The Rural Early College Network (RECN)

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FINAL EXTERNAL EVALUATION REPORT

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Executive Summary

## Introduction and Program Design

The Rural Early College Network (RECN) aimed to help rural Indiana schools more quickly implement the Early College (EC) model with fidelity and increase the number and quality of Early College programs throughout rural parts of the state. The initiative was led by the Center of Excellence in Leadership of Learning (CELL) at the University of Indianapolis. Since 2003, CELL has guided the implementation of Early College throughout Indiana and served as the endorsing body for high-quality Early College programs in the state. Starting in October 2019, five mentor schools that had achieved Early College endorsement at the beginning of the project supported three groups of five schools each (partner schools) that started in RECN in the 2019-20 (Tier 1), 2020-21 (Tier 2), and 2021-22 (Tier 3) school years, respectively. In total, the RECN grant served educators and students in 20 schools.

CELL facilitated network activities and provided educators with support that promoted Early College endorsement and career readiness. Schools enhanced their Early College programs by creating more opportunities for students to successfully earn dual credits, increasing the number of instructors with credentials to teach Early College courses, and gaining professional learning experiences. In addition, schools implemented school-level changes to enhance Early College and implement Early College supports with cohorts of students in Grades 9 and 10.

The project activities were designed to address three goals by the end of the grant period:

1) Increase students' college readiness and postsecondary enrollment,
2) Increase students' career readiness and opportunities, and
3) Increase efficiencies and build capacity for rural schools to implement Early College.

RECN was implemented in 15 schools across the state, representing a significant portion of Indiana's rural areas. All program schools qualified as rural by having an NCES locale code of 32-43. The map on the right shows the locations of each school. Each color represents a "Quad" of mentor, Tier 1, Tier 2, and Tier 3 schools paired together. The shapes of each map point represent the school's program status as a mentor, Tier 1, Tier 2, or Tier 3 school.
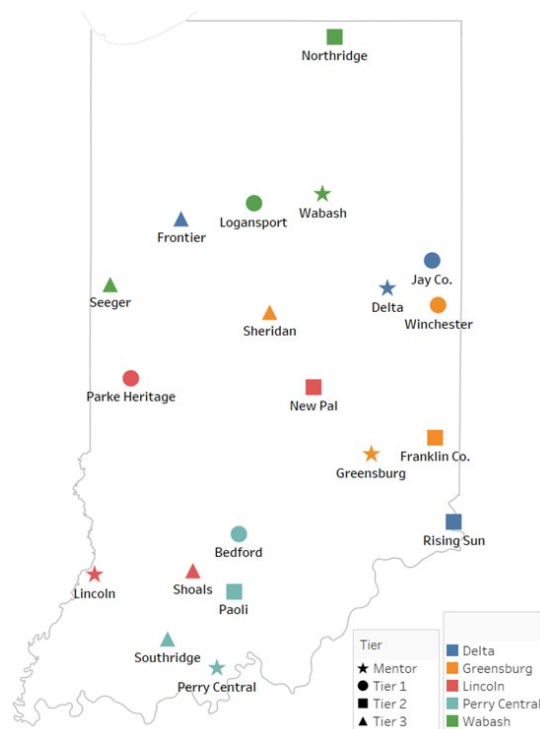
Evaluation Design. The program activities contributing to the three RECN goals occurred at three different levels: 1) within the whole network, 2) with schools and their School Leadership

Teams (SLTs), and 3) with cohorts of students in Grades 9 and 10. The evaluation design was structured to look at these three levels of activities.

(RCT) Measuring early high school impacts for the 9th and 10th grade student cohorts determined by lottery (Meets What Works Clearinghouse *without* Reservations)

(QED) Measuring impacts at the school-level for a range of grade 9-12 outcomes (Meets What Works Clearinghouse *with* Reservations)

Measuring descriptive outcomes for the network as a whole
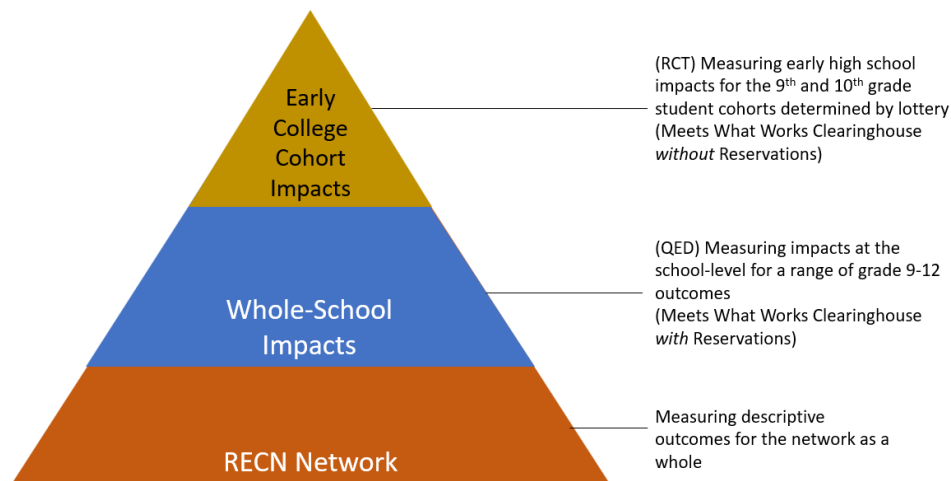
Logic Model. The RECN logic model identifies the components of the intervention aligned to three levels. The first level (in gold) relates to the targeted Early College cohort intervention, whose impact was assessed with the randomized controlled trial (RCT). The second level aligns with school-level supports (in blue), whose impact was assessed with the quasi-experimental (QED) study. The third level (in orange) aligns with network support activities designed to create sustainable structures that support and scale Early College during and beyond the grant period. The combined logic model illustrates the relationships between the activities, mediating factors, and outcomes. More details are available in Section I of the full report.
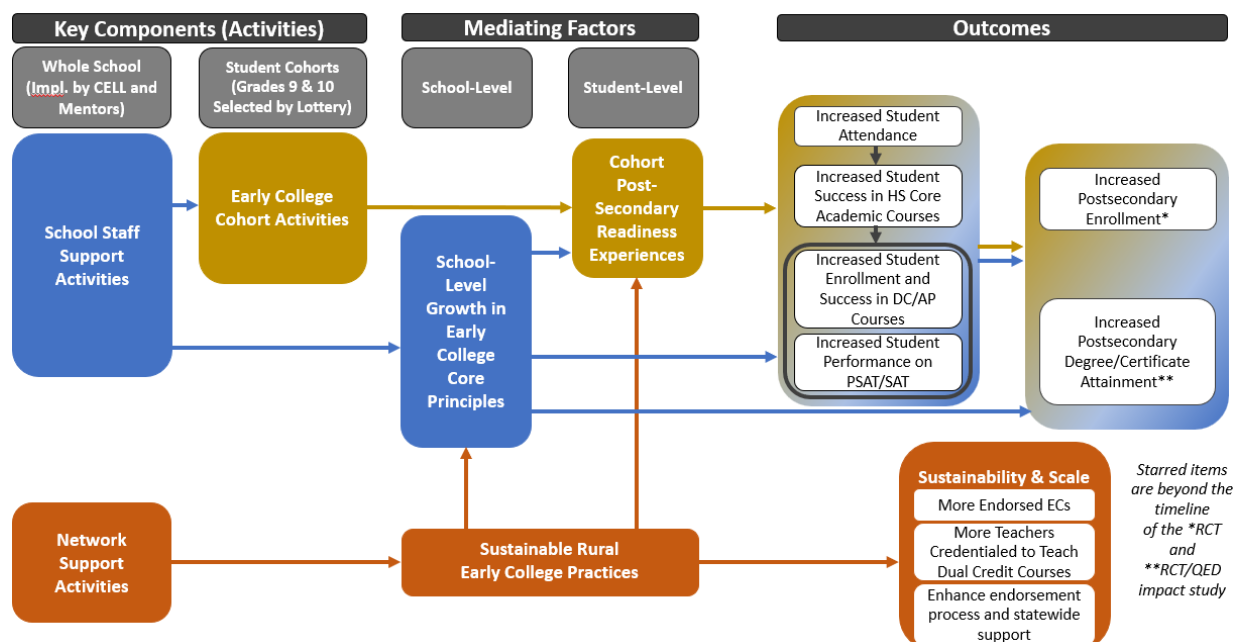
Indiana's Early College Model and RECN Context

The early college model began as small, stand-alone high schools across the United States. With only a few exceptions, Indiana does not have stand-alone early college high schools; rather, Early College programs are implemented as pathways within existing high schools. This pathway-within-school implementation of Early College involves a subset of students participating as a cohort and taking multiple college-level courses (up to an associate degree). In some schools, nearly all students participate in the Early College program, while in others, it is a small proportion of the student body.

Indiana has a well-established and legislatively defined dual credit and Early College program. In Indiana, "'dual credit' is the term given to courses in which high school students have the opportunity to earn both high school and college credits in the same course. Dual credit courses are taught by high school faculty, college faculty, or adjunct college faculty either at the high school, at the college or university, or sometimes through online courses or distance education. Dual credit is offered by both state and independent (private, regionally accredited) colleges and universities."[1] At the outset of RECN in 2019, each school was required to offer a minimum of two dual credit courses. In 2024, the state legislature passed Senate Bill 8, which requires all high schools to have a plan to offer the Indiana College Core (ICC), a 30-credit block of transferable general education courses that allows students to enter college with a full year of credit.[2]

Early College High School is an intensive, accelerated program, also defined in Indiana law, that allows students to earn both a high school diploma and one of the following in four high school years:

- An associate degree approved by the Indiana Commission for Higher Education; or
- The Indiana College Core (30 hours of general education coursework).[3]

Core Principles and Endorsement. CELL has established an endorsement process that allows Early Colleges to be officially recognized by the Indiana Commission for Higher Education as high-quality implementers. This endorsement process utilizes the EC Core Principles Rubric (summarized in Table ES-1) to assess whether the EC Core Principles have been implemented at a high level. The rubric describes various levels of implementation of two to three indicators for each of the EC Core Principles. According to CELL, "This rubric defines the benchmarks that Early Colleges must attain in order to earn official endorsement as a high-quality, high-impact program."

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[1] https://www.in.gov/doe/students/dual-credit/

[2] https://iga.in.gov/legislative/2024/bills/senate/8/details

[3] https://transferin.net/ways-to-earn-credit/statewide-transfer-general-education-core-stgec/. Note that at the outset of the project, this credential was called the Statewide Transfer General Education Core (STGEC).

Table ES-1. Description of the Eight Early College Core Principles

Core Principle	Description
1. Targeted Student Population	Focuses on recruiting and supporting students who may struggle to attend college without additional support, starting as early as middle school.
2. Curriculum and Plan of Study	Provides access to a 30+ credit Indiana College Core (ICC) pathway, aligns with college partners, and supports student readiness for dual credit.
3. College-Going Culture	Promotes a strong expectation of college success through college visits, visual displays, and regular conversations about postsecondary plans.
4. Rigorous Instruction	Ensures dual credit courses meet college-level rigor and emphasize literacy, project-based learning, and 21st-century skills.
5. Supports for Student Success	Offers academic and non-academic support (e.g., advisory periods) to help students succeed, also with a focus on family engagement.
6. Collaboration and Partnerships	Builds strong relationships with higher education and business partners to support advising, curriculum alignment, and career exploration.
7. Leadership and Staffing	Establishes School Leadership Teams and supports teacher credentialing and professional development for dual credit instruction.
8. Data Collection, Analysis, and Use	Uses data to identify students, track performance, and inform decisions about instruction and student support.

