professionals, amateurs) will converge on the Redfern Arts Center with their instruments and follow a "track" of learning and professional development tailored for each instrument. Each track is led by a world-renowned master clinician: Kevin Cobb, professor of trumpet at Yale University and SUNY Stony Brook, and trumpet player in the famous American Brass Quintet; French horn, William Purvis, also of Yale University, and horn player in the renowned New York Wind Quintet. Clinicians will lead masterclasses on performance, practice, and technique; give short performances; give large-group and individual instruction; and coach all participants for a massed performance. Participants move through the day with their track and eating meals together at Zorn Dining Commons (with the option for campus tours for high school students). The event culminates in a grand performance given by all of the participants, rehearsed and conducted by Dr. Hart, and open to the entire campus community and the public at large. This event is the second of an annual festival for brass instruments (e.g., trumpet, French horn, trombone, euphonium, tuba), brass music, brass teaching & learning, and brass performances. The focus of the KSC Brass Day will alternate biennially between high brass instruments (trumpet & French horn) and low brass instruments (trombone, euphonium, tuba).

Project Title: Health Workers Perceptions of Digital Health in Zambia
Faculty Investigator Name: Margaret Henning
Faculty Investigator Department: Health Sciences
Amount Awarded: $1,740

Technology has transformed various aspects of our lives, including healthcare delivery. Africa has seen a significant adoption of these services, especially in the last two decades. Public health and healthcare services have seen greater application of these tools to improve population health. However, amidst the rapid advancement of health technologies, a concerning disparity persists in the gender digital divide in healthcare. The gender digital divide manifests in various forms and reflects inequalities between men and women in accessing and utilizing digital health technologies. Access disparities may arise from limited availability of devices, connectivity issues, or affordability barriers. This research seeks to examine the factors that contribute to the gender digital divide from the perspective of the Zambian health provider—specifically related to digital technology, including mobile phones

and tablets, enabling global real-time connections. Insight will be collected though focus groups in Zambia with providers during summer 2024. Understanding technology and the gender digital divide in health care has profound consequences that extend beyond individual health outcomes to impact the delivery of gender-sensitive care and have economic implications for individuals, communities, and countries.

Project Title: 20 Eastern ACDA Conference Presentation: DEI in Action – Auditing Your Choral Library
Faculty Investigator Name: Sandra Howard
Faculty Investigator Department: Music
Amount Awarded: $1,368

This project is entitled, "DEI in Action: Auditing Your Choral Library", which will be presented as an interest session at the 2024 Eastern Division ACDA Conference in Providence, Rhode Island. A brief description of the session is as follows: Choral directors continue to program and purchase new music that acknowledges and authentically represents minority communities. We strive to present and perform music into a diverse and equitable society. This session will encourage attendees to review choral library holdings and examine their relevance within today's global world. The choral library is often considered to be an archive - a place to store music performed in the past, however it should serve as a living artifact. Join the conversation and take a look at the work the New Hampshire ACDA and NAfME are engaged in to evaluate its state choral library.

Project Title: Daylight Comfort in Wood Lattice Shade Structures
Faculty Investigator Name: Noah Ives
Faculty Investigator Department: SPDA - Architecture
Amount Awarded: $2,949

This project will involve the design, construction and environmental analysis of a small-scale architectural shade structure. It will begin with research into digital fabrication of sustainable materials and result in a temporary installation for display and study in the TDS building. The fabrication will make use of a new 3'x5' laser cutter bed and will act as a prototype example of a premanufactured 'kit-of-parts' design.

Two of the most pressing trends in architecture are the responsibility to adopt more sustainable building practices and the need to thoughtfully engage with new technologies. The project aims to explore the intersection of these topics, using digital tools to create a low impact structure that also provides a comfortable 'micro-environment' for occupation. Along with its value as a formal/structural prototype, the installation will be used for quantitative testing, aiming to help answer such questions as: How well can we predict the way light behaves in a space? How can the latest software help to reduce material waste in construction? How do changes in our environment affect social behavior?

