Undergraduate Research Is Transformative for Identity Development

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Abstract
Participants in an undergraduate summer research program were asked how the program had benefitted them. Themes emerged from their responses indicating many benefits, including a change in their experience of themselves as people, development of important life skills, a sense of future direction, engagement in a research community, and a greater understanding of the research process in their discipline. Evidence for the impact of the experience on their identity development was found.

Introduction
Higher education may be seen as having a social responsibility to prepare well-adjusted, responsible, and successful citizens (Chickering, 2010) and emerging adulthood provides a special opportunity for identity development (Erikson, 1959, 1968). Current neuroscience, cognitive, and psychoanalytic research are focusing on identity as involving both a self-reflective, cognitive understanding of who one is, as well as an immediate, reflexive “sense” of oneself (Fogel, 2011; M. J. Gerson, 2012; Shapiro, 2011). First-hand experience in the scholarly and creative processes of a discipline, as in undergraduate research, provides a transformative opportunity for students on both levels.

Objectives
• To identify gains from the research experience, as identified by students who participated in a full-time summer research program.
• To explore themes for evidence of impact on identity and sense of self.

Method
Thirty-two undergraduates (1 Sophomore, 11 Juniors, 20 Seniors; 15 females, 17 males) participated in a summer research program at CLU. Students represented a variety of disciplines, including Biology, Chemistry, Bioengineering, Biochemistry, and Math, as well as Art, Economics, English, Global Studies, Political Science, Psychology, and Religion. All but one were funded to engage in full-time research for 8 weeks. Students were asked on a questionnaire how the summer research program had benefitted them.

Results and Discussion
Five major themes emerged from students’ reflections about the benefits of their research experience. The table below shows the number of students noting each theme.

<table>
<thead>
<tr>
<th>Theme</th>
<th>n</th>
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</thead>
<tbody>
<tr>
<td>Identity growth (change in self)</td>
<td>8</td>
</tr>
<tr>
<td>Important life skills</td>
<td>6</td>
</tr>
<tr>
<td>Career-related direction or skills</td>
<td>9</td>
</tr>
<tr>
<td>Engagement with mentors and/or a research community</td>
<td>10</td>
</tr>
<tr>
<td>Research-related experience or skills</td>
<td>19</td>
</tr>
</tbody>
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A quarter of the students specifically noted aspects of their identity that grew through the process. When important life skills and sense of direction for the future are included, 72% saw the experience as transformational. Many students also noted the connections established with mentors and a research community and gaining a greater understanding of the research process as valuable.

First-hand mentored research experience is perceived by undergraduates to benefit them personally in a number of important ways. They grow, not only in their identity within a discipline and with clearer career goals, but also in their sense of self as individuals who feel balanced and confident.

“I now realize what I want to do after undergraduate work.” – Ivy Nguyen

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