The eight Core Principles are designed to support three main Early College goals: 1) providing students with access to a pathway leading to a credential (ICC), 2) expanding access to the ICC pathway to targeted students, and 3) preparing students for the transition to college in all aspects of college readiness. Schools at the beginning of developing their Early College programs focused on providing students with access to the entire ICC pathway, specifically on staffing, to ensure that the schools had enough qualified teachers to offer the ICC.

Throughout the RECN grant period, schools assigned ratings to their programs based on the Core Principles rubric. Note that these were *self-reported* ratings that reflected each SLT's perspective on the degree to which they were implementing the Core Principles; however, schools were asked to document evidence of their Early College implementation in each Core Principle as they prepared for endorsement. As noted in Table ES-2, all groups of schools grew in their implementation of each Core Principle during the grant period. The highest ratings were observed in the Core Principles related to infrastructure for offering dual credit courses, specifically in the areas of Curriculum/Plan of Study, Collaboration and Partnerships, and Leadership and Staffing. More details about the implementation of the Core Principles are provided in Sections II and IV of the full report.

Table ES-2. RECN Early College Core Principle Self-Assessment Summary

Core Principle	Rubric Indicator	Tier 1			Tier 2			Tier 3	
		Year 2	*Year 3*	*Year 4*	*Year 2*	*Year 3*	*Year 4*	*Year 3*	*Year 4-5*
Targeted Student Pop.	Recruitment Plan	3.9	4.2	4.8	3.0	4.0	4.8	3.3	3.8
	Application & Selection	3.5	4.4	4.8	3.2	4.6	4.8	3.8	4.1
Curriculum/ Plan of Study	Pathway	4.5	4.6	5.0	4.2	4.8	4.8	4.5	4.8
	Dual Credit Offerings	4.5	4.8	5.0	4.2	4.8	5.0	4.5	5.0
	Placement & Supports	4.2	4.0	4.4	3.6	4.4	4.8	4.8	4.0
College-Going Culture	College-Going Culture	3.5	4.2	4.2	2.8	3.8	4.6	3.5	4.0
	College Visits	3.3	4.6	4.6	1.8	3.8	4.5	3.8	4.3
Rigorous Instruction	Rigor in Instruction	4.1	4.0	4.3	3.4	3.8	4.6	4.2	4.3
Supports for Student Success	Continuum of Supports	3.5	3.8	4.2	2.6	4.0	4.4	3.7	3.8
	Parent Outreach	3.5	3.6	4.0	2.8	3.2	4.4	3.0	4.3
Collaboration & Partnerships	Higher Education	4.3	4.4	4.8	3.8	4.6	5.0	4.4	5.0
	Business & Community	3.5	3.8	4.2	2.4	3.4	4.2	2.6	4.0
Leadership & Staffing	Staffing Plan	3.9	4.2	4.4	3.0	4.0	5.0	3.2	4.0
	Professional Development	2.7	3.4	4.2	2.9	3.2	3.7	3.2	3.8
	School Leadership Team	N/A	4.4	4.8	N/A	4.4	4.6	4.2	4.3
Data Coll., Analysis, & Use	Formative Data for Prgm Monitoring & Adj.	3.1	3.6	4.0	2.6	3.4	4.2	3.4	3.5
	Summative Data to Evaluate Prgm Eff.	2.9	3.2	3.8	2.2	3.0	4.0	2.6	3.5

Rubric Rating

2.0 or lower ░░░░░░░░ 5.0

Implementation Results

The evaluation team examined whether the program activities (Key Components) were implemented with fidelity. Fidelity of Implementation (FOI) involved setting target levels of implementation of program components and assessing whether those targets were met. EIR programs were required to report FOI in two program years; for RECN, the evaluation team collected pilot fidelity data in Year 2 and official fidelity data in Years 3 and 4. These years overlap with the outcome data from the 2021-22 and 2022-23 school years, at which point all RECN schools were implementing the program. The evaluation team assessed each school for fidelity at the indicator level. A school met fidelity for a Key Component if it received a score of 1 for *all* indicators under it. If 80% of the schools met fidelity for a Key Component, program fidelity was met.

Key Component 1: Student Cohort Activities in Grades 9 and 10. Key Component 1 for the cohort intervention included 1) cohort selection and common structures, 2) college exposure activities, 3) career exposure activities, 4) advising and support, and 5) staff collaboration for Early College cohorts. The FOI results for the cohort study are summarized in Table ES-3.

Table ES-3. FOI Summary for Key Component 1 – Student Cohorts in Grades 9 and 10

Key Component and Indicator	Year 3		Year 4	
	# of Schools Meeting	Program Fidelity Met	# of Schools Meeting	Program Fidelity Met
Cohort Selection and Common Structures (KC 1.1)	**12/15**	**Yes**	**15/15**	**Yes**
Cohort selection	15/15		15/15	
Cohort meets regularly	12/15		15/15	
Common time/space for cohort	15/15		15/15	
Common scheduling	15/15		15/15	
College Exposure Activities (KC 1.2)	**10/15**	**No**	**12/15**	**Yes**
College Campus Visits	12/15		14/15	
Preparatory Content for College Readiness Exams	12/15		12/15	
College Readiness Skills Embedded in Advisory and/or Core Courses	15/15		13/15	
Career Exposure Activities (KC 1.3)	**12/15**	**Yes**	**9/15**	**No**
Career exploration	12/15		10/15	
Community interactions	14/15		10/15	
Advising and Support (KC 1.4)	**9/15**	**No**	**13/15**	**Yes**
Specific support for students who may struggle to attend college without additional support	14/15		14/15	
Individual four-year plan	15/15		15/15	
Students meet with an advisor to focus on progress data and individual plans	11/15		11/15	
Parent outreach	11/15		11/15	
Staff Collaboration (KC 1.5)	**4/15**	**No**	**9/15**	**No**
EC staff meet as a PLC to discuss cohort students and activities	4/15		9/15	
School Leadership Team (SLT) meets to discuss Grade 9 supports	15/15		15/15	

Key Component 2: School-Wide Activities. Key Component 2 involved school-level participation in various activities to support Early College, including 1) professional development and coaching, 2) school-to-school mentoring, 3) planning for Early College enhancements, 4) dual credit teacher credentialing, and 5) pathways and work-based learning. These activities were primarily facilitated by CELL and the mentor schools to support increased implementation of the Early College Core Principles. The school-wide FOI results are summarized in Table ES-4.

Table ES-4. FOI Summary for Key Component 2 – School-Wide Activities

Key Component and Indicator	Year 3		Year 4	
	# of Schools Meeting	Program Fidelity Met	# of Schools Meeting	Program Fidelity Met
Professional Development and Coaching (KC 2.1)	**15/15**	**Yes[4]**	**14/15**	**Yes**
RECN EC Network/Quad Meetings	15/15		15/15	
Project Leadership Team (PLT) Meetings	15/15		12/15	
School Leadership Team (SLT) Meetings	15/15		15/15	
Coaching/Technical Assistance from CELL	15/15		15/15	
Other Professional Development	9/15		12/15	
Role-Specific Coaching/Technical Assistance	Met		Met	
School-to-School Mentoring (KC 2.2)	**8/15**	**No**	**7/15**	**No**
Regular Mentor-Partner Contact	8/15		7/15	
Mentor-Partner School Visits	15/15		15/15	
Planning for Early College Enhancements (KC 2.3)	**15/15**	**Yes**	**15/15**	**Yes**
Annual Early College Self-Assessment	15/15		15/15	
Plan for Early College Enhancements (Action Plan)	15/15		15/15	
Dual Credit Teacher Credentialing (KC 2.4)	**15/15**	**Yes**	**15/15**	**Yes**
Needs Assessment for Dual Credit Credentials	15/15		15/15	
Support for Teachers to Earn Dual Credit Credentials	15/15		15/15	
Pathways and Work-Based Learning (KC 2.5)	**Met**	**Yes**	**Met**	**Yes**
CELL Support for Pathways and Work-Based Learning	Met		Met	

Key Component 3: Sustainability and Scale Activities. The final set of fidelity indicators involved activities that supported sustainability and scalability. These activities included 1) the Collaborative for Rural Education, 2) support for mentor schools, and 3) CELL's facilitation of partnerships and policy to support Early College. In contrast to Key Components 1 and 2, which were only assessed for the 15 partner schools, Key Component 3 included measures that expanded to all 20 RECN schools (i.e., adding the five mentor schools). FOI for the final Key Component is summarized in Table ES-5.

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[4] Note for KC 2.1, fidelity was met at the school level if at least 5 of 6 indicators were met.

Table ES-5. FOI Summary for Key Component 3 – Sustainability and Scale Activities

Key Component and Indicator	Year 3		Year 4	
	# of Schools Meeting	Program Fidelity Met	# of Schools Meeting	Program Fidelity Met
Collaborative for Rural Education (KC 3.1)	**16/20**	**No**	**14/20**	**No**
Collaborative for Rural Education Formation and Meetings	Met		Met	
Collaborative for Rural Education Superintendent Attendance	16/20		14/20	
Support for Mentor Schools (KC 3.2)	**5/5**	**Yes**	**5/5**	**Yes**
Mentor School Plan for Early College Enhancements (Action Plan)	5/5		5/5	
Support from CELL for Mentor Schools	5/5		5/5	
Partnerships and Policy (KC 3.3)	**Met**	**Yes**	**Met**	**Yes**
Partnership Facilitation	Met		Met	
Policy Advocacy	Met		Met	

COVID-19's Impact on Implementation. The COVID-19 pandemic significantly disrupted the implementation of RECN (as well as the standard operating procedures for the program schools), beginning just months after project launch in fall 2019. Because fidelity was only formally measured in Years 3 and 4 (2021-22 and 2022-23 school years), the FOI results mask some of the challenges related to COVID. The pandemic required schools and program staff to rapidly adapt to shifting instructional formats, student needs, and health protocols. These challenges demanded considerable resilience and flexibility from participants across the network, but they also limited schools' ability to implement RECN as designed during the first two years. As a result, several planned activities were delayed, altered, or deprioritized in response to pandemic conditions. Thus, COVID is an important contextual factor when interpreting RECN's outcomes.

First, network-wide professional learning and collaboration activities were affected. CELL transitioned to virtual meetings and increased one-on-one engagement with schools, but school closures and staff shortages limited broader participation. Plans for cross-school collaboration and the launch of the Rural Collaborative were delayed, and professional development opportunities for teachers narrowed in focus and frequency as they balanced hybrid instruction and limited access to substitute teachers.

The implementation of Early College within schools was similarly impacted. The pandemic delayed initial self-assessments and action planning, disrupted CELL's endorsement visits, and complicated efforts to expand dual credit credentialing. Direct work with students was also limited. Advisory periods were shortened or eliminated, cohort recruitment became more challenging, and student experiences, such as college visits, guest speakers, and career exploration, were canceled or transitioned online. While some adaptations supported the long-term capacity of schools (e.g., expanded use of online platforms), other effects, including disruptions to normal classroom activities and increased staff and student needs, hampered the program's ability to demonstrate its full intended impact.

Implementation Highlights Beyond FOI. Despite challenges associated with the pandemic, RECN featured several highlights of implementation. Because these elements are not captured through the FOI matrix, we include the following highlights:

- CELL expanded the reach of its EIR grant funds by utilizing RECN to create new opportunities for schools and students across Indiana. They leveraged and expanded programs such as Teach Dual Credit Indiana and STEM Teach to increase the number of teachers certified to teach dual credit courses. During the pandemic, CELL also supported RECN schools to get additional technology funding through the Governor's Emergency Education Relief Fund (GEER) and support for career readiness through "Three E" grants. CELL also expanded RECN structures to a set of urban schools through a $4.1 million grant from the state to establish the Urban College Acceleration Network (UCAN). CELL also created a new program called Pathways to Career and Postsecondary (P-CAP), which provides extensive wrap-around supports to at-risk students, including work-based learning and dual credit.
- CELL held annual in-person professional learning conferences from Years 2 to 5 of the program. The first "mini-conference" involved only the RECN schools and had approximately 100 attendees. In 2023 through 2025, CELL expanded the event into their annual Early College Summit, which integrated Early College educators in RECN with those in other Early College efforts in Indiana (such as UCAN and P-CAP), and featured speakers and over 400 attendees from across the United States.
- Team members from CELL disseminated information about their network and lessons learned from RECN through over 10 national conference presentations. These conferences included the K-12 Partnerships Institute, the National Summit for Dual Credit Programs, the National Forum to Advance Rural Education (NFARE), and the National College Access Network (NCAN).
- By the end of the grant period, all 15 partner schools had achieved Early College endorsement, representing approximately 25% of all endorsed Early College programs across Indiana.