Project Title: Embodied Curiosity
Faculty Investigator Name: Cynthia McLaughlin
Faculty Investigator Department: Theater and Dance
Amount Awarded: $3,500

During my sabbatical in Fall 2024, I am conducting a series of interviews with scholars in the Dance field who significantly impacted me during my thirty-year professional career. The focus of these interviews will be the pedagogy of embodied curiosity, how one systematically cultivates curiosity in oneself, one's collaborators, and/or one's students through a highly articulated embodied practice, and the impact and significance of this cultivation. Topics of conversation will span methods for developing a practice in curiosity, systems for calculating and analyzing embodied curiosity, and advocacy for the potential impact of codifying a practice in cultivating embodied curiosity. I have been developing, over the course of my three decades of teaching, a specific system that uses exercises in "attention" and "questioning" as part of contemporary dance technique, and I look forward to discussing my strategies and findings with colleagues who are teachers, artists, writers and researchers in the dance field. I plan to submit my interviews to the National Dance Education Organization for publication.

Project Title: Artist Residency Scuola Internazionale di Grafica, Venice, Italy
Faculty Investigator Name: Paul McMullan
Faculty Investigator Department: Art and Design
Amount Awarded: $3,500

I continue to explore the use of simple production software and machines to be used in the art making process. I have been working with 3-D printers and laser engravers in my ceramic studio. My residency at the Scuola Internazionale di Grafica iin Venice, Italy will allow me time to work on imagery and content that will make up a series of new large-scale ceramic tiles. Italy is known for its love and production of ceramic tiles. I will have the chance to walk among the vivid colors and themes of the Italian masters. I will have the chance to sketch draw and print ideas. Then return to Keene with expanded imagery for use in my research which I will share with the Keene Community along with an exhibition in Ann Arbor and lecture at Siena Heights University in Adrian, Michigan.

Project Title: What is Climate Change Resilience? Communicating Climate Change and Resilience Through Participatory Visual Methods.
Faculty Investigator Name: Chesney McOmber
Faculty Investigator Department: Environmental and Sustainability Studies
Amount Awarded: $2,298

With increased frequency and severity of climate events, there is pressure to build resilience across infrastructures, economies, governance, and livelihoods. And yet, while we live in a century of improved technology and communication, and despite decades of global summits on climate change resilience, the world is not on the same page about

how to achieve this end. Even within countries and across industries, there are different terminologies, language, goals, and standards being introduced to propose resilience. Furthermore, while resilience policy must be pushed forward to meet the current and future challenges of climate change, such policies are not always in agreement with each other. And, for policies to have the political legitimacy to move forward, they must also have the support of the tax paying and voting public. And yet, it is not clear that communities understand resilience to mean the same thing as the institutions making such policies. In this study I seek to understand whether there is congruence or misalignment between institutional understandings of resilience and public understandings of resilience. I build upon my previous work with a participatory visual method called Community Concept Drawing (CCD) to explore how different stakeholders (e.g., public, business, and local political officials) in the coastal city of New London, Connecticut understand the concepts of resilience and climate change.

Project Title: Guide to Cultural Enhancement of Decolonial Pedagogies Phase III
Faculty Investigator Name: Patricia Pedroza-Gonzalez
Faculty Investigator Department: Women's and Gender Studies
Amount Awarded: $3,500

This ongoing project combines conventional and embodied research methods that contrast paradigms and grounding theories of indigenous philosophies, critical ethnic studies, and feminist critical race theory from Caribbean, USA Latinx, South of Spain, and Mexico. I am applying for a Spring 2024 Faculty Development Grant to conduct the Phase III component of this project. This Phase develops introspection and self-encounter to rediscover ourselves through exposure to the external, the different, the alien, the unknown, the Other. Throughout history colonial paradigms are imposed by violence and become dominant narratives. However, a decolonial way of thinking invites us to rediscover us by developing our narratives based on introspection and self-encounter. Phase III of my research project develops narratives and answers questions regarding post-memories about the territories where we have lived and imagined to live. How do we erase and/or keep memories from our ancestral legacies? What stories are constructed by a Mexican woman while walking and dancing along Seville, Cadiz, Malaga and Granada? What kind of cultural encounters are manifested when we put together multiple cultures dichotomized by legacies of colonization processes? What is a post -memory and what kind of music, praying, songs and dance emerge from hybrid ways of knowing?

