Stacking Educational Credentials in Ohio

Statewide Findings and Opportunities for Improvement

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SSLI Data Workshop
July 28th, 2020

Draft: This presentation has not been peer reviewed. Please do not cite or distribute.
Acknowledgments

Funders
The research reported here was supported by the ECMC Foundation and by the Institute of Education Sciences (U.S. Department of Education), through grant R305H190033 to the RAND Corporation. The opinions expressed are those of the authors and do not represent the views of ECMC Foundation, the Institute of Education Sciences, or the U.S. Department of Education.

Data
The Ohio Longitudinal Data Archive is a project of the Ohio Education Research Center (oerc.osu.edu) and provides researchers with centralized access to administrative data. The OLDA is managed by The Ohio State University's CHRR (chrr.osu.edu) in collaboration with Ohio's state workforce and education agencies (ohioanalytics.gov), with those agencies providing oversight and funding. For information on OLDA sponsors, see http://chrr.osu.edu/projects/ohio-longitudinal-data-archive.
Overview of the discussion

• Study background
• Statewide findings from 2005-2015
  – Who was stacking credentials?
  – What types of credentials?
  – How did students progress as they stacked credentials?
  – Key takeaways and areas for improvement
• A four-step process for improving stackable credential pipelines at the institutional level
Ohio is interested in ensuring a strong system of stackable credentials

The state has an interest in supporting workforce development in key fields with middle skills job opportunities

The state established policies and initiatives supporting stackable credentials, such as:

- 2009: Stackable credentials legislation
- 2010-2014: Federal funding to support stackable programs (TAAACT grants)
- 2013-today: Statewide transfer initiatives
Stackable credentials can potentially offer benefits to students and employers

More flexible pathways for students where long-term continuous degree enrollment is a challenge
- Students who aren’t interested in or able to complete a degree can still get credit for postsecondary coursework
- Students with technical certificates have the opportunity to apply that credit toward a degree

A more intentional and effective mix of classroom learning and on-the-job experience in applied fields
But little is known about what is happening in terms of the stacking of credentials

- Very few research studies
  - Large literature looking at economic returns to certificates
  - One national study classifying different types of stacking
  - Several different reports on stacking in California community colleges

- Many unanswered questions
  - Who is stacking credentials in Ohio?
  - What types of educational credentials are being stacked?
  - How are students progressing through credentials?
  - How is employment related to educational participation?

Understanding how stackable credentials are working can help to identify areas for improvement
ODHE and RAND partnered to examine stacking and stackable programs in Ohio

<table>
<thead>
<tr>
<th>Study timeline</th>
<th>December 2018-June 2021</th>
</tr>
</thead>
</table>
| **Key study activities** | • Analysis of stackable program offerings  
• Analysis of individual-level data to track progression and outcomes in education, employment  
• Interviews with institutions to learn about stackable credential programs |
| **Deliverables** | • 2 descriptive RAND reports  
• 2 journal articles  
• Toolkit and 2 webinars for institutions  
• Presentations to state and national audiences |
| **Funders** | ECMC Foundation and U.S. Department of Education |
Our first report focused on three aspects of the stackable credential pipeline

1) Who is completing stackable credentials?
   • Has completion of certificates and stacking increased over time?
   • What types of students complete certificates and stackable credentials?

2) Which types of credentials are students completing?
   • Which levels of credentials?
   • Which types of programs?

3) How are students progressing through credentials?
   • Where do students earn their first credential?
   • Do students earn additional credentials at the same institution?
   • Do stackers have excess credit hours and more terms of enrollment?

4) How is employment related to stacking credentials?
   • Are employed students less likely to stack?
   • Are strong labor market conditions related to more stacking?
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• A four-step process for improving stackable credential pipelines at the institutional level
First we examined which students were stacking credentials

1) Who is completing stackable credentials?
   • Has completion of certificates and stacking increased over time?
   • What types of students complete certificates and stackable credentials?
Certificates earned increased over time in some fields.

- **Healthcare**
  - 2005: 185
  - 2013: 244

- **MET**
  - 2005: 436
  - 2013: 905

- **IT**
  - 2005: 178
  - 2013: 244
The percentage of certificate-earners stacking credentials over time in healthcare increased.

