Resilience and Adaptation in Undergraduate Education during COVID-19

Richard Arum

UCOP Webinar
May 11, 2022

Project funded by the Andrew W. Mellon Foundation and UCI Provost Office
**Goals**

- Develop and disseminate new measures of undergraduate experiences and outcomes
- Inform efforts to improve institutional performance and advance educational equity
- Promote deeper understanding of educational processes and identification of educational value

**Data**

- Administrative data
- Learning management systems data
- Surveys, experiential sampling and performance assessments

**Sample for surveys/assessments**

- UCI freshmen, transferring juniors & continuing juniors
- Cohorts of 1,250 students each from Fall 2019, Fall 2020, Fall 2021
Sample Data Elements

Sample Survey Items

- How much was the knowledge discussed in this course beneficial to your future career?
- How important is it to you to have a job that gives you lots of opportunities to be helpful to others?
- How much did this course make you think of possible careers in the field?
Next Generation Undergraduate Success Measurement Project Framework

### Postsecondary Growth and Development

<table>
<thead>
<tr>
<th>Cognitive Ability &amp; Intellectual Dispositions</th>
<th>Identity and Life-Course Agency</th>
<th>Self-Regulation Skills</th>
<th>Social Capital</th>
<th>Civic Engagement</th>
<th>Psychological Flourishing &amp; Mental Health</th>
</tr>
</thead>
</table>

Measures of six key dimensions of postsecondary growth and development from integrated data from student surveys, performance assessments, administrative data, and a learning management system.

Measures aim to inspire and inform efforts to improve institutional performance and advance educational equity.

### Life Course Outcomes

Measuring the long-term value of higher education is complex and requires looking at multiple factors.

<table>
<thead>
<tr>
<th>Postgraduate Education, Employment, &amp; Health Outcomes</th>
<th>Social &amp; Psychological Outcomes</th>
<th>Civic Outcomes</th>
</tr>
</thead>
</table>
03/10/2020 remote finals, moving off campus

03/11/2020 COVID-19 pandemic

05/25/2020 Growing BLM Movement
Concerns Related to COVID-19 in Spring 2020

Concerns that the shift to remote classes will cause interruptions to academic progress

Note. $N = 577$; Frequencies. $M = 5.5$, $SD = 1.6$
Note. The top ten words ranked by frequencies are: errands, family, caring, home, chores, working, helping, siblings, house, cleaning. This word cloud is generated by the word frequency in response to the question: "What responsibilities or tasks do you have right now besides your UCI course work?"
How often do you have access to...

- quiet study place
- computer for course work
- stable internet connection
- course material

Note. N = 574
Access to study resources and completed credits

Relation of access to study resources and term completed credits
(Spring 2020, N=575)

Relation of access to study resources and term completed credits
(Fall 2020, N=1110)

Correlation Table

<table>
<thead>
<tr>
<th>How often do you have access to...</th>
<th>Study Place</th>
<th>standard error</th>
<th>Computers or other devices</th>
<th>standard error</th>
<th>Stable internet connection</th>
<th>standard error</th>
<th>Study material</th>
<th>standard error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Term Completed Credits (Spring 2020)</td>
<td>0.164***</td>
<td>0.041</td>
<td>0.078</td>
<td>0.042</td>
<td>0.032</td>
<td>0.042</td>
<td>0.053</td>
<td>0.042</td>
</tr>
<tr>
<td>Term Completed Credits (Fall 2020)</td>
<td>0.037</td>
<td>0.030</td>
<td>0</td>
<td>0.030</td>
<td>-0.056</td>
<td>0.03</td>
<td>-0.011</td>
<td>0.03</td>
</tr>
</tbody>
</table>

Standard errors in parentheses * p<0.05   ** p<0.01   *** p<0.001
Frosh Cohort Retention Rates

Freshmen Cohorts Retention Rates

Cumulative Attrition URM/Non-URM Odds Ratio

Analysis: Xunfei Li
### Coursework Term GPA

<table>
<thead>
<tr>
<th>Credits Earned</th>
<th>Coursework Term GPA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Winter 2019</td>
<td>3.00</td>
</tr>
<tr>
<td>Spring 2019</td>
<td>3.25</td>
</tr>
<tr>
<td>Fall 2019</td>
<td>3.25</td>
</tr>
<tr>
<td>Winter 2020</td>
<td>3.50</td>
</tr>
<tr>
<td>Spring 2020</td>
<td>3.75</td>
</tr>
<tr>
<td>Fall 2020</td>
<td>3.75</td>
</tr>
<tr>
<td>Winter 2021</td>
<td>3.25</td>
</tr>
</tbody>
</table>

