Year 2 Impacts of North Carolina’s Rural Innovative Schools Project

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Background: Early colleges are high school reform efforts that merge the high school and college experience. The original models were primarily small schools of choice located on college campuses. These schools were shown to have positive impacts on a host of outcomes including college preparatory coursetaking, student behavior, staying in school, and enrolling in and graduating from postsecondary education (Berger, Turk-Bicakci, Garet, Knudson, & Hoshen, 2014; Berger et al., 2013; Edmunds et al., 2012; Edmunds et al., in press; Edmunds, Willse, Arshavsky, & Dallas, 2013). In light of these positive findings, groups began exploring the possibilities of implementing early colleges in other settings. Funded by a 2012 Investing in Innovation (i3) Validation grant, the Rural Innovative Schools (RIS) Project was the first widespread effort to scale up the early college model by implementing it in comprehensive high schools. This paper will present Year 2 findings from the evaluation of this project.

Goals of the Study: This study was designed to answer the following research question:

What has been the impact of participation in the RIS Project on student outcomes including student enrollment and success in college-credit bearing courses (dual credit and AP); graduation rates; student attendance; dropout rates; and successful completion of college preparatory courses?

Setting: In this project, the early college model was implemented in 18 comprehensive high schools in 10 rural, low-income school districts across the state of North Carolina.

Sample: The sample for this study consisted of 18 treatment schools and 18 comparison schools in North Carolina. Five treatment schools began their participation in the project in 2012-2013 and 13 schools began participating in the 2013-2014 school year. The treatment schools were matched to a set of comparison schools to ensure that the differences between the baseline measures of the outcome and selected demographic characteristics were less than .25 standard deviations. Because good matches could not be obtained across all outcomes simultaneously, each outcome was analyzed using a separate matched sample. Table 1 shows baseline equivalence for the samples analyzed for this paper; equivalence is presented for both the outcome and the percent minority and percent poverty in the sample.

TABLE 1 HERE

Intervention: The RIS Project was designed to increase the number of students who graduate from high school and are prepared for enrollment and success in postsecondary education. The project included a suite of services intended to support implementation of a whole-school reform model emphasizing the creation of a college-preparatory school environment. The first column in
the logic model (Figure 1) shows the specific support activities provided to the schools. Column 2 delineates the six Design Principles that schools were expected to implement as a result of these services: 1.) Ensuring that students are ready for college; 2.) Instilling powerful teaching and learning in schools; 3.) Providing high student/staff personalization; 4.) Redefining professionalism; 5.) Creating leadership that develops a collective vision; and 6.) Implementing a purposeful design in which school structures support all of the above principles. A primary emphasis of the program was increasing the number of students who participated in college credit-bearing courses while in high school.

FIGURE 1 HERE

Research Design: The study used a quasi-experimental design to assess the impact of the RIS Project on a core set of student outcomes. As described above in the sample section, treatment schools were matched to schools that were equivalent on a core set of baseline characteristics.

Data Collection and Analysis: The study used administrative data collected from the schools by the North Carolina Department of Public Instruction and housed at the North Carolina Education Research Data Center at Duke University. Core outcomes included:

- The percentage of 11th graders who had ever taken a college credit-bearing course, which includes Advanced Placement, dual credit, and International Baccalaureate courses;
- The average number of college credit-bearing courses successfully completed by 12th graders;
- The cohort graduation rate as calculated by North Carolina’s Department of Public Instruction;
- The average number of absences for all students in the school;
- The percentage of 10th, 11th, and 12th graders in the school who dropped out; and
- The percentage of 9th graders who were on-track for successfully completing a college preparatory course of study, defined as taking and passing English I and a college preparatory math course (Algebra I or its equivalent or higher).

Impacts were estimated using hierarchical linear modeling (HLM) (Raudenbush & Bryk, 2002) that incorporated school and student-level covariates.

Results: Results show that, after the first two years of implementation, a statistically significantly higher percent of students in Rural Innovative Schools were taking college credit-bearing courses as compared to students in the comparison schools. Thirty-five percent of 11th graders in Rural Innovative High Schools had taken at least one college credit-bearing course compared to 26 percent of 11th graders in the comparison schools (a 9 percentage point impact, Hedges’ $g=.19$). Students in Rural Innovative Schools also had also successfully completed more college courses (an average of 1.5 courses vs. .8 courses, Hedges $g=.32$).

There were no statistically or practically significant impacts on any of the other outcomes examined. Table 2 presents the results for all outcomes.