![Graph showing the percentage of certificate-earners stacking credentials over time in healthcare.](image)

Note: This figure represents the percentage of certificate-earners who went on to stack within two years. Calculations were based on the numbers of certificate-earners by year and field listed in the figure on the previous slide.
Certificate programs were relatively popular among traditionally underserved populations.

Note: Certificate calculations were based on the following numbers of certificate-earners by field: 30,092 (health care), 6,613 (MET), and 2,203 (IT). Degree calculations are based on the following numbers of individuals earning associate’s degrees by field: 62,958 (health care), 17,561 (MET), and 8,042 (IT).
Yet black certificate-earners were less likely to go on to stack additional credentials

Note: Calculations were based on the following numbers of certificate-earners by race/ethnicity and field: 2,604 (black, health care), 605 (black, MET), 186 (black, IT), 551 (Hispanic, health care), 130 (Hispanic, MET), 36 (Hispanic, IT), 23,424 (white, health care), 5,030 (white, MET), and 1,616 (white, IT).
Adult learners who earned certificates were also less likely to go on to stack additional credentials.

Note: Calculations were based on the following numbers of certificate-earners by age group and field: 19,671 (age 25+, health care), 4,390 (age 25+, MET), 1,578 (age 25+, IT), 10,421 (age <25, health care), 2,223 (age <25, MET), and 625 (age<25, IT).
Next we examined the types of credentials that students stacked.

2) Which types of credentials are students completing?
   • Which levels of credentials?
   • Which types of programs?

- Certificate
- 2nd Credential (Certificate or Degree)
- 3rd Credential (Certificate or Degree)

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Within four years of earning a certificate, most students who had stacked had earned a degree.

Note: Calculations were based on the following numbers of certificate-earners by field: 6,412 (health care), 2,444 (MET), and 937 (IT).
One in four students stacked credentials outside of their certificate field

Note: Calculations were based on the following numbers of certificate-earners who went on to earn additional credentials within four years by field: 6,412 (health care), 2,444 (MET), and 937 (IT).
Then we examined student progression through credentials

3) How are students progressing through credentials?
   - Where do students earn their first credential?
   - Do students earn additional credentials at the same institution?
   - Do stackers have excess credit hours and more terms of enrollment?
Most certificates in Ohio were earned at community colleges.

![Bar chart showing the percent of first-time certificate earners by institution type for different fields: Overall, Healthcare, MET, and IT.](chart)

Percent of First-Time Certificate Earners by Institution Type

- **Overall**: 16% OTC, 80% Community college, 4% University
- **Healthcare**: 19% OTC, 77% Community college, 4% University
- **MET**: 7% OTC, 90% Community college, 4% University
- **IT**: 5% OTC, 83% Community college, 13% University

Note: Calculations were based on the following numbers of first-time certificate-earners by field: 30,092 (health care), 6,613 (MET), and 2,203 (IT).
Rates of stacking varied depending on where a first certificate was earned

Note: Calculations were based on the following numbers of certificate-earners by institution type and field: 4,086 (OTC, health care), 274 (OTC, MET), and 71 (OTC, IT), 16,179 (community college, health care), 4,440 (community college, MET), and 1,318 (community college, IT), 745 (university, health care), 162 (university, MET), and 234 (university, IT).
Students who stacked accumulated more credits than those going straight to the AA

<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>By field</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall</td>
<td>102.2</td>
<td>118.8</td>
<td>86.9</td>
<td>17.1</td>
</tr>
<tr>
<td>Healthcare</td>
<td>107.7</td>
<td>119.8</td>
<td>89.0</td>
<td>20.9</td>
</tr>
<tr>
<td>MET</td>
<td>93.3</td>
<td>121.7</td>
<td>82.1</td>
<td>12.1</td>
</tr>
<tr>
<td>IT</td>
<td>93.8</td>
<td>83.9</td>
<td>81.1</td>
<td>13.3</td>
</tr>
<tr>
<td>By race/ethnicity</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>103.5</td>
<td>116.5</td>
<td>88.1</td>
<td>17.2</td>
</tr>
<tr>
<td>non-White</td>
<td>97.1</td>
<td>132.4</td>
<td>89.7</td>
<td>17.6</td>
</tr>
<tr>
<td>By adult/non-adult learner</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adult learner</td>
<td>97.4</td>
<td>115.8</td>
<td>83.5</td>
<td>15.9</td>
</tr>
<tr>
<td>Non-adult learner</td>
<td>109.6</td>
<td>121.9</td>
<td>93.9</td>
<td>17.3</td>
</tr>
</tbody>
</table>

