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Culturally Responsive Teaching: Using Social Justice Research to Prepare Underrepresented and First-Generation Students for Graduate School Success

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Abstract
This research examined the use of culturally responsive teaching for underrepresented and/or first-generation, low-income students who are in the ISU McNair Program and graduate school bound. The implementation of culturally responsive learning allowed the integration and mastering of the scientific research process and development of a sociopolitical consciousness, in order to prepare the students for graduate school success. Through a hands-on and team-based pedagogical approach, the scholars created academic research projects focused on Impostor Syndrome, stereotype threat, and barriers to first-generation doctoral students in an effort to critically examine their existence in higher education, as well as increase their knowledge of the research process.

Introduction
Much inquiry into the public educational system, including universities and colleges, has found that education is a powerful site for maintaining social and cultural reproduction (Persell and Cookson, 1985). Through education we form and reproduce dominant and subordinate groups in our social system. Because of various dynamics of power, control, and access, we find that many groups of people often face closed doors when it comes to the attainment of education. Historically and consistently, many institutions of higher education have struggled to recruit, retain, and graduate those who identify differently than the privileged, White male from middle to upper-class (Persell and Cookson, 1985). Of the many groups of people that find barriers to higher education, first-generation students, whose parents have not completed a college-degree, and underrepresented racial and ethnic students are the focus of this research.

Through federally funded TRIO Programs, the Department of Education provides financial resources to motivate and support students from disadvantaged backgrounds to aid in increasing the number of students attending college and receiving degrees. The Iowa State University McNair Program began in the fall of 2013 and follows the same guidelines of the Ronald E. McNair Post-Baccalaureate Achievement Program (TRIO), but is fully institutionalized. McNair staff work closely with students as they complete their undergraduate requirements, encourage and prepare students to enroll in graduate programs, and track their progress through to the successful completion of advanced degrees. The overall goal of the program is to increase the attainment of doctoral degrees by the population served, through providing opportunities for research and other scholarly activities.

In order to meet the program goals, the course instructor implemented a culturally responsive approach to course content. The culturally responsive approach followed what Ladson-Billings (1995) noted as the three criteria for the pedagogy, 1) students must experience academic success; 2) students must develop and/or maintain cultural competence; and 3) students must develop a critical consciousness through which they challenge the status quo of the current social order (p. 160). The culturally responsive pedagogical approach to class learning allowed students to use their cultural knowledge, experiences and abilities to make connections between the personal and curriculum content.
This research focused on the efforts of the ISU McNair Program. The purpose of this research was to provide a culturally responsive learning opportunity for McNair Scholars that allowed the integration and mastering of the scientific research process and the development of a sociopolitical consciousness, in order to prepare the students for graduate school success.

Methods
The culturally responsive pedagogical approach was implemented in the first-year courses of the ISU McNair Program- Introduction to Research. In the first semester course, the goal was to expose scholars to the initial stages of research through lessons on how to define a research idea, refine it to formulate a specific research question or hypothesis, and gather, critique, analyze and synthesize existing literature on the subject of inquiry. In the second semester, scholars learned about diverse methodologies and their relevance to specific research questions, data collection and analysis processes, and scientific research writing and presentation. The courses included lessons on how to determine appropriate methodology and design a scientific protocol, gather and analyze data, and understand findings so as to effectively report and present findings and conclusions.

McNair courses provided a foundational source of understanding of the research process, which will prove beneficial for the students when they enter graduate study. Following Ladson-Billings (1995), students were held to academic standards that provided them with course content not largely offered to the general student body. Through the curriculum content, students added their perspectives and know-how to thrive in the research process. The courses were designed around an in-class team research project. Students were introduced to three topical questions: 1) How does Impostor Syndrome effect graduate students? 2) How does stereotype threat effect graduate students? and 3) What are barriers to first-generation doctoral student success? The three topical questions were developed based on experiences and feedback from previous Scholars who are now in graduate school. From these topics, students narrowed their interest and proceeded through the development of a scientific research study.

Ten students completed pre (at the beginning of fall semester) and post (at the end of spring) assessments of their research knowledge. Assessments were taken online. This research focused only on questions related to research preparedness and experience. In-class assignments were also collected, but were not used in this report.

Results and Discussion
The table below (Table 1) shows increased self-efficacy and understanding of research of students. Students felt that they had increased their research knowledge through exposure to the academic skills necessary to compete as graduate students and the process of creating knowledge by conducting research. In each component of the scientific research process, the students indicated that they had gained the ability to complete the task by approximately one to two points on an overall four point scale. The culturally responsive approach helped to teach research methods as well as provide context into the student’s social standing in higher education and ways to cope with their positions.
<table>
<thead>
<tr>
<th>Statistic: Mean</th>
<th>I am able to design a scientific study.</th>
<th>I am able to identify and focus on a specific research topic.</th>
<th>I am able to identify sources for my topic</th>
<th>I am able to write a literature review</th>
<th>I am able to identify a methodology that matches the limitations and enhances the possibilities of my question/topic of inquiry.</th>
<th>I am able to gather data following a methodology</th>
<th>I am able to identify a statistical test that suits the design of my study.</th>
<th>I am able to identify analysis tools and processes that capitalize on my data.</th>
<th>I am able to write effectively for a scholarly publication.</th>
<th>I am able to present my research effectively at a scholarly venue.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre</td>
<td>2.4</td>
<td>2.9</td>
<td>3.5</td>
<td>2.3</td>
<td>2.1</td>
<td>2.5</td>
<td>2.2</td>
<td>2.2</td>
<td>2.2</td>
<td>2.6</td>
</tr>
<tr>
<td>Post</td>
<td>3.7</td>
<td>3.9</td>
<td>4.4</td>
<td>3.3</td>
<td>3.5</td>
<td>3.7</td>
<td>3.1</td>
<td>3.3</td>
<td>2.9</td>
<td>4.0</td>
</tr>
</tbody>
</table>

**Table 1. Student’s self-efficacy and understanding of research**

The students continued their projects throughout the academic year and are still working on the write-up process. In addition to becoming familiar with both qualitative and quantitative skill sets of academic research, students learned about the barriers or hardships they may face in graduate school. From their exploration into the given topics students hypothesized ways of conquering and managing social interactions, academic hindrances, and institutional inequity. Their research served a dual purpose in exposing them to the research process, while giving them the insight to fully examine the social phenomena. The stories and experiences they gathered from current graduate students who were facing these plights was impactful and allowed the students to recognize things they might encounter in graduate school. Students were able to create a sense of agency in their educational futures.

**Conclusions**

This research sought to create culturally responsive content, educational settings, and programming, specifically in preparing first-generation and underrepresented students for graduate study by examining social and personal hindrances, as well as providing them with a tangible experience in scholarly work and academic research. The culturally responsive research projects served a dual purpose of offering a way for students to experience research on their own while at the same time, keeping it relevant to the realities they themselves may experience in graduate school, and the possible deterrents they could face as they transition.

**References**