Impact Results

The evaluation used two different research designs to assess the impact of RECN. Data for both studies came from the Indiana Department of Education (IDOE) through a restricted-use data request of student-level records.

Data Challenges. Our analysis revealed some issues with the PSAT and dual credit course-taking data that the evaluation team was unable to resolve with the IDOE. The PSAT data were only available for the 2014-15 to 2021-22 school years; IDOE was unable to share PSAT scores from 2022-23 because they did not have full access to the data from the vendor.

There were also concerns with the dual credit course data. First, there were not as many records as would be expected for students earning the Indiana College Core or associate degrees based on self-reported data from schools. We also observed issues with records for English Language Arts courses, specifically. The coding for courses changed between 2021 and 2022, leading to substantially fewer ELA course records in those later years. However, reports from individual schools indicated that an increasing number of students were taking college credit and earning an increasing number of credentials.

Despite these issues, we were able to assess impacts with studies designed to meet What Works Clearinghouse standards. However, the impacts on PSAT scores and college courses need to be interpreted with these shortcomings in mind.

RCT Study. The first design, a Randomized Controlled Trial (RCT), focused on the impact of targeted Early College strategies on cohort students in the 2020-21 through 2022-23 school years (schools started the program at different times). The RCT study answered the following confirmatory research question: What is the impact of two years of exposure to student-targeted RECN EC program services on the following student outcomes in Grade 10: a) attendance, b) on-track completion of core academic high school courses, c) number of college credits, and d) scores on college readiness exams, compared to students in the same schools not receiving those services? The Intent-to-Treat analysis assessed outcomes for students who were assigned to participate in the RECN cohorts via lottery vs. students who were part of the lottery pool but received business-as-usual programming.

As noted in Table ES-6, there was no significant difference in the cumulative number of days absent. There were also no significant differences in Grade 10 PSAT scores between the treatment and control students. However, data was only available for students who were randomized prior to the 2020-21 school year (and took the PSAT in 2021-22). The primary outcome of students earning college credit from one or more college-level courses (e.g., dual credit or Advanced Placement) in their first two years of high school also had a null impact, with approximately 41% of control students and 42% of treatment students receiving credit for at least one course. Sub-analyses are also included here. All outcomes related to ICC and AP courses were in the desired direction, but not large enough to be statistically significant. We observed a small negative impact on the percentage of students earning credit for a CTE dual credit course, indicating that Early College students were less likely to take courses in CTE pathways than control students in the Grades 9 and 10.

Table ES-6. Confirmatory RCT Impact Analysis Results

Outcome Measure	Comparison Group			Treatment Group			Treatment – Control Difference	Std Error	Std Difference	p-value
	Sample Size	Mean	Standard Deviation	Sample Size	Model-adjusted Mean	Standard Deviation				
Cumulative Days Absent (2 Yrs)	413	18.1 days	15.7 days	367	18.2 days	14.7 days	0.18 days	0.93 days	.01	.85
Grade 10 PSAT (Z score)	89	0.22 SD	1.0 SD	73	0.19 SD	1.0 SD	-0.03 SD	0.97	-.03	.72
College Courses – Any Dual Credit or AP Courses (2 Yrs)	451	41.2%		382	41.8%		0.6 pp	3.1 pp	.02	.85
Any Dual Credit Courses Passed	451	39.2%		382	40.0%		0.7 pp	3.0 pp	.02	.82
Any ICC Course Passed	451	26.6%		382	29.0%		3.4 pp	2.7 pp	.10	.21
Any AP Test Passed, or ICC Course Passed	451	28.6%		382	32.4%		3.8 pp	2.8 pp	.11	.17
Any CTE Course Passed	451	20.8%		382	14.8%		6.0 pp	2.5 pp	-.25	.02
Any AP Tests Passed	451	2.7%		382	3.7%		1.0 pp	1.2 pp	.20	.39
Number of ICC Course Records	451	0.353	0.655	382	0.408	0.702	0.055 course records	0.036 course records	.08	.12

We also conducted exploratory analyses to assess the impact of one year of treatment on the number of days absent and college course records. Although the impacts were in the hypothesized direction (fewer days absent and more college course records), none of the differences were statistically significant.

QED Study. The benefits of RECN were not limited to only students in Grades 9 and 10, as schools built Early College programs designed to allow more students to earn college credit in high school. The second design, a quasi-experimental study (QED), used a comparative short interrupted time series (CSITS) to assess the impacts of RECN participation on school-level measures for students in all grades in RECN schools compared to non-program schools with similar baseline characteristics. The design and results of the QED are detailed in Section IV.

We designed the QED research questions to have some overlap with the RCT study, allowing for the measurement of both within-school and between-school contrasts. These research questions reflect similar outcomes to the RCT study for students in Grades 9 and 10.[5]

1. (*College Readiness*) What is the impact of at least two full years of school participation in RECN activities on the average number of cumulative credits earned (dual credits or AP credit equivalents) by the end of Grades 9-12, compared to other Indiana schools not part of the RECN program?
2. (*Attendance*) What is the impact of at least two full years of school participation in RECN activities on attendance for students in Grades 9-12 compared to other Indiana schools not part of the RECN program?
3. (*Academic Achievement*) What is the impact of at least two full years of school participation in RECN activities on a) PSAT scores in Grade 10 and b) SAT scores in Grade 11, compared to other Indiana schools not part of the RECN program?

We conducted the school-level quasi-experimental design (QED) by matching the 15 treatment schools with a set of 60 comparison schools (for a 4:1 match) and using panel data from pre-treatment and post-treatment years to conduct a short comparative interrupted time series (CSITS) design. We matched the schools in blocks, such that each Tier of five treatment schools (Tier 1 started in 2019-20, Tier 2 in 2020-21, and Tier 3 in 2021-22) was matched to a set of 20 comparison schools. Our procedure ensured that the treatment and comparison schools were equivalent (within .25 SD) across all outcomes and demographic measures from the last school year before a school started in RECN. More details about the matching procedure and baseline equivalence results are included in Section VI of the full report.

The impacts of the QED study are summarized in Table ES-7. We did not find statistically significant impacts at the whole school level on days absent, PSAT scores, or college courses. However, the impacts observed with the available college course-taking data indicate that the program schools increased college credit earning rates, but not enough to be statistically significant.

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[5] We intended to answer the following question from the *Progressing in School* domain: What is the impact of at least two full years of school participation in RECN activities on completion of core academic high school courses in Grades 9 and 10 compared to other Indiana schools not part of the RECN program? However, the data available for treatment and comparison schools from IDOE did not allow us to assess this outcome.

Table ES-7. Confirmatory QED Impact Study Results

Outcome	Baseline Value in Comparison Schools	Baseline Value in Treatment Schools (Model Adj.)	Treatment Year 1	Treatment Year 2	Treatment Year 3
Days Absent	9.70 days	9.42 days	-0.58 days (0.94)	+0.83 days (1.04)	-0.24 days (1.30)
Grade 10 PSAT Performance (Z-Score)	-0.06 SD	-0.04 SD	+0.02 SD (0.10)	+0.02 SD (0.13)	Data not available
% Earning Any Dual Credit or Credit from AP exam	31.5%	33.8%	+0.1 pp (3.0)	+2.6 pp (3.4)	+3.9 pp (4.3)
% of Students Earning Credit from 1+ ICC Courses	20.5%	22.2%	+2.5 pp (2.0)	+1.8 pp (2.3)	+2.6 pp (2.9)
% of Students Earning Credit from 1+ AP Courses	2.6%	2.6%	-0.8 pp (0.6)	-0.6 pp (0.6)	-0.4 pp (0.8)
% of Students Earning Credit for 1+ CTE Courses	15.9%	15.9%	+0.2 pp (2.6)	+2.3 pp (2.9)	+2.9 pp (3.7)
Mean Number of Dual Credit Courses Passed Per Student	0.62 courses	0.67 courses	+0.08 courses (0.08)	+0.08 courses (0.09)	+0.08 courses (0.11)
Mean Number of ICC Courses Passed Per Student	0.42 courses	0.48 courses	+0.02 courses (0.05)	+0.03 Courses (0.06)	+0.02 courses (0.07)
Mean Number of CTE Courses Passed Per Student	0.20 courses	0.19 courses	+0.06 courses (0.04)	+0.05 courses (0.05)	+0.06 courses (0.06)

Descriptive Outcomes. We also tracked several project-specific measures as part of GPRA. The following sections provide information on descriptive outcomes that are described in more detail in the project measures.

- *Students served.* The total number of students served across all RECN schools and program years was 24,614. Given that the network-wide rate of students receiving free or reduced-price lunch is over 44%, we estimate that over 10,800 economically disadvantaged students (our definition of high need) were served by RECN.
- *Graduation rate*. RECN set a goal of achieving a 92% on-time graduation rate for students across the schools by the end of the project. The project exceeded this goal in the 2023-24 school year with a 93.9% on-time graduation rate.
- *Additional dual credit credentialed teachers*. Project records indicated a minimum of 37 teachers earned credentials (a master's degree or 18+ hours of graduate-level coursework) to teach dual credit courses during RECN.
- *College credits*. Project records submitted by schools for the 2022-23 school year (overlapping with the final year of the impact study) indicated that Early College students earned over 48,000 dual credits. Schools also reported that over 1,800 students earned postsecondary credentials (ICC, associate degree, technical certifications) in the Classes of 2021 to 2024.
- *Endorsement.* By the end of RECN, all 15 partner schools earned their Early College endorsement from CELL, exceeding the original project goal of 10 schools.

Survey Results

We also present results from annual surveys with RECN school staff members and from a survey of treatment and control cohort students in the Grades 9 and 11.

Staff Survey. To monitor implementation progress and perceived impacts, the evaluation team administered a staff survey to all staff at 15 RECN schools each spring, beginning at baseline (2020-21)[6] and continuing through three years of implementation (2023-24). A similar survey was administered to administrators and counselors at 16 matched-comparison schools in spring 2021 and spring 2024.

Results from the change-over-time analysis of the staff survey indicated that the RECN project showed positive impacts on several areas aligned with the EC Core Principles. Key findings include:

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[6] An initial survey was administered to Tier 1 and Tier 2 schools in April 2020, during COVID shutdowns. However, a lower response rate and the uniqueness of the current state of the schools in the first full month of the pandemic led us to use the survey administered in March-April 2021 as the baseline. The evaluation team ran exploratory analyses using the April 2020 results and they did not lead to significantly different inferences.

- College-Going Culture improved significantly, with a moderate positive effect size, suggesting that schools increasingly fostered a college-focused environment for students.
- Early College Leadership and Collective Early College Buy-In demonstrated statistically significant gains, with moderate positive effect sizes, indicating strengthened leadership commitment to EC work and increased collective staff belief in EC work. Personal Early College Buy-In was stable over time, but baseline levels were already high, suggesting a possible ceiling effect that limited the potential for further growth.
- Professional Development for staff saw a large and statistically significant improvement, indicating enhanced efforts to train and support staff in EC practices.
- RECN and Early College Awareness among staff increased significantly, suggesting greater familiarity with the project's goals and activities over time.
- Student Success Supports improved modestly, indicating enhanced academic and non-academic supports for students.
- Rigorous Instruction through Project-Based Learning (PBL) practices also increased with a moderate positive effect size, indicating some growth in the use of project-based instructional methods.
- Individual Staff Data Usage and Dual Credit Credentialling also showed slight improvements, but these improvements only approached statistical significance.