TABLE 2 HERE
**Conclusions:** Results from this study suggest that the first changes implemented in comprehensive high schools related to the increased availability of college credit. This is not unexpected given that the college credit component is one of the unique aspects of the project and can be more easily implemented than other changes, such as changing instruction. So far, the results for comprehensive high schools are less positive than the results for the small early colleges of choice. This may also be expected as the small early colleges were started from scratch with very specific college-going cultures (Edmunds, 2012). It is possible that the changes in college credits will ultimately lead to other changes in the comprehensive high schools; we will explore this with continued research.
### Table 1a: Baseline Equivalence Information, Outcomes A-C

<table>
<thead>
<tr>
<th>Outcome</th>
<th>A: % 11&lt;sup&gt;th&lt;/sup&gt; graders enrolled in college credit-bearing courses (Grade 11 only)</th>
<th>B: # of college credit-bearing courses completed by 12&lt;sup&gt;th&lt;/sup&gt; grade (Grade 12 only)</th>
<th>C: Cohort Graduation Rate (Entire school)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Outcome (%)</td>
<td>Poverty (%)</td>
<td>Minority (%)</td>
</tr>
<tr>
<td>Control Mean</td>
<td>22.30</td>
<td>56.53</td>
<td>39.73</td>
</tr>
<tr>
<td>TX Mean</td>
<td>23.02</td>
<td>55.39</td>
<td>38.54</td>
</tr>
<tr>
<td>p value</td>
<td>0.86</td>
<td>0.75</td>
<td>0.89</td>
</tr>
<tr>
<td>Hedges g</td>
<td>-0.06</td>
<td>0.11</td>
<td>0.05</td>
</tr>
</tbody>
</table>

Note: Baseline treatment means for poverty and minority vary by outcome because the samples for the different outcomes are defined differently.

### Table 1b: Cohorts 1, 2, and 3 Baseline Equivalence Information for Outcomes D-F

<table>
<thead>
<tr>
<th>Outcome</th>
<th>D: Days Absent (Entire school)</th>
<th>E: Dropout Rate (Grades 10-12 only)</th>
<th>F: College Preparatory Success (Grade 9 only)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Outcome (%)</td>
<td>Poverty (%)</td>
<td>Minority (%)</td>
</tr>
<tr>
<td>Control Mean</td>
<td>9.48</td>
<td>58.45</td>
<td>38.08</td>
</tr>
<tr>
<td>TX Mean</td>
<td>9.63</td>
<td>60.91</td>
<td>37.94</td>
</tr>
<tr>
<td>p value</td>
<td>0.84</td>
<td>0.55</td>
<td>0.99</td>
</tr>
<tr>
<td>Hedges g</td>
<td>-0.06</td>
<td>-0.20</td>
<td>0.00</td>
</tr>
</tbody>
</table>

Note: Baseline treatment means for poverty and minority vary by outcome because the samples for the different outcomes are defined differently.
Figure 1: Logic Model for Rural Innovative Schools

**Key Components**
- Integrated Systems of Support around Design Principles
- Common Instructional Framework
- Instructional Coaching
- Leadership Coaching and Professional Development
- Teaching for Results
- Professional Development
- NCNS Staff Support
- Support for College Credit Courses
- Assistance in developing Postsecondary Partnerships
- Funding for college courses
- College liaison

**School-level Outcome: Design Principles**
- Students' School Experiences
- College Readiness: Subsequent curriculum, opportunities to earn college credit
- Powerful Teaching and Learning: Common Instructional Framework
- Personalization: Students become known, academic and affective supports

**Intermediate Student Outcomes**
- Increased college prep course-taking and success (both courses and level)
- Increased college course-taking (including AP and dual credit)

**Long-term Student and Policy Outcomes**
- Decreased dropouts
- Increased graduation
- Increased enrollment and success in college
- Change in state policies

**Structures to Support other Design Principles**
- Purposeful design: structures and schedules in place; strong IME partnership

**Supportive district and community context**

**Contextual Factors influencing Implementation**
- Career and College Promise policies, Common Core, Alignment to existing district initiatives, Leadership’s openness to change, Staff and community buy-in
Table 2:

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Dependent Variable</th>
<th>Treatment Group</th>
<th>Comparison Group</th>
<th>Year 2 Impact Estimate (SE)</th>
<th>Hedge's g</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Proportion of students enrolled in at least one college-credit bearing course by end of 11th grade</td>
<td>2485 0.35 0.47</td>
<td>3452 0.26 0.44</td>
<td>0.09*(0.03)</td>
<td>0.19</td>
</tr>
<tr>
<td>B</td>
<td>Average number of college credit bearing courses successfully completed by end of 12th grade</td>
<td>2568 1.47 2.50</td>
<td>3158 0.79 1.80</td>
<td>0.68**(0.20)</td>
<td>0.32</td>
</tr>
<tr>
<td>C</td>
<td>Average proportion of students graduating high school</td>
<td>18 0.84 0.07</td>
<td>18 0.84 0.08</td>
<td>0.00(0.02)</td>
<td>-0.01</td>
</tr>
<tr>
<td>D</td>
<td>Average absences per student</td>
<td>10811 8.29 8.78</td>
<td>10892 8.36 8.94</td>
<td>-0.07(0.94)</td>
<td>-0.01</td>
</tr>
<tr>
<td>E</td>
<td>Proportion of students dropped out of school</td>
<td>8238 0.03 0.15</td>
<td>10836 0.03 0.16</td>
<td>0.00(0.00)</td>
<td>0.00</td>
</tr>
<tr>
<td>F</td>
<td>Proportion of students succeeding in college preparatory courses in 9th grade</td>
<td>3239 0.78 0.43</td>
<td>4153 0.75 0.43</td>
<td>0.03(0.03)</td>
<td>0.07</td>
</tr>
</tbody>
</table>
References