Project Title: Functional Medical Nutrition
Faculty Investigator Name: Lisa Prospert
Faculty Investigator Department: Health Sciences
Amount Awarded: $1,322

The field of nutrition science is a young science established approximately 125 years ago, and as a result what we know about the role of nutrition in nutrition and health is changing on a daily

basis. At the same time the public is searching for professionals focused on prevention and interventions that address the root causes of disease not symptom management. Nutrition is an important component of addressing many of the root causes of disease. There have also been significant changes in the delivery of nutrition care with the shift toward telehealth providing even more opportunities for our graduates to work in nutrition health coaching and counseling but in a virtual environment. This project aims to provide advanced training to faculty in nutrigenomics, integrative/functional medical nutrition therapy and health coaching skills for integration into existing courses to better prepare our students for the rapidly changing nutrition and health care environment.

Project Title: Nature's Blueprint
Faculty Investigator Name: Lynn Richardson
Faculty Investigator Department: Art and Design
Amount Awarded: $3,500

This project embraces a multidimensional approach, where sculptural forms evolve in complexity, intertwining with printed images to create a large-scale immersive environment. Envisioned with mirrored Plexiglas intricately laser-cut and interwoven with screen-printed imagery, the project aims to evoke a captivating sensory experience. The project, Nature's Blueprint, will be informed by my artist residency at Scuola Internazionale di Grafica in Venice, Italy. While in residence, I will collect a digital database of images at Doge's Palace, Basilica di San Marco, and Ca' d'Oro, focusing on architectural design, geometric floor patterns, and design elements from Murano chandeliers. In the studio, I will develop two-dimensional imagery through dry-point etching and printing techniques. These images will serve as the basis for a series of silkscreens, which will be transferred to Plexiglas and laser-cut to develop 3D forms. The resulting work will be a large-scale sculptural installation on view at the Thorne-Sagendorph Faculty Art Biennial and and will be used to pursue exhibition opportunities both regionally and nationally.

Project Title: Understanding Transgenerational Toxicity of Arsenic in a Mammalian Cell Line
Faculty Investigator Name: Priyanka Roy Chowdhury
Faculty Investigator Department: Biology
Amount Awarded: $3,000

Arsenic compounds are common environmental toxicants associated with numerous adverse health effects in humans. Arsenic susceptibility varies widely and is often related to transgenerational affects due to its ability to cross the placenta. The mode of action of Arsenic is however not well understood. In this project, we propose to identify genetic and metabolic processes that regulate long-term and short-term effects of chronic arsenic exposure in a mammalian primary cell line. Precise control of the cellular microenvironment, easy replicability, automation in production, reduction of animal use and repeatability of results makes cell culture an ideal platform for such inquiries. Understanding the impact of long-term

Arsenic exposure (characteristic of most environmental conditions) on individual cells will help us identify similar processes in human, potentially leading to effective mitigation strategies in vulnerable human populations as incidences of Arsenic continues to rise across the world

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Project Title: Integrating the Ancient Practice of Ayurveda with Modern Nutrition Science
Faculty Investigator Name: Dena Shields
Faculty Investigator Department: Health Sciences
Amount Awarded: $3,500

The Sanskrit term Ayurveda comes from the root words ayuh, meaning “life” or “longevity,” and veda, meaning “science” or “sacred knowledge.” Therefore, ayurveda is translated to “the sacred knowledge of life”. Ayurveda is the traditional system of medicine of India. It is a comprehensive, holistic approach that emphasizes diet, herbal remedies, exercise, yoga, meditation, breathing practices, and aims to ntegrate body, mind, and spirit. It is a nature-based, personalized form of medicine that can be used alongside modern nutrition science and Western medicine.

