

Undergraduate Research Symposium May 18, 2018 Mary Gates Hall

Online Proceedings

2H

CENTERING OUR VOICES

Session Moderator: Ralina Joseph, Communication

MGH 251

3:30 PM to 5:15 PM

* Note: Titles in order of presentation.

Engaging Transfer Student Voices: An Analysis of Resilient Students

David Alejandro Alvarez, Senior, Communication

UW Honors Program

Mentor: Carmen Gonzalez

Previous research has shown that transfer students do not receive adequate support and materials to ease their transition into a university. The purpose of this study is to evaluate the information that the University of Washington disseminates to transfer students, and to determine if it is helping students make a successful transition. The findings of this study will provide suggestions for how universities can improve their dissemination of resources and information about the transfer process. Research questions include how transfer students get information and support specifically tailored to their needs, what is communicated about the transfer experience through various four-year programs, and how student engagement programs respond to and implement the needs of transfer students. To examine these questions, 2-3 focus groups consisting of 4-5 transfer students will be conducted. Students will be asked to share their experiences about the transfer experience. The results of this research provide insights into how universities can support transfer students by facilitating leadership positions, improving the clarity of transfer course policies, and promoting campus resources that meet the unique needs of transfer students. One of the goals of this research is to give visibility to transfer students and to better integrate them within the larger campus community. Findings from this study can inform transfer support programs at other universities.

Photovoice: Illuminating the Impact of Inclusive Education Practices in United States Public Schools

Danielle Angelica (Dani) Benedict, Senior, Social Welfare

Mentor: Susan Sandall, Education

This study explores the impacts of inclusive education practices in United States public schools from the perspective of

students who receive these services. Students targeted are from public schools in Washington state between the ages of 12 and 21. Majority of the literature on inclusive education practices are written by people who have not experienced special education services in the United States. It is hypothesized that the study will provide an increase of skills and opportunities for students with disabilities to advocate their own education and engage in self-advocacy. Photovoice is a participatory research approach that has participants take pictures to illustrate the research question that can later be supplemented by short stories or captions by the participants. Students participating were able to talk with each other about the Photovoice process, common themes they found in each other's pictures and captions, and brainstorm ways to target local representatives and policy-makers. Data collection was strengthened by surveys to gather more specific information on people's perceptions of inclusion and special education services. Themes identified include feelings around inclusion, being accepted in the school community, isolation, or social engagement. The study will contribute to social work practice by providing an opportunity for students with disabilities to share their own perspectives and experiences within the public education system. This work will allow an opportunity for students with disabilities to become the principle speaker on special education reform.

Exploring the Interplay of Diversity and Ethics in an Introductory Bioengineering Course

Camille Isabella Birch, Senior, Bioengineering, Computer Science

Levinson Emerging Scholar, Mary Gates Scholar, UW Honors Program

Mentor: Dianne Hendricks, Department of Human Centered Design and Engineering

Ethics and diversity are critical components of engineering training and practice, but most undergraduate engineering programs do not address these issues in-depth. We describe

the design and implementation of a novel curriculum that allows early engineering students to explore the interplay of diversity and ethics in an engineering context. Although upper-division bioethics courses may also address this relationship, we chose to implement this curriculum in a large, introductory course. We intend to provide an accessible opportunity for early engineering students, particularly underrepresented students interested in engineering, to engage with this material early and to impress upon a broad audience that diversity and ethics are critical topics in engineering. Engaging these students in meaningful discussion about the intersecting roles of diversity and ethics in bioengineering enables them to apply course competencies to their future engineering practice. Our learning objectives include: (1) Summarize key case studies regarding diversity-related ethics in STEM, (2) Identify how cultural concepts of race, gender, sexuality, and disability have shaped scientific thought (and vice versa) through history, (3) Critically evaluate literature regarding ethics and diversity in bioengineering, (4) Analyze how engineers handle implicit bias during research and design processes, and (5) Propose approaches to promote ethics and diversity in engineering practice. Course activities cover the importance of diversity and ethics competency in engineering; historic and current case studies of diversity-related ethical issues and how historical perceptions and contexts still influence modern scientific thinking and engineering design; advocacy and representation of minorities in engineering; evidence supporting the value of inclusive teaching and diverse teams; and best practices for advocacy and representation of diverse peoples in engineering. We assess the effectiveness of these teaching innovations through student surveys, student performance on assignments, and instructor observations. Additional supporting data is provided by excerpts of student work.

