Undergraduate research opportunities have been discussed as a high impact practice for student engagement and retention, as well as a promising pipeline to graduate studies. Outcomes produced from undergraduate student engagement in research activities are associated with gains in writing, cognitive, and personal skills, enhanced self-concept, and academic achievement (ASHE Higher Education Report, 2007; Estepp, Velasco, Culbertson, & Conner, 2016). Research experiences allow students to engage in deep learning, helping them learn to link ideas and identify patterns using evidence and logic by examining arguments; ultimately developing their own ideas about a particular problem through reflection (Entwistle, 2006). Research demonstrates that this high impact practice enhances a student’s link to the campus, faculty, and peers, which in turn supports their persistence (Kuh, 2008; Kuh 2013). Yet engaging minority undergraduate students in research activities has been a challenge in higher education. In many instances minority students are post-traditional students with a profile that is far removed from the traditional student that graduates from high school, immediately enters college, is financed by parents, and complete their degree in four years. Post-traditional students now represent over 80% of the student population and many of these are Latinos, veterans, and African Americans (Santiago, 2015; Soares, 2013). Institutions will have to develop variations in research experiences that provide a good fit for this population of students. They should not be discounted simply because they do not fit the profile of the traditional student who participates in research. The National Center for Education Statistics reports that the average Pell Grant recipient is 26 years of age, 25% of students are parents, almost 40% of undergraduate students are Latino, veterans, and African Americans, representing over 80% of the student body and many of these are post-traditional students who participate in research. The National Center for Education Statistics reports that the average Pell Grant recipient is 26 years of age, 25% of students are parents, almost 40% of undergraduate students are Latino, veterans, and African Americans, representing over 80% of the student body and many of these are post-traditional students who participate in research.

### Facts about Minority Post-Traditional Students

- **Commuter Students**
- **Age 18 and older**
- **Seek alternative options for learning – online, weekend, evening, or blended courses**
- **First generation students**
- **Are wage earners in their homes**
- **May be married**
- **Choose a college based on cost, location and accessibility**

This literature review summarizes studies on undergraduate minority student research experiences from 2012 to 2016. Fifteen articles met the inclusion criteria which included empirical research on the research experiences of minority students across institutions of higher education. Databases included EBSCO, ProQuest, ERIC, World Cat, ResearchGate, and Google Scholar, among others. Articles were analyzed on an excel spreadsheet to help validate inclusion criteria and to index information about each article for review. Articles were analyzed to link common findings and ideas were extracted from them. Common themes identified specific characteristics of research experiences that supported minority undergraduate students throughout different types of research activities. From the more traditional faculty led research mentorship to research activities that stemmed from curricular frameworks which were embedded across courses, there were clear behaviors, structures, and supports which created rich experiences for minority students. These were grouped into overarching themes that created meaning for minority students: relationships, self-efficacy, and structure of the research process. Relationships developed through research experiences helped minority students establish personal links, support systems, and provide access to resources that did not exist on campus. Self-efficacy developed through the deep learning that occurred bolstered student self-confidence in their academic and problem solving abilities which transferred to resilience. Finally, the structure of the research activity which focused on quality experiences were less faculty centered and more student focused. These were highly structured and not always traditional research mentorships; these allowed students to participate in entire research processes (from hypothesis to findings) and facilitated the academic and professional development of undergraduate minority students.

### Literature Review Matrix

<table>
<thead>
<tr>
<th>Author/s</th>
<th>Article Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Journal/IF</td>
<td>Volume, Number/Year</td>
</tr>
<tr>
<td>Theoretical Framework 1</td>
<td>Theoretical Framework 2</td>
</tr>
<tr>
<td>Type of Study</td>
<td>Program</td>
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<tr>
<td>Method</td>
<td>Sample Size (total): Faculty/Supervisor</td>
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<tr>
<td>Academic Counselors/Other</td>
<td>Demographics</td>
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<tr>
<td>Gender</td>
<td>Age Range:</td>
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<tr>
<td>US Citizen</td>
<td>Resident</td>
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<tr>
<td>Undocumented</td>
<td>Student Visa/International</td>
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<tr>
<td>Measures</td>
<td>Data Analyses</td>
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<tr>
<td>Limitations</td>
<td>Results/Findings</td>
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</tbody>
</table>

### Characteristics of Successful Research Mentoring Behaviors

- **Establish Common Ground**
- **Personal Connection**
- **High Levels of Structure**
- **Options of Research Activities**
- **Clear Expectations**
- **Reciprocity/Interdependence**
- **Frequent Communication and Interaction**
- **Supportive Relationship**
- **Mutual Respect**
- **Shared Values**
- **Mutual Benefit**

### Findings

Common themes identified specific characteristics of research experiences that supported minority undergraduate students throughout different types of research activities. From the more traditional faculty led research mentorship to research activities that stemmed from curricular frameworks which were embedded across courses, there were clear behaviors, structures, and supports which created rich experiences for minority students. These were grouped into overarching themes that created meaning for minority students: relationships, self-efficacy, and structure of the research process. Relationships developed through research experiences helped minority students establish personal links, support systems, and provide access to resources that did not exist on campus. Self-efficacy developed through the deep learning that occurred bolstered student self-confidence in their academic and problem solving abilities which transferred to resilience. Finally, the structure of the research activity which focused on quality experiences were less faculty centered and more student focused. These were highly structured and not always traditional research mentorships; these allowed students to participate in entire research processes (from hypothesis to findings) and facilitated the academic and professional development of undergraduate minority students.

### Conclusions

Research that is student driven and traditional students now have the potential to engage students that may not otherwise have the opportunity to engage in research experiences.

**References Available Upon Request**

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**Promising Practices in Mentoring Minority Undergraduate Students in Research Experiences**

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