We also examined differences between staff who reported being involved in their school's EC or dual credit program and those who did not, using the same analytic approach as described above. Table 6 summarizes the model-adjusted differences between baseline and impact year. Results suggest that, in some cases, the perceived impacts above were driven by staff who were most involved in their school's EC program.

Treatment vs Comparison School Differences. Results for the treatment vs. comparison school analysis suggest positive impacts for treatment schools across most items; however, in most cases, these trends did not reach statistical significance. For example, treatment schools showed higher scale scores on *College-Going Culture*, *Dual Credit Credentialing*, *Collective Early College Buy-In*, and *Professional Development*. Of these, only *Collective Early College Buy-In* reached statistical significance, while *Dual Credit Credentialing* and *Professional Development* only approached significance. It should be noted that the small sample size for comparison schools limited the statistical power to detect differences.

Student Survey. Overall, by Grade 11, treatment students reported more positive experiences than control students on several survey items and scales. Two components, including college visit frequency and the frequency of meetings with an advisor about data (e.g., attendance, grades, coursework), showed statistically significant differences, with EC cohort students reporting more frequent engagement. Additionally, a higher proportion of treatment students reported participating in dual credit, but this finding was not statistically significant at the $p <$

.05 level. One item, taking steps to complete a college application, showed a negative trend for treatment students, but the difference was also not statistically significant at the $p < .05$ level.

Qualitative Data Collection Results

The evaluation team also collected qualitative data from a sample of students and school staff within the partner schools, mentor SLT members, and CELL staff.

The Benefits of Networks for Participants. The success of a network largely depends on its perceived value to its members. Participants reported that the networks provided benefits around developing and articulating a vision and mission for the Early College program, learning and receiving resources from experts, reflecting on and planning for the program's implementation, and being held accountable for it. Participants also noted benefits around being part of a community, building relationships, and collaborating with, learning from, and providing and receiving support from colleagues within or across organizations. Finally, participants reported that networks helped them 1) feel part of something significant, 2) increase their motivation to work on the program, 3) develop leadership skills, and 4) feel valued for sharing expertise and being recognized for achievements.

Increased Opportunities to Earn Postsecondary Credentials. Educators and students noted the perceived impacts of RECN on students' ability to earn postsecondary credentials and understand the benefits of taking advantage of college coursework while in high school. Highlights included:

- An increased number of students enrolling in dual credit courses, including those who did not consider it feasible before;
- A rise in the number of students who graduate with the Indiana College Core;
- A small but growing number of students earning associate degrees in high school; and
- Time and cost savings related to earning college degrees and credentials.

Increased Postsecondary Readiness. Educators and students also noted the benefits of Early College on postsecondary readiness, including:

- Greater confidence among students (particularly those students who may struggle to attend college without additional support) that they can attend college;
- Improved college readiness, including a better understanding of college expectations and increased exposure to postsecondary options through campus visits and informational sessions;
- Better exposure to career information and opportunities to explore career choices;
- A clear post-graduation goal for the students leads to increased motivation, effort, and academic performance;
- A stronger sense of pride in personal academic achievement; and
- Closer relationships and a greater sense of community among cohort students.

Sustainability. The themes about considerations for sustaining Early College programs included 1) funding, 2) personnel, teacher incentives, and credentialing, 3) student readiness and support, 4) student interest and marketing, and 5) buy-in from staff and the community. Almost all participants expressed a desire to continue their participation in the Early College Network, placing high value on the various benefits the network offers. However, sustaining the network presents challenges for both facilitators and participants. The main challenge mentioned was financial, as CELL requires funding to maintain the networks and support its staff, while schools need funding for trips and substitute teachers. School staff also face the challenge of finding time for network meetings.

Lessons Learned

Section VII of the full report summarizes the lessons learned over the five-year project period, based on interviews with project staff, participants, observations, and other data collected by the evaluation team. A few highlights from these lessons learned are provided here.

The Role of an Intermediary Organization. CELL played a crucial role in leading and managing networking activities, providing unique expertise built on its experience overseeing and assisting schools in the development of their Early College programs. CELL provided goals, support, and training for mentors, refined the Core Principles Rubric and other resources, and held schools accountable through meetings and the endorsement process. Without CELL's support, schools reflected that they likely would not have maintained the same level of interaction and learning, particularly during the pandemic. The support from CELL and the network is also essential for the long-term sustainability and development of the programs, especially during school leadership turnover, by facilitating and accelerating buy-in from new staff members.

The Power of Networks. SLT teams within the project were members of mini-networks nested within a RECN project network. As implemented, an interwoven system of networks proved to be effective in supporting the goal of expanding the number of high-quality Early Colleges in Indiana and sustaining and developing their work. The flexible structure of the networks and mini-networks helped resolve some logistical challenges associated with in-person meetings and built closer relationships among smaller groups of schools. The project network meetings provided a big-picture view, and mini-network meetings were more "hands-on," allowing collaborative problem-solving around relevant Early College issues in their schools.

Most Useful Network Activities. The following activities were identified as the most useful agenda items during both project and mini-network meetings, as well as activities outside of the meetings.

- Listening to current and former students describe how the Early College affected their lives was one of the most valuable and motivational experiences.
- The role-alike group meetings were the most appreciated part of the network meetings, especially when teachers had the opportunity to meet with colleagues in the same

subject area. Meetings with the same subject teachers in other schools were especially important for rural schools, as they often lacked teachers in their own schools who specialized in the same subject.

- Scheduled time for school leadership teams during network meetings was useful for self-evaluation and planning.
- Visiting other schools was often characterized as either very useful or one of the most beneficial parts of the mini-network meetings. Seeing others, especially mentor schools, implementing strategies is powerful in inspiring participants to try these strategies in their own schools.
- Addressing problems of practice was one of the most valuable aspects of mini-network meetings, where SLT members could brainstorm, provide, and receive hands-on solutions to the current issues that schools were facing.
- Technical assistance and responsiveness from the CELL staff were highly appreciated, as they explained the Early College model and provided guidance and accountability for program implementation.

Supports for Mentor Schools. Mentor schools played a key role in helping the partner schools establish the necessary structures for student success in Early College. Mentor schools recognized that mentorship activities required extra time and effort, but acknowledged the benefits to both themselves and the schools they mentored. Mentor schools received support from CELL to "take their programs to the next level." They also learned from their partner schools about Early College innovations and how to solve challenges related to COVID, teacher incentives, and accountability for continued growth. Lessons learned for future mentor schools included 1) having a well-functioning SLT team, 2) being conscientious, responsive, and proactive, and 3) being collaborative and willing to share knowledge and resources with partner schools.

School Leadership Teams (SLT). RECN schools established School Leadership Teams (SLTs) made up of administrators, counselors, teachers, higher education representatives, and district leadership. SLTs met regularly throughout the project, and schools intended to continue implementing the structure beyond the grant period to help sustain Early College beyond the grant period.

Forming an SLT team to work on the implementation of the Early College provided a number of benefits:

- Harnessing the power of a group to problem-solve, tackle challenges, and manage day-to-day issues collectively;
- Providing regular time dedicated to Early College during the SLT meetings and having a structure for planning and accountability for actions, which leads to schools making rapid progress in implementation;
- Establishing champions for the program in departments throughout the school;

- Fostering school-wide buy-in, and
- Including the perspective of teachers.

The SLT also helps sustain Early College during school leadership turnover, as the team retains collective knowledge of the program and its progress, and can assist in onboarding a new leader to the program.

Section I: Introduction and Program Design

The Early College high school model combines high school and college experiences to prepare students for success in postsecondary education. Early College programs operate in different settings and have differing definitions depending on the state. For example, early colleges in North Carolina are small schools of choice, often housed on college campuses. Although the stand-alone model has been shown to have positive impacts, it is also challenging to implement on a broad scale. One approach is to establish programs (such as pathways or academies) within existing high schools. This pathway-within-school implementation of Early College is embedded within an existing high school, where a subset of students participates as a cohort or small learning community and takes multiple college-level courses. Students also receive regular, intentional Early College-specific support, including postsecondary campus visits, more intensive advising and planning, a peer group focused on similar goals of postsecondary readiness, and explicit connections between college-level coursework and their post-high school plans. In contrast, non-Early College students continue to take traditional classes (which may include college-level classes). However, they typically do not receive Early College supports and services (at least not in an intentional, systematic manner).

CELL's implementation of the Rural Early College Network (RECN) aimed to help rural Indiana schools more quickly implement the pathway-within-school Early College (EC) model with fidelity and increase the number and quality of Early College programs throughout rural parts of the state. Five mentor schools that had already achieved Early College endorsement at the beginning of the project supported three cohorts of five schools each (Tiers 1-3) for a total of 20 schools participating in RECN. Tier 1 schools started the program in 2019-20, Tier 2 schools began in 2020-21, and Tier 3 schools began in 2021-22. The 15 schools in the RECN program to date represent a significant portion of Indiana's rural areas. All program schools qualified as rural by having a locale code of 32-43 (as defined by the National Center for Education Statistics).

CELL used grant funds to facilitate network activities and provide support to educators, helping them pursue Early College endorsement and improve students' college and career readiness. Schools used grant funds to enhance their Early College programs by creating more opportunities for students to successfully earn dual credits and matriculate to a postsecondary environment, increasing the number of instructors with credentials to teach Early College courses, and attending learning experiences such as conferences. In addition, schools implemented some school-level changes to enhance Early College and pilot more intensive Early College supports with cohorts of students in Grades 9 and 10. The project activities were designed to address three goals by the end of the grant period:
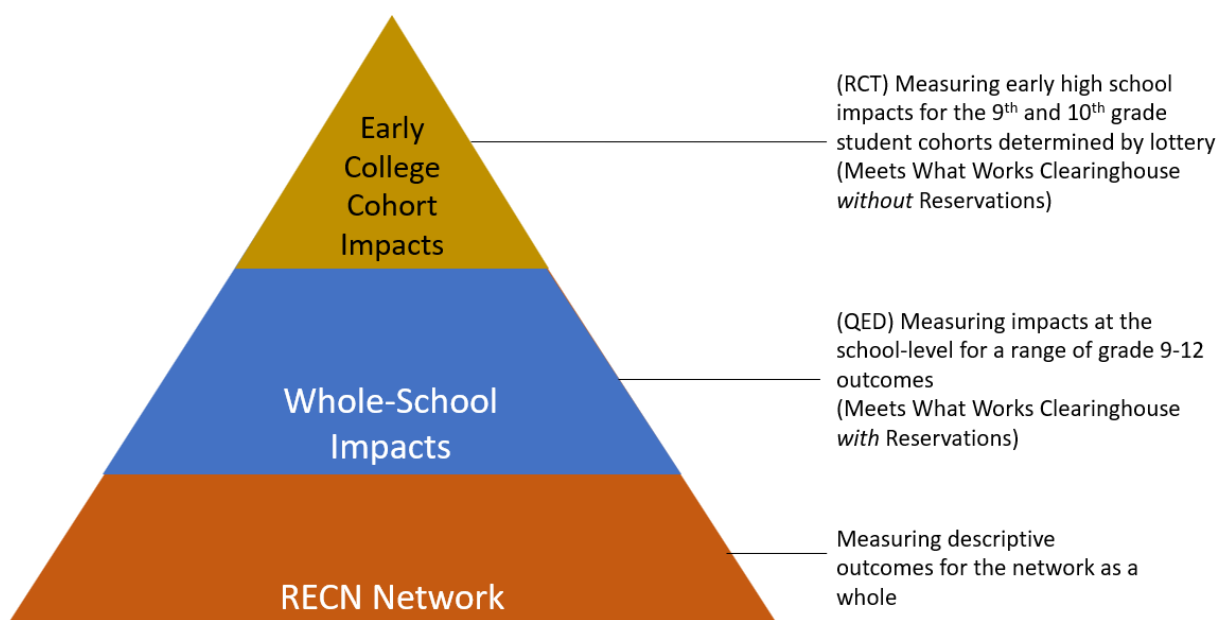
1) Increase students' college readiness and postsecondary enrollment,
2) Increase students' career readiness and opportunities, and
3) Increase efficiencies and build capacity for rural schools to implement Early College.