Ethnic-Racial Socialization: Relations to Critical Consciousness and Attitudes of Race and Diversity

Autumn Diaz, Senior, Interdisciplinary Arts & Sciences (Psychology), UW Tacoma

Mary Gates Scholar

Mentor: Rachel Hershberg, School of Interdisciplinary Arts & Sciences, University of Washington Tacoma

Racism on college campuses is an unfortunate issue in higher education, and the UW system is not immune from this issue. Analysis of qualitative data from the longitudinal Social Issues Study (SIS) at UWT identified that some UW students experience racism on campus. To understand how to address students' experiences of racism, I will conduct a substudy in Wave 3 of the SIS investigating students' experiences of caregiver ethnic-racial socialization (e.g. discussion of stereotypes facing their racial/ethnic group) and its relation to racial attitudes, respect for diversity, and critical consciousness (CC). CC is defined as becoming aware of inequalities in society (i.e., critical reflection (CR)) and taking actions to ad-

dress them (i.e., critical action (CA)). Ethnic-racial socialization and its relation to CC has infrequently been investigated in psychology. However, research on ethnic-racial socialization suggests it may be linked to CR and, possibly, to CA (as well as to more positive interactions with diverse groups). There is also a need to identify factors that can help explain the common finding that people who are high in CR are often low in CA. Furthermore, previous studies of caregiver ethnic-racial socialization have thus far taken a racialized approach in participant samples. In the proposed study, ethnic-racial socialization, CR, CA, racial attitudes, and respect for diversity will be quantitatively assessed in a diverse sample of UWT students (43% Caucasian; 21% Asian; 13% Hispanic/Latino; 10% African American; 2% Hawaiian/Pacific Islander; 2% American Indian; 6% International) (n=140). Qualitative interviews (n=20) will also be used to explore students' racial ideology formation and their relation to CC. Implications regarding promoting positive cross-cultural relationships on campus and CC, as a potential means for addressing racism, will be discussed.

Effectiveness of Positive Behavior Supports Video Trainings and Supportive Collaboration on Reducing a Child's Challenging Behavior

Robin Elizabeth Dragovich, Senior, Early Chld & Fam St: Teaching & Learning

UW Honors Program

Mentor: Kathleen Meeker, College of Education

This project was designed to support staff within an early childhood program experiencing major changes. The early childhood program had recently moved to a temporary location while a new learning center is under construction. This program now occupies an elementary school building and has been joined by a previously separate Head Start program and a special education preschool program. Along with the move the program shifted its requirements and curriculum to better match the Head Start program they now share a building with. These changes include in-class meal times, a mandatory rest period, and mixed age classrooms. The physical building move and program changes have created new challenges and added stress for teachers. This includes new challenging behaviors related to new program changes. With this in mind, this project sought to alleviate stress for a teacher who was dealing with persistent challenging behavior for one student. Practical skills training has been shown to improve teacher attitudes towards working with students with challenging behaviors. In this project I compiled a practical skills training using Gail Joseph's Positive Behavior Supports videos and guided a teacher through writing and implementing a behavioral support plan with the intention of reducing one child's challenging behavior. The intervention was successful in providing the skills necessary to write and implement a behavior plan as well as reducing the child's challenging behav-

ior. The frequency of the challenging behavior was reduced from an average of 13.6 times a day to 8.5 times a day after 3 weeks. Future research could examine how effective video skills trainings are in providing teachers with skills to deal with challenging behaviors and could consider the possibility of remote trainings or remote professional development opportunities for teachers.