#### Behavioral Engagement per Course (LMS)

- **Time online (hours)**
- **# discussion posts**
### Classroom Activities and Study Time

**% of class time used for different activities in Fall 2019 and Fall 2020**

<table>
<thead>
<tr>
<th>Activity</th>
<th>Fall 2019</th>
<th>Fall 2020</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture</td>
<td>79.07</td>
<td>57.12</td>
<td>-21.95</td>
</tr>
<tr>
<td>Groupwork</td>
<td>4.54</td>
<td>3.57</td>
<td>-0.97</td>
</tr>
<tr>
<td>Discussion/Other Class Activities</td>
<td>16.39</td>
<td>39.3</td>
<td>22.91</td>
</tr>
<tr>
<td>Study Time</td>
<td>6.51</td>
<td>8.84</td>
<td>2.33</td>
</tr>
</tbody>
</table>

*Note. 1. Amount of Class time on Lecture, Groupwork, Discussions/other: How much of the time while you were in class for your course was spent on: Instructor lecture; Group projects; Class discussion; Other activities in %
2. Studying (out of class): How many hours did you spend studying out of class for your course in a typical week?*
Stress Symptoms
Latent change models

<table>
<thead>
<tr>
<th></th>
<th>T0 stress sympotms</th>
<th>change T0-T1</th>
<th>change T0-T2</th>
<th>change T0-T3</th>
<th>change T0-T6</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>estimate (SE)</td>
<td>estimate (SE)</td>
<td>estimate (SE)</td>
<td>estimate (SE)</td>
<td>estimate (SE)</td>
</tr>
<tr>
<td>Intercept</td>
<td>3.09 (0.07) ***</td>
<td>-0.04 (0.08)</td>
<td>-0.12 (0.09)</td>
<td>-0.34 (0.09) ***</td>
<td>-0.17 (0.09) *</td>
</tr>
<tr>
<td>female</td>
<td>0.08 (0.07)</td>
<td>0.10 (0.08)</td>
<td>0.18 (0.09)  *</td>
<td>0.24 (0.09) **</td>
<td>0.35 (0.09) **</td>
</tr>
<tr>
<td>first-generation</td>
<td>-0.18 (0.07) *</td>
<td>0.06 (0.08)</td>
<td>-0.01 (0.09)</td>
<td>0.03 (0.08)</td>
<td>-0.01 (0.08)</td>
</tr>
<tr>
<td>urm</td>
<td>0.05 (0.08)</td>
<td>-0.04 (0.09)</td>
<td>0.05 (0.09)</td>
<td>0.10 (0.09)</td>
<td>0.09 (0.09)</td>
</tr>
</tbody>
</table>

- baseline models --> change relative to first time point
- unstandardized results
- only students included, who completed at least 3 out of 7 surveys (N=596)
- FIML to account for missing data
- *** p < .001, ** p < .01, * p < .05, + p < .10

- 4 items from K10 scale: During the last 7 days, how often did you feel (1 – none of the time to 5 – all of the time):
  - Nervous
  - So nervous that nothing could calm you down
  - Restless or fidgety
  - So restless you could not sit still

Analysis: Luise von Keyserlingk
Summary and Conclusion

• Project has demonstrated the feasibility of integrating survey, performance assessment, administrative, and LMS data

• University and student adaptations have proven largely effective in promoting continued academic progress

• Student development has multiple dimension. Future research will explore how students during COVID-19 manifested continued growth in some domains, but potentially suffered in others.
Next Generation Undergraduate Success Measurement Project Framework

Postsecondary Growth and Development

- Measures of six key dimensions of postsecondary growth and development from integrated data from student surveys, performance assessments, administrative data, and a learning management system.

<table>
<thead>
<tr>
<th>Cognitive Ability &amp; Intellectual Dispositions</th>
<th>Identity and Life-Course Agency</th>
<th>Self-Regulation Skills</th>
<th>Social Capital</th>
<th>Civic Engagement</th>
<th>Psychological Flourishing &amp; Mental Health</th>
</tr>
</thead>
</table>

Measures aim to inspire and inform efforts to improve institutional performance and advance educational equity.

Life Course Outcomes

Measuring the long-term value of higher education is complex and requires looking at multiple factors.

<table>
<thead>
<tr>
<th>Postgraduate Education, Employment, &amp; Health Outcomes</th>
<th>Social &amp; Psychological Outcomes</th>
<th>Civic Outcomes</th>
</tr>
</thead>
</table>
Contact

richard.arum@uci.edu