Note: Ns for these calculations are presented in a back-up slide.
Overall, we found evidence that aligns with Ohio efforts to encourage stacking

- Increased numbers of certificate-earners, especially in healthcare and MET fields
- Increased rate of stacking among healthcare certificate-earners over time
- Participation of traditionally underserved populations in stackable programs
- Stacking of credentials happening across institution types
We also identified possible areas for improvement in the pipeline

- Limited growth in stacking in IT and manufacturing and engineering technology during this time period
- Black students and adult learners who earned certificates were less likely to go on to earn additional credentials
- Students who started at OTCs stacked at lower rates
- Stacking across institutions was infrequent
- Stackers earned additional credit hours and had more terms of enrollment
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• A four-step process for improving stackable credential pipelines at the institutional level
State-level research findings are insufficient for driving on-the-ground improvement

• Unclear if historical patterns represent current ones, or whether statewide issues are also problematic at your institution
• Findings don’t point to what institutional practices, policies, or program components are driving the patterns in the data and how these “root causes” can be addressed
• Institutions need a way to assess improvements as they are made

We recommend a four-step continuous improvement process.
## Step 1: Collect and assess evidence at your institution

<table>
<thead>
<tr>
<th>Types of Questions Institutions Might Examine</th>
<th>Types of Data Used to Examine Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do patterns in the data from our institution look similar to patterns in data from the state? How do we compare to other institutions?</td>
<td>Administrative data</td>
</tr>
<tr>
<td>How do programs, policies and practices within the institution or broader educational system contribute to the issue?</td>
<td>Admin data, surveys, focus groups, documents, observations,</td>
</tr>
<tr>
<td>To what degree are issues identified in one program or classroom present across classrooms, programs, student subgroups and/or campuses across the institution?</td>
<td>Administrative data, surveys</td>
</tr>
<tr>
<td>What do key stakeholders (e.g., faculty, advisors, students) see as the biggest barriers that might prevent students from stacking credentials? Where can improvements be made to better support students and/or staff?</td>
<td>Surveys, focus groups, interviews</td>
</tr>
<tr>
<td>Where does the institution have leverage to make changes to programs, policies and/or practices within the institution or broader system? What are the pros and cons of making adjustments?</td>
<td>Surveys, focus groups, interviews, document review</td>
</tr>
</tbody>
</table>
Step 2: Identify a “root cause” (or problem of practice) you’d like to address

Assemble a team of stakeholders representing the full range of individuals who play a role in the stackable credential pipeline, which may include administrators, faculty, other school staff, students and/or external stakeholders
Step 2: Use a fishbone diagram to map out “root causes”

Fill in the stackable credentials issue at the mouth of the fish.
Step 2: Use a fishbone diagram to map out “root causes”

With the full team’s input, define the different categories of things that might cause that issue (e.g., academic barriers, institutional policies).
Step 2: Use a fishbone diagram to map out “root causes”

Ask “Why does this happen?” to identify different causes of the problem, and record these causes on the “bones” of the fish.
Step 2: Identify a “root cause” you’d like to address

Choose an area to focus improvement efforts based on (1) which “root causes” are the most critical to driving the issue and (2) where the institution has leverage to make changes.
### Step 3: Determine what to change and how to measure improvement

<table>
<thead>
<tr>
<th>Aim: What are you trying to accomplish?</th>
<th>Set a specific goal for what you’d like to achieve with regard to the problem of practice, including numbers and timelines.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measures: How will you know that a change is an improvement?</td>
<td>Identify key measures that tell you whether the change is being rolled out properly and whether it is driving improvement related to the “root causes” identified in Step 2.</td>
</tr>
<tr>
<td>Changes: What changes will you make that will result in improvement?</td>
<td>What change(s) does the team want to test out in a Plan-Do-Study-Act cycle(s) to make improvements?</td>
</tr>
</tbody>
</table>
Step 4: Conduct a Plan-Do-Study-Act cycle
PDSA cycles: Key activities in the Plan stage

- Determine how you will track measures (which data?), make predictions
- Define key activities
- Assign roles and responsibilities
- Develop a timeline
PDSA cycles: Key activities in the Do stage