It is important to note that this program began in the fall of 2019 and was approximately four months underway when pandemic-related shutdowns began. As such, COVID-19 had a significant impact on both the implementation of the program and its evaluation. We provide more detail about how the pandemic impacted the program in Section II.3.

I.1: Evaluation Design

The program activities contributing to the three RECN goals occurred at three different levels: 1) within the whole network; 2) with schools and their School Leadership Teams (SLTs); and 3) with cohorts of students in Grades 9 and 10. The evaluation design is structured to look at these three levels of activities. Figure I-1 summarizes this approach to evaluation.

Figure I-1. Three Levels of the RECN Evaluation Design

(RCT) Measuring early high school impacts for the 9th and 10th grade student cohorts determined by lottery (Meets What Works Clearinghouse *without* Reservations)

(QED) Measuring impacts at the school-level for a range of grade 9-12 outcomes (Meets What Works Clearinghouse *with* Reservations)

Measuring descriptive outcomes for the network as a whole

The logic model for the Rural Early College Network (RECN) identifies the components of the intervention aligned to three levels. The first level (in gold) relates to the targeted Early College cohort intervention, whose impact was assessed with the randomized controlled trial (RCT) study. The second level aligns with school-level supports (in blue), whose impact was assessed through a quasi-experimental (QED) study. The third level (in orange) aligns with network support activities designed to create sustainable structures that support and scale Early College during and beyond the grant period.

The combined logic model in Figure I-2 illustrates the relationships between the activities, mediating factors, and outcomes across these three levels. The color scheme in Figure I-2 corresponds to the one above, indicating the supports and impacts for the whole school in blue and the supports and impacts for the Early College cohorts in gold. Activities to support the full network and the associated outcomes are coded in orange.

Figure I-2. Overall RECN Logic Model

RECN Combined Intervention Logic Model
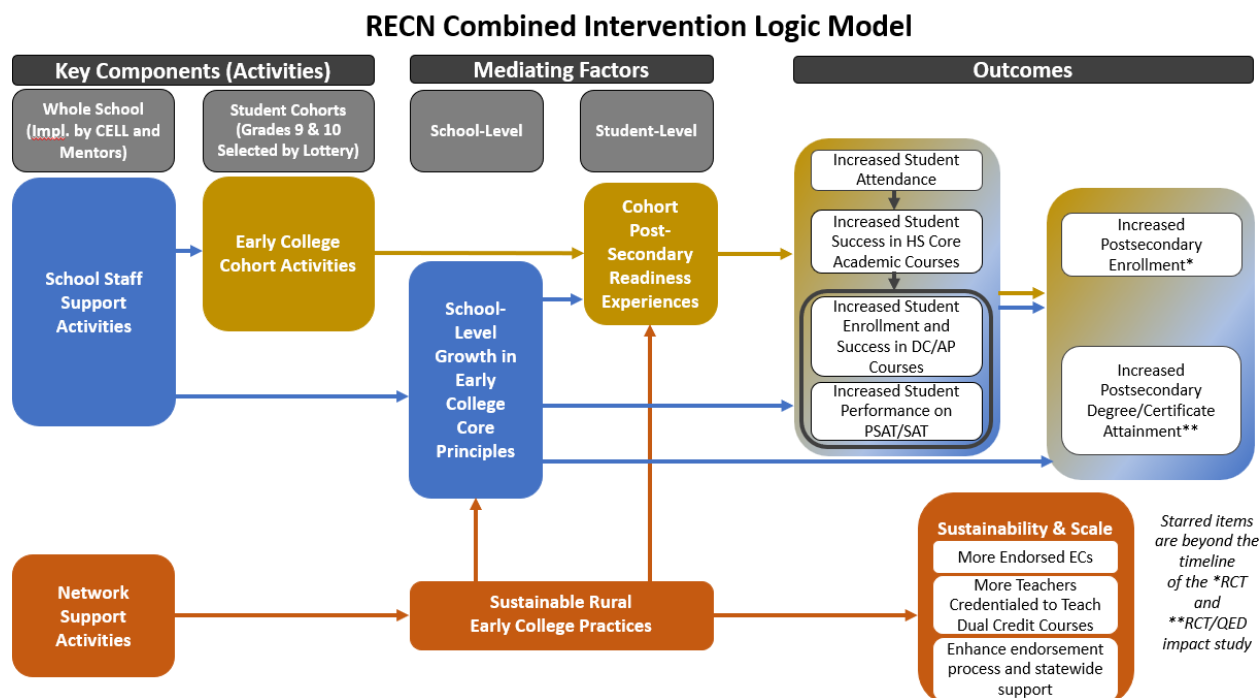
As shown in the 'Key Components (Activities)' column, CELL and the mentor schools engaged in activities to support both the network as a whole as well as staff members within each program school. Each of the Tier 1-3 schools also implemented targeted activities with their Early College cohort groups in the Grades 9 and 10. In the 'mediating factors' column, the school staff support activities were designed to support growth in the Early College Core Principles. School-level growth in the Core Principles and the specific activities for the targeted student cohorts were designed to engage students in enhanced post-secondary readiness experiences. Concurrently, these activities are supported by sustainable Early College practices that are implemented and refined through network-wide activities.

As shown in the 'outcomes' column, the RECN activities and the early college intervention are designed to increase student attendance, success in high school core academic coursework, enrollment and success in dual credit and AP courses, and performance on the PSAT and SAT. The program theory was that these outcomes would be enhanced for all students in each school, with an additional impact on students receiving the targeted cohort supports. RECN was also designed to increase postsecondary enrollment and degree/certificate attainment; however, these outcomes fell beyond the measurement timeline available for the impact study. In addition to the student outcomes, the program also supported the sustainability and scale outcomes of increasing the number of endorsed Early College programs in Indiana, increasing the number of teachers credentialed to teach dual credit courses, and applying lessons learned to enhance Early College throughout the state.

Each level is described in the following sections, along with more detailed logic models at each level.

Evaluation Level 1: Student Cohorts in Grades 9 and 10

As noted above, this level of RECN involved the delivery of specific services to cohorts of students in Grades 9 and 10. This component of the evaluation used an RCT, in which eligible students were randomly assigned to either receive targeted supports or receive the business-as-usual resources in these grades.

Figure I-3 shows the detailed logic model for this level of the evaluation. Shown in the left-most column are the Key Components and indicators regarding college and career readiness elements that each school implemented with their cohort students, which are assessed as Key Component 1 of the Fidelity of Implementation (FOI) study. The middle column, containing mediating factors, includes measures of various constructs. The evaluation team measured these using a student survey at two time points when the largest group of cohort students were in Grade 9 (Year 3) and Grade 11 (Year 5). The right-most columns display the cohort students' outcomes examined as part of the RCT study.

Figure I-3. Early College Cohort Intervention (Grades 9 and 10) Logic Model
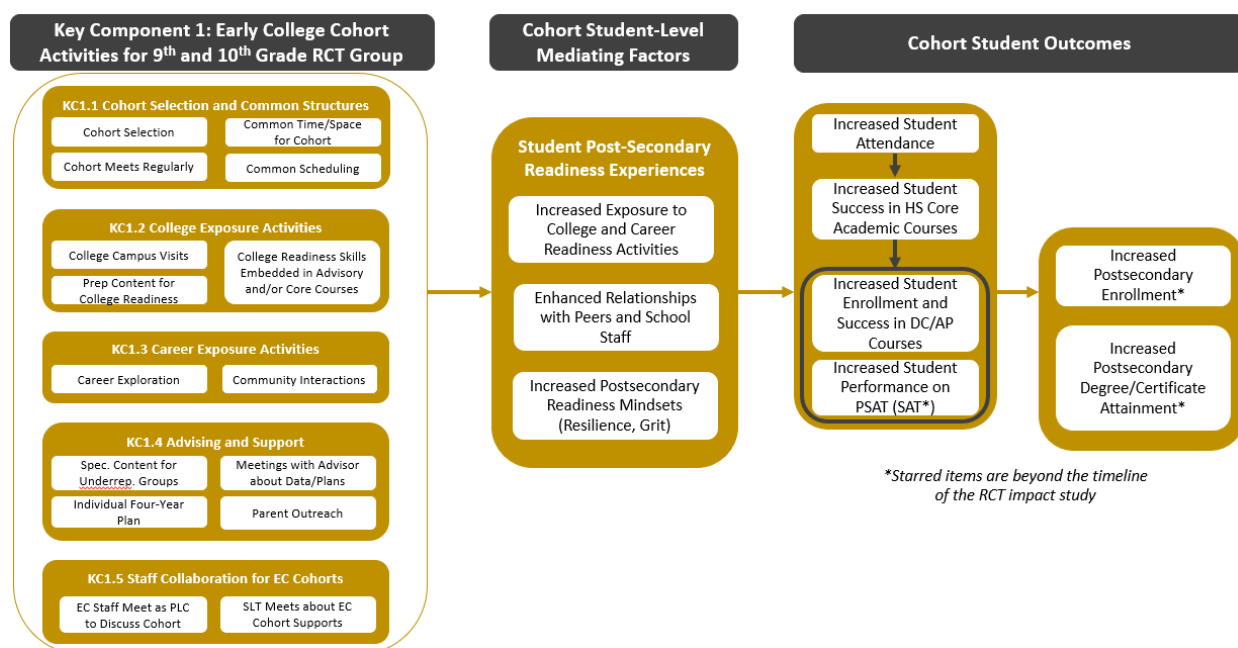
Evaluation Level 2: Whole School

Each participating RECN school received a set of supports designed to enhance the implementation of the early college model within each school. Figure I-4 outlines the schoolwide activities, mediators, and anticipated outcomes. The activities in the left-most column represent school support activities that each program school received or conducted and are assessed as Key Component 2 of the Fidelity of Implementation (FOI) study. Partner

schools worked toward achieving high levels of implementation of the Early College Core Principles (shown as mediating factors), which the evaluation assessed through annual staff surveys, tracking of annual self-assessments, interviews, and review of artifacts. The outcomes in the right-most column were assessed for all students in each school year using a quasi-experimental (QED) design that compared RECN partner school outcomes to those in similar non-RECN schools.

