Research Poster

Undergraduate Voices: A Snapshot of Research Perceptions and Cultural Influences on Participation

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Introduction

A challenge contributing to diversity issues in STEM professions is the absence of diversity in graduate programs (Haeger & Fresquez, 2016). This issue has been addressed by creating more opportunities for underrepresented students to participate in undergraduate research (Haeger & Fresquez, 2016). Strayhorn (2010) found that participation in undergraduate research influences underrepresented minorities to seek higher education degrees. As underrepresented students start participating in undergraduate research, it is critical to develop an understanding of the conditions that matter for student success, especially in STEM fields (Strayhorn, 2010). Researchers documented that first-generation students and Latinos were more aware of undergraduate research activities than expected, but this has not translated into participation due to misconceptions of research (Rodriguez Amaya et al., 2018). To eliminate students' misconceptions about research, high-impact undergraduate research experiences are crucial (Rodriguez Amaya et al., 2018). As universities work to engage more underrepresented undergraduate students in research, it is vital to understand students' view of research and their influences for participation.

Conceptual Framework

For this study, we considered Cooper et al.'s (2021) conceptual model of "the path to becoming an undergraduate researcher" (p. 2). This model outlines the path an undergraduate takes to become involved in research. They must: (a) know of research, (b) know research benefits, (c) decide to pursue research, (d) find research, and (e) secure research. Using this model as a guide, research prompts were created to describe why students chose to participate in undergraduate research.

Methodology

The purpose was to describe underrepresented undergraduate students' perspectives of research based on previous knowledge, experiences, and cultural influences. To achieve this purpose, we used a qualitative photovoice methodology. Photovoice allows researchers to emphasize the voice of their targeted population (Wang & Burris, 1997). The population consisted of eight undergraduate students in underrepresented populations completing research in agriculture, food, and natural resources (AFNR). Prompts were given to encourage considerations of their research experience and the role culture played on their decision to conduct research. Students were asked to take or collect five photos during a six week period. A total of 40 images were analyzed. Students completed semi-structured interviews after completing their photo gathering to describe their images and explain their meaning. Because participants should be involved in the coding process for photovoice methodology (Wang & Burris, 1997), we completed manual codes using In Vivo coding techniques (Saldaña, 2016) to code the image content using students' exact words. Following In Vivo coding, we used axial coding (Saldaña, 2016) to thematically group initial codes.

Findings

Researchers identified five themes from students' images and descriptions. Three themes described students' perspectives of research: *Foundational Moments*, *Systematic*, and *Specific*. Two themes describe students' perspectives of cultural influences on research: *Family* and a *Desire for Exploration*. When reflecting on their images, participants described clear moments that inspired them to conduct research. These became the initial *Foundational Moments* theme.

These moments were described as their "foundation" or what "set them on their path to be a researcher." Many students described their childhood experiences when considering when research began for them. Additionally, statements were made about moments when they began to see agricultural problems and "have a lot of questions" which gave rise to a desire to find answers. This leads to the second theme: *Specific*. Students saw their research as highly personal, and images reflected their specific passion areas and research interests. One participant described multiple images as a representation of them "being happy and doing what [they] love." Because of their foundational moments, one student saw themselves as "huge advocates of beef and dairy" which led them to develop specific research interests in the dairy industry. When considering what they wanted to research, students often described how they viewed research and how they conducted research. This is the third theme: *Systematic*. Students described research as a "routine", and others described it as a process. One stated their image represented "taking things from start to finish" much like the research process has "a start, a middle, and an end." When considering cultural influences, students emphasized that culture meant traditions and environment more than ethnic identity. Students identified two influences on their decision to engage in research: *Family* and a *Desire for Exploration*. Images in the *family* theme showed participants with family members, family members individually, or environments and childhood experiences. Images prompted reflections on family members who "helped and supported", "inspired", or provided "confidence to try something new like research." From these influences, students described characteristics and values established by their culture and previous experiences. This led to descriptions of how students saw the final cultural influence theme: a *Desire for Exploration*. Images in this category represented a need to "learn and explore", a "world of possibilities", moments of curiosity, and "dedication."

Conclusions

When considering Cooper et al.'s (2021) model of undergraduate research, we found some students have foundational moments that spur them towards a specific interest in research. Some detailed a lack of awareness of opportunities as an underclassman but were inspired to know more about research because of these foundational moments. All participants had a positive outlook on research, and described interest in continuing research and education due to specific research topics that align with their passions. These students are in the second and third step of the path to undergraduate research. This shows promise for continued engagement in research activities. Many students also detailed desires for a postgraduate degree confirming Strayhorn's (2010) findings. While hard to photograph, cultural influences like family support and a desire to learn and explore were passionately described. These are important to consider when encouraging undergraduates to pursue and participate in AFNR research.

Implications and Recommendations

Continued emphasis on engagement in undergraduate research experiences is important to develop the next generation of AFNR researchers. By considering cultural influences and a student's path to research, mentors can have higher success recruiting students into impactful undergraduate research experiences. Additional research specific to ethnic and race considerations held by undergraduate researchers should be conducted to develop highly personalized recruitment efforts. With these efforts, universities can increase undergraduate research opportunities and address the lack of diversity in graduate programs (Haeger & Fresquez, 2016).

References

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