Sound It Out: Using Korean Language Learners' Native Languages to Help Improve Pronunciation

Hannah Quinn Hertzog, Senior, Computer Science, Korean UW Honors Program

Mentor: Eunyoung Won, Asian Languages & Literature

Have you ever misunderstood someone because of their pronunciation? Although pronunciation is a vital part of foreign language "fluency," it is often overlooked in classrooms in favor of vocabulary and grammar training. The sounds present in, and absent from, one's mother tongue directly impact foreign language pronunciation. I propose that exposing language learners to phonemes that are not present in their mother tongue will help improve foreign language pronunciation. I examine the case of Korean language learners in particular. Korean learners were recorded saying a list of phrases in Korean before testing. Then, they listened to artificially slowed clips of native Korean speakers saying phrases with phonemes absent from the learners' native languages. After hearing the slowed clips, learners were then recording saying the same phrases as before. I expect that Korean language learners will show an improvement in pronunciation after listening to the slowed clips of native Korean speakers, especially for the phonemes that are not present in their native languages. The results of this research may be extended to learners of languages other than Korean, as well. This could hold implications for the future of language learning in our interconnected and increasingly globalized world.

The Effects of Limited Representation of African American Males in Higher Education

Marvin Lee Marshall, Senior, Communication UW Honors Program

Mentor: Ralina Joseph, Communication

While the population in America is becoming more and more diverse, the faculty that train our future workforce are not. At predominately white institutions (PWIs) across the United States, racial disparities amongst faculty are problematic. As of 2015, African Americans made up approximately 12.7% of the United States population. At that same time, male and female African American full-time faculty at degree granting college institutions made up only 3% of the workforce. With inadequate representation of African American male faculty, there are voids in the bonding experience between a student and professor. This study critically examines the limited rep-

resentation of African American men in higher education, and the effects such representation might have on students and faculty, particularly regarding mentoring opportunities. The implications of racial disparities in higher education have been explored through in-person, semi-structured interviews with African American faculty members, graduate students, and undergraduate students. The results of this project have shown that the lack of representation amongst African American male faculty is negatively impacting the college experience for not only students but also staff at PWIs. This research has gained a better understanding of the importance of mentoring and the effects of limited representation and has added to the overall conversation regarding African Americans males in higher education.

Analyzing the Correlation between Active Learning Practices and Positive Student Outcomes in Introductory Biology

Katie Hao Pham, Senior, Biology (Bothell Campus), Health Studies (Bothell)

Mentor: Bryan White

There is an ongoing movement to improve undergraduate biology courses by elevating student learning beyond rote memorization toward thinking about science as experts do. Previous research indicates that most students leave introductory biology with novice-like perceptions of science. We hypothesize that these scientific ways of thinking can be cultivated in an active learning environment where students take ownership of their learning, and instructors question and facilitate understanding rather than dispense knowledge. In addition, there are no delineations of paradigms of active learning that optimize student learning. In our project, we asked whether student attitudes and expert-like thinking improved throughout an introductory biology course at UW Bothell. In addition, we analyzed the active learning practices in this course to see if these practices correlate with improving student attitudes. During the first and last weeks of class, students voluntarily completed the CLASS (Colorado Learning Attitudes about Science Survey), a 32-piece questionnaire developed by educators at the University of Colorado Boulder inquiring about enjoyment, real-world connections, problem solving and conceptual understanding in biology. We coded results using a published tool, with pre and post data separated for comparison. Classroom lectures were recorded using Panopto, and sessions will be evaluated using PORTAAL (Practical Observation Rubric to Assess Active Learning), a tool that allows for the assessment of the extent of active learning in the curriculum. With this data, we will be able to gauge the effectiveness of active learning methods in an introductory biology class and see if they correlate with a transition towards expert-like perceptions of biology. It is our hope that with this data, these pedagogical techniques can be refined and adopted more widely in academia to help all stu-

dents succeed in biology.