Figure I-4. Whole-School Intervention Logic Model
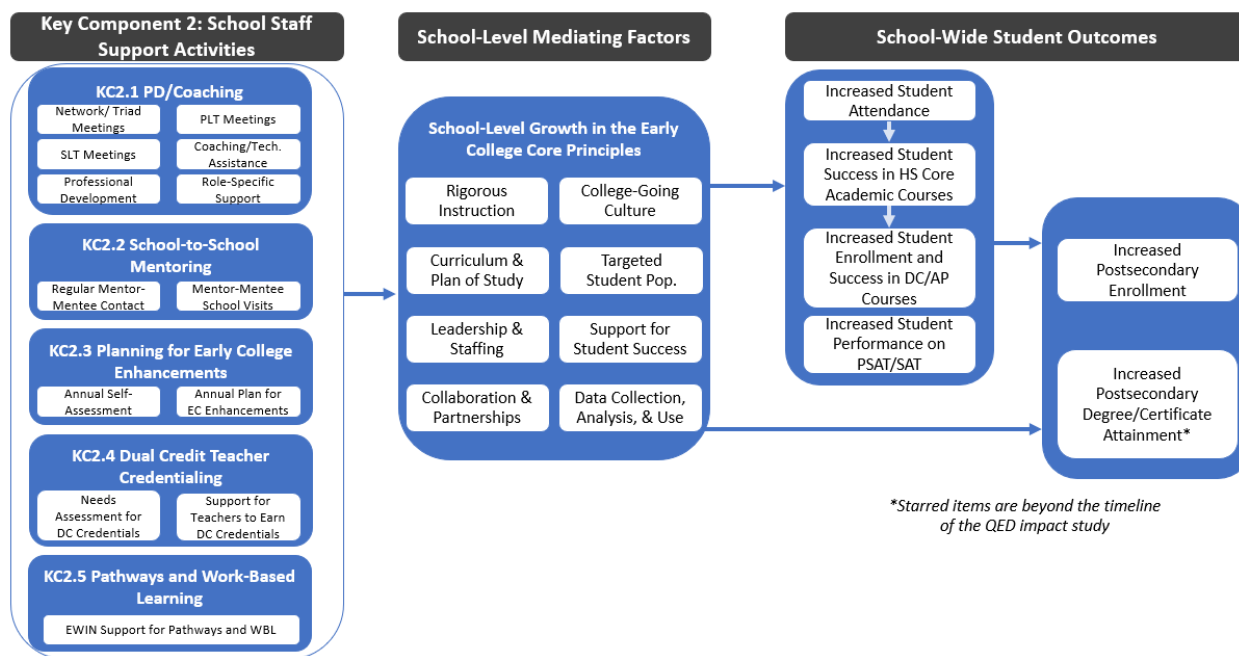
Evaluation Level 3: RECN Network

The third level of activities was designed to support the sustainability of the RECN schools and the scaling of the approach to more schools in the future. This tier was evaluated descriptively. The leftmost column in Figure I-5 shows the activities used to support the network, which is considered Key Component 3, with specific indicators assessed as part of the FOI. These activities were designed to lead to short-term outcomes, as shown in the logic model, which we assessed through descriptive information from artifacts and interviews. The outcomes, which align with sustainability and scale, are descriptive and inform some of the measures required for federal reporting (GPRA measures).

Figure I-5. Sustainability and Scale Intervention Logic Model
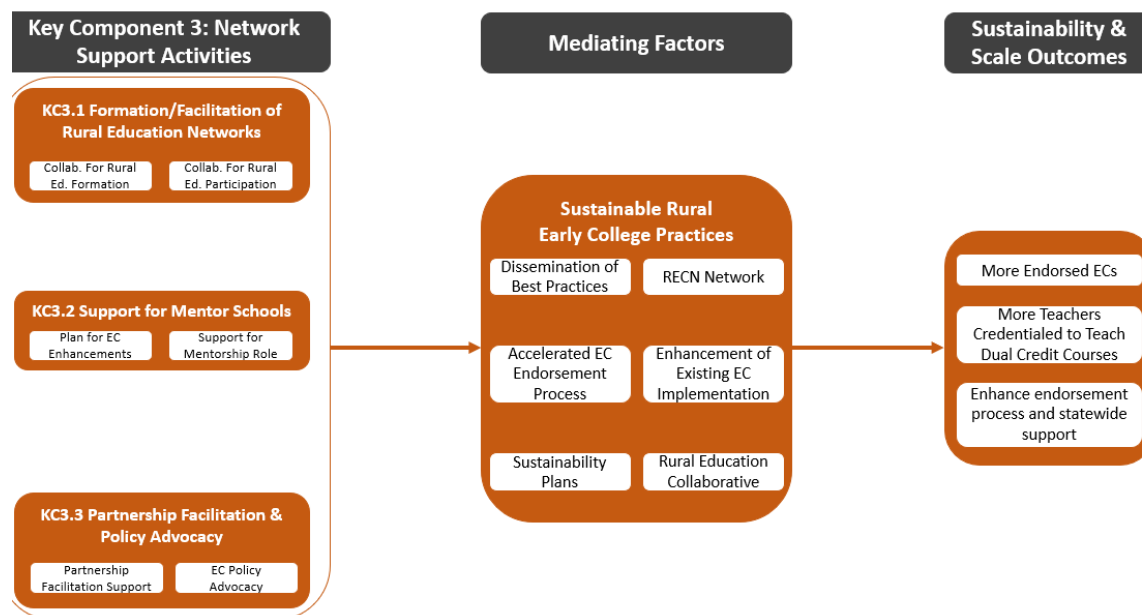
I.2: Overview of Report

This report presents the impact and implementation findings related to the three evaluation levels and is organized accordingly. Section II of the report describes the Early College model as implemented in Indiana. Sections III and IV focus on program implementation, with Section III reporting on the fidelity of implementation of project activities and Section IV providing evidence from surveys and interviews regarding changes within the school and staff. Section V presents the impact evaluation design and the findings for the targeted student supports for the student cohorts in Grades 9 and 10. Section VI presents the impact evaluation design and findings for the whole school component. Section VII summarizes conclusions, including evidence of sustainability, qualitative perceived impacts, and lessons learned.

Section II: Indiana's Early College Model and Context for the RECN Grant

II.1: Overview of the Model

Indiana has a well-established and legislatively defined dual credit and Early College program. In Indiana, "'dual credit' is the term given to courses in which high school students have the opportunity to earn both high school and college credits in the same course. Dual credit courses are taught by high school faculty, college faculty, or adjunct college faculty either at the high school, at the college or university, or sometimes through online courses or distance education. Dual credit is offered by both state and independent (private, regionally accredited) colleges and universities."[7] At the beginning of RECN in 2019, each school was required to offer a minimum of two dual credit courses. In 2024, the state legislature passed Senate Bill 8, which requires all high schools to have a plan to offer the Indiana College Core, a 30-credit block of transferable general education courses that allows students to enter college with a full year of credit.[8]

Early College High School is an intensive, accelerated program, also defined in Indiana law, that allows students to earn both a high school diploma and one of the following in four high school years:

- An associate degree approved by the Indiana Commission for Higher Education (ICHE).
- The Indiana College Core (30 hours of general education coursework).[9]

The Indiana Commission of Higher Education further distinguishes between regular dual credit and Early College in several ways. Early College programs begin in Grade 9 or later and are seen as providing clear sequences of courses. Early Colleges are "tailored" for students who may otherwise struggle to attend college.

Indiana's Early College work is led by CELL, which was authorized by the Commission for Higher Education prior to the RECN grant "to train, support, and endorse Early College schools in Indiana." CELL has identified two models of Early College: "Academic" and "Technical." The Academic model is intended to prepare students to earn a two-year or four-year degree. The Technical model is intended for students earning an applied degree, a technical certification, or a stackable industry credential. The emphasis for RECN was on the Academic model, which is described by eight Early College (EC) Core Principles that serve as a framework for the Early College model implementation in the state of Indiana.

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[7] https://www.in.gov/doe/students/dual-credit/

[8] Indiana Senate Bill 8, *Higher Education Matters*. https://iga.in.gov/legislative/2024/bills/senate/8/details

[9] https://transferin.net/ways-to-earn-credit/statewide-transfer-general-education-core-stgec/. Note that at the outset of the project, this credential was called the Statewide Transfer General Education Core (STGEC).

II.2: The Early College Core Principles

CELL has established an endorsement process that allows Early Colleges to be officially recognized by the Indiana Commission for Higher Education as high-quality implementers. This endorsement process uses the EC Core Principles Rubric to assess whether the EC Core Principles have been implemented at high levels. The rubric describes various levels of implementation of two to three indicators for each of the EC Core Principles. According to CELL, "This rubric defines the benchmarks that Early Colleges must attain in order to earn official endorsement as a high-quality, high-impact program." A core goal of the RECN program was to increase the number of endorsed schools.

Because they are well described in the rubric, the Core Principles served as a natural framework to focus Early College activities and helped to focus the RECN network. We provide an overview of each of the eight Core Principles, accompanied by some brief context from the evaluation data. Measurement of the Core Principles through the rubric is covered in Section III; survey results are in Section IV.

1. *Targeted Student Population.* This Core Principle ensures that the recruitment, application, and selection processes of Early College programs target students who may struggle to attend college without additional support, begin in middle school, and utilize effective and widespread communication of the Early College vision.

The primary focus in RECN for this Core Principle was intentionally recruiting, selecting, and serving students through the cohort intervention who could benefit from Early College programming. Schools examined data points for their rising Grade 9 students to understand how their overall population currently enrolled in college-level courses aligned with their overall demographics. Schools also expanded their use of criteria to invite and select students, moving beyond college placement tests to include measures such as teacher recommendations. The goal was to expand access to Early College for students while providing them with the necessary support to be successful.

2. *Curriculum & Plan of Study.* This Core Principle ensures that students in each school have an opportunity to complete an Indiana College Core (ICC) pathway of up to 30 credits, that the curriculum is aligned with the higher education partner, and that placement tests and test prep supports are available to students throughout their high school career.

An early priority of the RECN program was to help schools ensure they had the necessary courses (and associated staffing) in place for students to earn the Indiana College Core credential. High school instructors taught most courses at the RECN high schools as dual-credit courses; this option required schools to collaborate with their postsecondary partners and staff to obtain the necessary credentials to teach these courses. When schools lacked sufficient

qualified teachers to offer the ICC, they offered online college courses taught by college faculty (i.e., dual enrollment).

One component of the Early College cohort intervention focused on helping students develop a four-year plan that integrated high school and college-level coursework, aligning with their goals. Schools reported that students across grade levels had four-year plans used to inform advising and course selection.

3. *College-Going Culture.* This Core Principle ensures that each Early College program creates a culture that expects students to attend and succeed in college by providing visits to college campuses, creating visual displays (such as banners and posters, letters of acceptance, etc.), and promoting awareness of career options.

Throughout the project, schools implemented college- and career-focused events, including college visits (initially virtual due to COVID-19), annual college or career fairs, and College Go Week. These activities helped to focus students' attention on postsecondary education. Schools also emphasized a college-going culture through school-wide informational displays, teachers displaying signs of their universities and degrees on their doors, and periodic information sessions about college finances and other college-related matters featuring representatives from postsecondary institutions. Additionally, schools created special spaces for Early College students to collaborate on assignments or take online dual-credit classes. These spaces have visuals such as murals, banners, or pennants from multiple colleges to reinforce the focus on postsecondary education. These visuals are also used throughout the schools as bulletin boards, banners, pennants, and Early College logos.

Schools also expanded the concept of a college-going culture to focus more broadly on life after high school. Strategies included presentations, handouts, and explanatory videos about careers, guest speakers, next-level pathway exploration, job site tours, career self-assessments with follow-up counseling, and presentations from school staff about internship opportunities. Schools also mentioned using tools and resources from programs such as AVID, Jobs for America's Graduates (JAG), and the ASVAB assessment.

4. *Rigorous Instruction.* This Core Principle ensures that dual credit courses are aligned with courses taught on a college campus, both in content and instructional rigor, and that the Indiana Academic Standards guide instruction. Specific instructional strategies are emphasized, including a focus on literacy, project-based learning (PBL), performance-based assessment, and 21st-century skills.

Teachers from partner schools reported that their dual-credit classes are aligned with college curricula and syllabi. Although teachers' and students' descriptions of rigor in dual credit classes varied, the main differences between dual credit and standard high school courses that students described fell into these categories:

- More work, more difficult work;

- Faster pace;
- More detailed or in-depth coverage of material;
- More frequent and lengthier writing assignments;
- Stricter grading; and
- Higher expectations for independent study from students.