Nutrition science involves a focus on nutrients (macro-and micronutrients) in the diet and identifies the science of how each is used in the body during periods of health and illness or injury. Food is viewed as that which enables organisms to grow, be sustained, and reproduce. Nutrition science plays a role in development of federal laws related to food safety, food access and distribution, adequacy of nutrition and more. Nutrition is part of the modern medical system (Medical Nutrition Therapy) and is part of the concept of overall wellness.

Anecdotal evidence indicates that students’ academic interests around health science are moving towards holistic and integrative practices, such as Ayurveda. The Accreditation Council for Education in Nutrition and Dietetics (ACEND) is the accrediting agency for education programs preparing students for careers as Registered Dietitians, including those at Keene State College. Since 2022, ACEND accreditation standards include “integrative nutrition” as a topic that must be included in curriculum. Professional development such as this is required for clinical faculty members at KSC. This Ayurveda Health Counselor training supports accreditation requirements, meets students’ needs, and advances personal and professional desire to expand knowledge and skills in the realm of integrative nutrition and holistic medicine.

Project Title: Quantifying Obsidian Sharpness: Mechanical and Microgeometric Analysis of Experimental Obsidian Flake Edges
Faculty Investigator Name: James Stemp
Faculty Investigator Department: Sociology, Anthropology, and Criminology
Amount Awarded: $3,500
This research project focuses on both the mechanical and micro-geometric quantification of tool edge sharpness and durability of experimental obsidian flakes. Using an Instron materials tester housed in the Pitt-Rivers Laboratory for Archaeological Science at the University of Cambridge, England, forty obsidian flakes will be tested to determine their cutting ability and the durability of their cutting edges. These same forty flakes will have their used edges documented volumetrically and their edge shapes measured using a form of multiscalar analysis with a Bruker micro-computed tomography (microCT) scanner at the McDonald Institute for Archaeological Research at the University of Cambridge, England. Quantifying edge sharpness and durability in two measurable ways (mechanical and micro-geometric) will provide means to better understand obsidian's physical properties as they relate to its preferential selection and use in the past, notably among the earliest tool-users in Africa and Europe.

Project Title: Stick Mobility vs. Static Stretching on the Increase in Golf Club Head Speed
Faculty Investigator Name: Jeffrey Timmer
Faculty Investigator Department: Human Performance and Movement Science
Amount Awarded: $2,100

The purpose of this study is to determine whether Stick Mobility or static stretching will cause an increase in flexibility and/or will they cause an increase in golf club head speed. Marshall and Llewellyn in 2017 showed greater hamstring flexibility was directly related to a higher golf swing speed. The subjects who achieved a greater Sit and Reach hamstring flexibility score, had the highest swing speeds. Christopher Joyce found that golfers with a higher axial rotation flexibility (spine rotation) had higher swing speeds than the golfers with less rotation. More recently in February 2022, McHugh et al. showed that the more proficient golfers with higher swing speeds displayed a higher transverse plane flexibility (hip rotation) than less proficient golfers. Finally, Jung et al. in June of 2022 showed that traditional flexibility exercises used to improve a female golfer's upper body flexibility was directly correlated with an increase in rotational angle and swing speed. With these prior studies in mind, this study provides a very specific set of exercises designed for improvement of flexibility and mobility. Stick Mobility is a new fitness technique and company designed to increase upper and lower body mobility. There is a golf specific program the company has designed to purposefully enhance the movements of the golf swing. The research team decided to compare the new technique of Stick Mobility with traditional static stretching, given that static stretching is a well-established and proven method of increasing flexibility

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