- Test out a new improvement
- Provide clear guidance and ongoing support around how the improvement is implemented
- Collect data that informs improvement
PDSA cycles: Key activities in the Study stage

- Assess the data
- Reflect on findings with broad group of stakeholders
- Document what was learned
PDSA cycles: Key activities in the Act stage

- Determine what actions you will take
- Share findings and improvement plans broadly
- Identify questions that require further study
An example: An institution considers rates of stacking among lack students

Overall Healthcare MET IT

Percent Stacking within Two Years

- Overall: 27% Black, 30% White
- Healthcare: 24% Black, 26% White
- MET: 38% Black, 47% White
- IT: 44% Black, 55% White

Legend: Orange = Black, Purple = White
Step 1: The institution collects evidence to assess the issue in its own context

<table>
<thead>
<tr>
<th>Questions You’d Like to Answer</th>
<th>Data Source(s) Used to Address Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>How do the rates of credential-stacking vary by race/ethnicity among students who complete certificates in various fields?</td>
<td>Administrative data</td>
</tr>
<tr>
<td>Are Black students more or less likely to pursue fields where there are opportunities for stacking credentials?</td>
<td>Administrative data</td>
</tr>
<tr>
<td>To what degree are students aware of their opportunities to stack credentials, and how does this vary by race/ethnicity?</td>
<td>Student survey</td>
</tr>
<tr>
<td>Does the proportion of certificate-earners who plan to return to earn additional credentials at some point vary by race/ethnicity?</td>
<td>Student survey</td>
</tr>
<tr>
<td>What are the biggest barriers to returning to stack credentials? Do these barriers vary by race/ethnicity?</td>
<td>Focus groups with students, faculty, and advisors</td>
</tr>
</tbody>
</table>
Step 2: The institution identifies an issue they’d like to address

- Students
  - Greater likelihood of facing economic challenges
  - Students prefer programs with few options for stacking
- Advising
  - Limited awareness of options to stack
  - Info on the website not clear
  - Advisor bias in recommendations
- Developmental education requirements hard to meet
- Barriers to transferring credit
- Budget limitations
- Limited supply of work-based learning opportunities
- Lower rates of course attendance

Other rules, policies, procedures

Courses/Instruction

Issue: Lower rates of stacking among black students
Step 3: The institution determines what to change, how to measure improvement

<table>
<thead>
<tr>
<th>Aim: What are you trying to accomplish?</th>
<th>We would like to eliminate racial/ethnic differences in awareness of stackable credential opportunities within 18 months.</th>
</tr>
</thead>
</table>
| Measures: How will you know that a change is an improvement? | • Student awareness of follow-on opportunities  
• Student plans to continue to earn additional credentials  
• Student satisfaction with the information and advising received  
• Student engagement with advisors, the website, and other informational resources |
| Changes: What changes will you make that will result in improvement? | 1) Mandatory advising sessions in the last month before completing certificate programs to inform students about stackable credential opportunities in their field.  
2) Improvements to the website to more prominently display program and career maps. |
Step 4, Plan: The institution lays out activities, assigns roles and responsibilities

<table>
<thead>
<tr>
<th>Activity</th>
<th>Faculty</th>
<th>Advisors</th>
<th>Deans, VP</th>
<th>Inst Research</th>
<th>Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Develop advising strategy</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Train advisors</td>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assign students to advising sessions</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Conduct advising sessions</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Administer survey, collect advising data</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Assess and reflect on data</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Create and act on plan for improvement</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>
Step 4, Plan: The institution lays out a timeline
Step 4, Do/Check: The institution rolls out the change, collects and assesses the data

- The majority of students attend the sessions (participation rates similar for Black and White students)
- Awareness and plans to re-enroll into follow-on programs was higher among students who attended sessions
- Fewer than 75% of sessions touched on stackable credential programs
Step 4, Act: The institution acts on the evidence

- **Scale improvements?** Yes
- **Continue to refine?** Yes, provide more guidance to advisors on what to discuss.
- **Conduct additional PDSA cycles?** Yes, continue to assess advising requirement as it is modified and scaled.
- **Additional questions to address?** No
Resources

Report on stackable credentials:
https://www.rand.org/pubs/research_reports/RRA136-1.html

Toolkit (to be released in late September, email to come):
https://www.rand.org/pubs/research_reports/TLA136-1.html
Questions?

For additional information on the study, please contact:

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