Within the RECN schools, rigorous instruction focused on the content of dual credit courses. Schools also noted more attention on ensuring core courses early in high school (e.g., English and math) provided students adequate preparation for college-level coursework.

5. *Supports for Student Success.* This Core Principle ensures that the school creates a system of supports for grades 9-12 that prepares students to succeed in college-prep and dual-credit courses, with Early College and higher education staff and counselors as support providers. Another indicator emphasizes parent outreach to facilitate parents' support of students' success in courses and the college application process.

RECN schools offered support in three areas: 1) academic support for college readiness, 2) support for students in college classes, and 3) social-emotional support. For the cohort intervention with students, a regular meeting time (such as a common advisory period) provided a structure through which schools could deliver these supports. As schools expanded Early College opportunities, they also worked to enhance support for postsecondary readiness among all students.

6. *Leadership & Staffing.* This Core Principle includes two indicators: an Early College staffing plan and professional development. The staffing indicator ensures that Early College programs are fully staffed with qualified instructors who can teach dual-credit courses, and a plan is in place for re-staffing if teachers leave the school. The professional development indicator ensures that professional development for Early College staff is designed to meet staff and program needs and that higher education faculty work collaboratively with Early College staff on planning dual credit courses.

At the outset of the RECN project, Indiana Higher Learning Commission guidelines required that dual credit instructors must possess a master's degree or 18 credit hours in the subject area they teach. At the beginning of RECN, many dual credit instructors lacked these credentials. Therefore, providing qualified instructors to offer ten Indiana College Core (ICC) courses was a continuing challenge throughout the project and beyond. Staff in schools indicated that RECN funding was helping with the recruitment, retention, and certification of dual credit teachers, and teachers took advantage of tuition-free graduate course taking provided by programs such as Teach Dual Credit Indiana or STEM Teach.

Early College teachers also received annual professional development from their partner colleges. The purpose of this PD was to ensure that dual credit teachers were teaching the

courses at the same level of rigor as the college and that the content, assignments, and grading were consistent with those of the college. Additionally, school staff received professional development on the development of the Early College Core Principles through network meetings and other opportunities provided by CELL and their schools.

7. *Collaboration & Partnerships.* This Core Principle includes two indicators, one for higher education partnerships and another for business and community partnerships. In both cases, a high level of implementation requires one or more established partners and detailed Memoranda of Understanding (MOUs) with higher education partners.

RECN schools had several college partners. Ivy Tech Community College is unique to Indiana in that one community college serves the entire state (unlike other states that may have a consolidated *system* with autonomous colleges as members). With more than 40 regional campuses, Ivy Tech served as the primary partner for more than half of the RECN schools. There are also three four-year college partners – Vincennes University, Indiana University, and Ball State University – that offer students in RECN schools dual credit opportunities and support from the college. Schools and college partners engaged in several activities to support the Early College program, which included efforts to support students and instructors, as well as working with school leaders on programmatic decisions related to Early College (such as teacher credentialing, scheduling, and logistics). In terms of student support, most schools had a college representative, called a College Connection Coach (Ivy Tech) or Assistant Dean (Vincennes), who helped students learn about opportunities and supports at the college, enroll in courses, and generally be successful in the program. Schools noted the critical importance of having a liaison between the high school and college for the success of Early College programs. Schools also utilized business and organizational partners within their communities. Many of these partnerships with local businesses and industries were facilitated through some form of community or business collaboration that created pathways and/or work-based learning opportunities, provided scholarships to students or resources to schools, or offered guidance to school leaders on employer needs.

8. *Data Collection, Analysis, & Use.* This Core Principle ensures that Early College programs collect and use both formative and summative data "to monitor and adjust instruction, curriculum, student supports, and the overall Early College program" and "to evaluate the program's effectiveness in preparing students for success in postsecondary education."

In general, data collection and use fell into two categories: 1) data used to identify students for selection in the Early College program and 2) data used to track student performance in dual credit classes. The sources of data to inform selection decisions included grades, attendance, teacher recommendations, and various placement assessments. At some schools, staff reported collaborating with middle school staff to collect academic and/or demographic information on students who would be entering high school in order to inform program recruitment efforts.

To track student performance in dual credit classes, schools collected and used data such as grades, attendance, and course or pathway completions to monitor students' performance, identify those who needed additional support, or assess the overall effectiveness of the program in expanding dual credit course-taking opportunities for students. Additionally, staff at some schools mentioned the need to collect more long-term data on students' career plans and postsecondary education enrollment and graduation rates. Data on student performance was typically shared by the higher education partner in the form of middle or end-of-course grade reports or through early alert systems. The higher education partners also typically helped schools organize other sources of performance information.

II.3: The COVID-19 Pandemic's Influence on RECN

RECN activities began in the fall of 2019. By the spring of 2020, COVID-19 had drastically changed the landscape of the education system in which RECN was occurring. The pandemic and its associated immediate disruptions significantly impacted the first two years of RECN, necessitating some changes to the original project plan. The influence of the pandemic is relevant to all aspects of this final evaluation report; below are some highlights from our interim evaluation reports on how activities were affected.

II.3.1: Network Activities

In Year 1, three in-person project meetings took place prior to the shutdown of face-to-face activities, which began in March 2020. The resulting school shutdowns required that all contact take place via Zoom. CELL had to learn quickly how to facilitate virtual network meetings and other professional development efficiently and engagingly. These adaptations affected not only CELL's facilitation of project meetings and visits but also activities between the mentor and mentee schools, such as visits to each other's schools to see Early College programs in action. Schools that joined the project in 2019 had several opportunities to build relationships with other schools in the initial months of the RECN grant. However, schools that started in the fall of 2020 experienced delays in their ability to connect across school teams, especially among teachers. In addition, although network meetings still focused on Early College, the needs emerging from COVID, including students' physical and mental health, as well as the logistics of operating schools in accordance with public health requirements, did not allow schools to focus as fully on Early College. Schools also had to balance their involvement in RECN with managing additional funding streams and grant opportunities that emerged during the pandemic, such as the American Rescue Plan and the Elementary and Secondary School Emergency Relief (ESSER) fund.

CELL's adaptations due to COVID helped keep the project moving, particularly through the creation of Triad/Quad meetings (discussed in more detail in Section V.2.1), increased one-on-one meetings with project schools, and the adoption of virtual technologies for meetings. During the 2020-21 school year, the project schools offered in-person classes to varying extents, with no district being fully virtual; however, all districts had a proportion of students

who opted for online-only instruction, including students in dual credit courses. During that year, school personnel had to divert significant time to deal with pandemic-related activities, such as contact tracing and managing the simultaneous delivery of face-to-face and online instruction. Some project schools also had periods during which in-person instruction was suspended or large numbers of students or staff were quarantined due to positive COVID tests. Thus, although Early College was a priority in each of the program schools throughout the grant period, the immediacy of COVID-related issues made it difficult for schools to make Early College their primary focus in the 2020-21 academic year. These impacts continued to a lesser extent in 2021-22 and beyond.

II.3.2: Professional Learning

Network activities and professional learning opportunities were impacted by COVID, with both positive and negative consequences for RECN.

One area of notable improvement was in the use of digital infrastructure. To support schools' transition to online instruction during the pandemic, the CELL team partnered with the Central Indiana Education Service Center on a successful grant from IDOE to secure technology funds for broadband purchases. This investment helped schools enhance their virtual learning capabilities and maintain communication across the network, even during periods of restricted travel. As one CELL team member reflected, the pandemic prompted schools to adopt and become comfortable with digital tools quickly. This adaptation benefited virtual collaboration throughout the rest of the project. A school staff member affirmed that CELL's support was "very helpful in advancing virtual learning," particularly in maintaining progress despite geographic distances between schools.

On the negative side, participation in network activities was highly limited during the height of the pandemic. Social distancing protocols limited in-person gatherings. Additionally, staff members (especially teachers) were unable to miss school for network events due to difficulties in securing substitute teachers. During the 2020–21 school year, much of the conversation within the network focused on adapting school practices to pandemic-related challenges. The network also had delayed progress in launching the Rural Collaborative (a collaboration among superintendents of RECN schools to address rural educational issues discussed in more detail in Section III.3.1), as superintendents had to prioritize managing hybrid learning environments in their districts. One CELL staff member remarked, "We would have launched the Rural Collaborative much sooner because it would have been able to get the superintendents together. So that's the one thing COVID definitely delayed."

Professional learning opportunities, particularly for teachers, were also reduced during the 2020-21 school year. In many cases, PD sessions were infrequent, informal, or redirected to address immediate instructional needs, such as the use of new technology tools. In some schools, teachers were left to explore available resources independently. One school reported maintaining its pre-pandemic weekly hour of professional learning time; however, this time was

often redirected toward solving logistical issues related to virtual instruction. As a result, there were limited opportunities for teachers across RECN schools to connect or collaborate with their peers. While teacher participation in network activities gradually improved over time, a return to the full cross-school collaboration that was planned at the project's outset did not occur until the 2022-23 school year.

II.3.3: Building Early College Programs

COVID also impacted how schools progressed toward Early College endorsement; however, the program was still able to exceed the goal for the total number of endorsed programs.

Initial efforts around self-assessment and action planning were delayed due to the immediate and unpredictable disruptions caused by COVID-19. During the first year of the project, schools prioritized navigating closures and preparing for safe reopening, which left limited capacity to complete formal assessments or develop enhancement plans for their Early College programs. Despite this delay, however, schools made progress and figured out how to incorporate Early College planning into their COVID-adapted operations.

Relatedly, COVID-19 also disrupted plans for CELL's Early College endorsement visits to schools. During 2020-21, several endorsement visits took place virtually via Zoom. Although some schools indicated that they preferred the virtual visits, the CELL staff's ability to see elements of the Early College Core Principles in action was limited due to the online setting.

One area of continued difficulty for schools, which was exacerbated by the pandemic, was dual credit credentialing. In 2015-16, the Indiana Commission for Higher Education announced the impending requirement that high school teachers of dual credit courses meet the same standards as postsecondary instructors (see Section III.2.4 on teacher credentialing for more information). The original deadline for compliance was September 2017, which was first extended to 2022 and then, due to the COVID-19 pandemic, further postponed to September 2023. It was eventually left up to individual college campuses to implement starting in 2025. Even with this extended timeline, schools reported barriers to meeting the credentialing requirements. Many cited the strain placed on teachers during the pandemic and a general lack of capacity to take on additional responsibilities. As one principal reflected, "In terms of getting dual credit certified, there's just this level of exhaustion that is there that we have to pull our way through. I think it has been a factor."

II.3.4: Direct Work with Students

The pandemic also impacted schools' efforts to deliver Early College programming directly to students, particularly for the initial RECN cohort that began in the 2020-21 school year. Many schools faced internal disruptions to their daily operations, including the shortening or elimination of advisory periods, managing hybrid learning formats, and encountering new barriers to parent outreach and cohort recruitment.

Many planned cohort activities, especially those designed to provide differentiated supports and college-going experiences, were disrupted or had to be restructured. Key activities, such as college campus visits and guest speakers from higher education institutions and industry partners, were canceled or moved online. While schools adapted by offering virtual tours and Zoom calls with college representatives, both students and staff noted that these virtual formats were less engaging and less effective than in-person experiences. Additionally, efforts to embed authentic career readiness activities, such as career fairs, internships, live presentations, and job shadowing, were especially impacted during the 2020-21 and 2021-22 school years. These disruptions are an important contextual factor in interpreting the results of the impact study (see Sections V and VI).

COVID also affected instructional quality and delivery. Teachers in multiple schools reported that instructional rigor was diminished due to the need to slow instructional pace, modify science labs, and accommodate students who were less prepared following school closures. In some cases, schools delayed efforts to emphasize instructional rigor until a later year. Notably, the analysis of the staff evaluation survey found a statistically significant decline in project-based learning (PBL) practices between Years 1 and 2, which likely reflects pandemic-related instructional challenges.

At the same time, the pandemic accelerated the adoption of online course materials and platforms, which had the added benefit of aligning with college-level expectations in increasingly hybrid instructional settings and could ultimately benefit Early College students. Although some schools were already offering online courses with college instructors prior to the pandemic, this model became widespread across RECN during the 2020-21 school year.

In evaluation interviews, counselors and support staff reflected on the need to address the growing mental health needs of students. Several schools reported that counselors had to shift their attention to addressing student distress and crisis management, which limited their capacity to emphasize college-focused advising. Work-based learning activities also became more difficult to coordinate during this time, as community partners faced their own operational challenges and schools navigated shifting health protocols.

CELL responded to school feedback and made student support for success a priority area in its technical assistance and professional development following the pandemic. School leaders confirmed that a frequent topic in Quad meetings focused on student support strategies. Many schools reported substantial efforts in this area, including the creation of new staffing roles and the expansion of support systems. For example, one school added a dean of student success and a dedicated credit recovery teacher to help students reintegrate after suspensions, extended illnesses, or COVID-related quarantines. Although the need for COVID-specific interventions decreased in the later years of RECN, schools still had to address the associated educator and student burnout, learning loss, and re-adjusting to a "new normal."

Section III: Program Implementation

Figure III-1. RECN School Locations
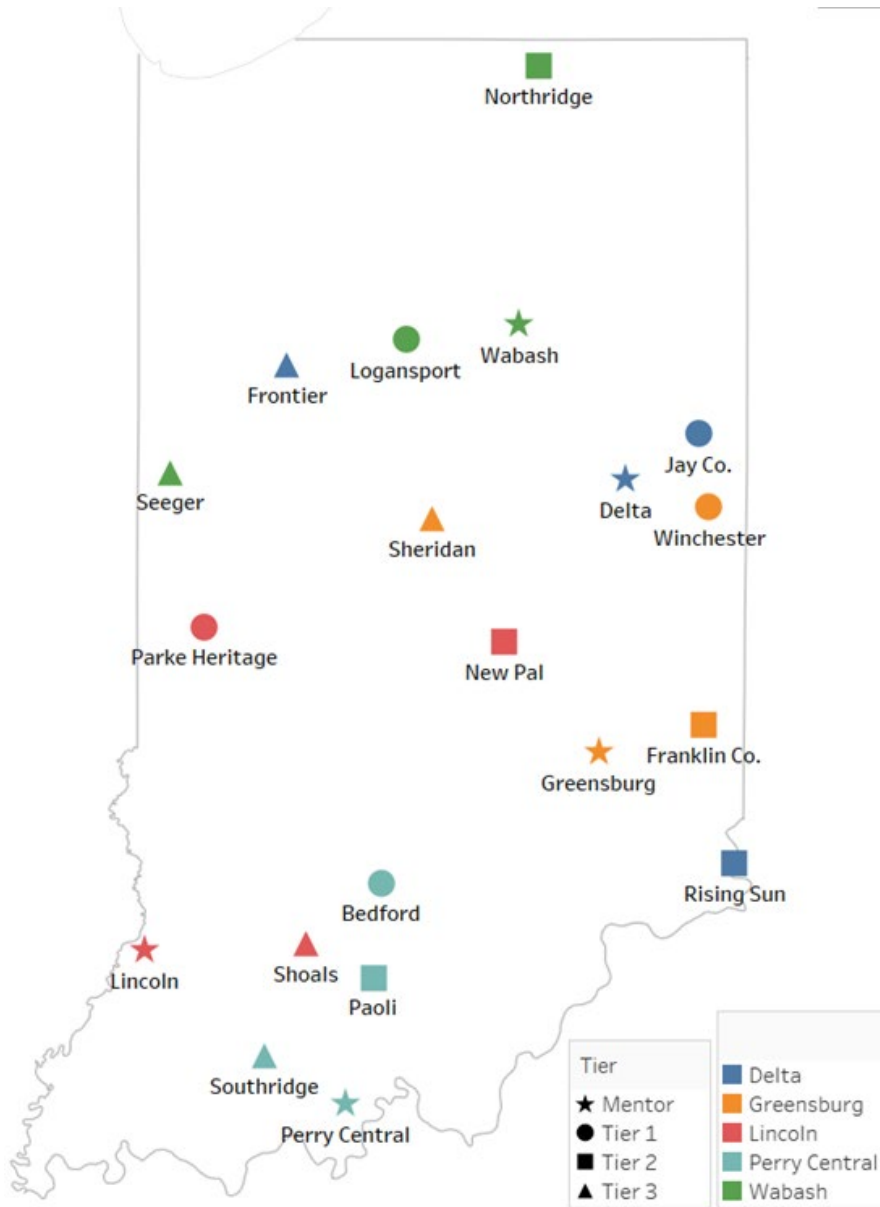
RECN was implemented in 15 schools around the state, representing a large portion of Indiana's rural areas. All program schools qualified as rural by having a locale code of 32-43 (as defined by the NCES). The map on the left shows the locations of each school. Each color represents a "Quad" of mentor, Tier 1, Tier 2, and Tier 3 schools paired together (in 2020-21, this group of schools was known as a "triad" before Tier 3 schools joined). The shapes of each map point represent the school's program status as a mentor, Tier 1, Tier 2, or Tier 3 school.

In addition to examining outcomes, the evaluation team assessed whether the program activities (Key Components) were implemented with fidelity. Fidelity of Implementation (FOI) involved setting target levels of implementation of program components and assessing whether those targets were met. EIR programs are required to report FOI in two program years; for RECN, we collected pilot fidelity data in Year 2 and official fidelity data in Years 3 and 4. These

years overlap with the outcome data from the 2021-22 and 2022-23 school years, at which point all RECN schools were implementing the program.

The FOI for RECN was conceptualized using the three levels of evaluation presented in the logic model. The first Key Component addresses the implementation of elements related to the Early College student cohort intervention, whose impact was assessed by the RCT. Key Component 2 addresses the second level, summarizing school-level participation in network and mentorship activities provided by CELL and the mentor schools. Key Component 3 addresses the third level, the sustainability and scale components, designed to strengthen the infrastructure for supporting Early College during and beyond the grant period. The following sections provide details about each Key Component and its associated FOI indicators. We report on 1) what the fidelity target for each component was, 2) the extent to which the thresholds for implementation were met, and 3) information from qualitative data collection to help explain how the RECN program implemented each component and the variation observed across schools.

III.1: Student Cohort Fidelity of Implementation Summary for Key Component 1

As part of RECN, each Tier 1-3 school identified a pool of students to target for their Early College cohorts. Some schools identified potential cohort students through an application process; others worked with their middle school counselors to identify students who would benefit from Early College activities. Each school had two cohorts of incoming high school students randomized to treatment (Early College cohort) or control conditions. Treatment students participated in Early College-specific activities during Grades 9 and 10 (aligned with the FOI indicators in subsequent sections) to support them in accessing and completing dual credit coursework and preparing for post-high school academics. Students in the treatment group also had a higher expectation of enrolling in dual credit coursework. Control students attended the same schools and received business-as-usual services. The control students had access to dual-credit coursework but did not receive the level of intensive support provided to the treatment students.

The elements of the cohort intervention were 1) cohort selection and common structures, 2) college exposure activities, 3) career exposure activities, 4) advising and support, and 5) staff collaboration for Early College cohorts. We begin by presenting a summary of the FOI for the targeted supports provided to student cohorts in Grades 9 and 10. Under Key Component 1, the team was expected to do the following activities outlined in Table III-1. The evaluation team assessed each school for fidelity at the indicator level. A school met fidelity for a Key Component if it received a score of 1 for *all* indicators under it. If 80% of the schools met fidelity for a Key Component, program fidelity was met.

Table III-1. Fidelity of Implementation Summary for Key Component 1 –Student Cohorts

Key Component and Indicator	Year 3		Year 4	
	# of Schools Meeting	Program Fidelity Met	# of Schools Meeting	Program Fidelity Met
Cohort Selection and Common Structures (KC 1.1)	**12/15**	**Yes**	**15/15**	**Yes**
Cohort selection	15/15		15/15	
Cohort meets regularly	12/15		15/15	
Common time/space for cohort	15/15		15/15	
Common scheduling	15/15		15/15	
College Exposure Activities (KC 1.2)	**10/15**	**No**	**12/15**	**Yes**
College Campus Visits	12/15		14/15	
Preparatory Content for College Readiness Exams	12/15		12/15	
College Readiness Skills Embedded in Advisory and/or Core Courses	15/15		13/15	
Career Exposure Activities (KC 1.3)	**12/15**	**Yes**	**9/15**	**No**
Career exploration	12/15		10/15	
Community interactions	14/15		10/15	
Advising and Support (KC 1.4)	**9/15**	**No**	**13/15**	**Yes**
Specific support for students who may struggle to attend college without additional support	14/15		14/15	
Individual four-year plan	15/15		15/15	
Students meet with an advisor to focus on progress data and individual plans	11/15		11/15	
Parent outreach	11/15		11/15	
Staff Collaboration (KC 1.5)	**4/15**	**No**	**9/15**	**No**
EC staff meet as a PLC to discuss cohort students and activities	4/15		9/15	
School Leadership Team (SLT) meets to discuss Grade 9 supports	15/15		15/15	

The following sections describe each element of Key Component 1, its FOI indicators, and the treatment students' reported experiences of that component.

III.1.1: Cohort Selection and Common Structures

The first element of the cohort intervention includes activities related to cohort selection, whether the cohort met regularly, and the extent to which the cohorts had a common time, space, and scheduling. We begin by summarizing the FOI for this Key Component Element 1.1, followed by brief descriptions of each component from evaluation data.

In Year 3, 12 of 15 (80%) of RECN partner schools met fidelity on KC 1.1. In Year 4, 15 of 15 (100%) of RECN partner schools met fidelity.

Table III-2. Fidelity of Implementation for Cohort Selection and Common Structures (KC 1.1)

KC	Indicator	Definition	Implementation Score	Year 3 Schools Meeting	Year 4 Schools Meeting
a)	Cohort selection	The school communicates with 8th grade students and families and creates an application or other selection criteria. Each school submits a roster of potential cohort students to SERVE to determine treatment status.	1 = School recruits and selects an early college cohort 0 = School does not recruit and select an early college cohort	15/15	15/15
b)	Cohort meets regularly	The selected Early College cohort meets at least once per week during the school year. These meetings can take place during an advisory period, a core academic course, at another time during the school day, or before/after school.	1 = Cohort meets one or more times per week as a group (in advisory or another period) 0 = Cohort meets less than one or more times per week as a group	12/15	15/15
c)	Common time/space for cohort	The school has a structure of a common time and space for the cohort to meet. This could include a designated room, teacher(s), or other structures.	1 = Common time/space is in place for the cohort to meet 0 = Common time/space is not in place for the cohort to meet	15/15	15/15
d)	Common scheduling	Students in the cohort have at least one common course with other cohort students in which Early College content can be embedded.	1 = Student has one or more common classes in which early college content is embedded 0 = Student does not have one or more common classes in which early college content is embedded	15/15	15/15

KC 1.1a: Cohort Selection

The expectation was for each school to select groups of students for Early College cohorts in two school years. The students were selected for participation via a lottery. The evaluation team provided guidelines for selecting cohorts and templates for collecting student names. Once schools established their applicant pool, they sent lists of names to be randomized by the evaluation team into treatment and control status. Schools were then expected to conduct specialized activities with their Early College cohorts. Four schools selected cohort students prior to the 2020-21 school year, and 14 schools selected students prior to the 2021-22 school year. Eight more schools conducted student selection in 2022-23. Valid lotteries (where there were treatment and control students) took place for all but four cohorts, yielding 26 valid lotteries in the sample, involving 1,336 total students. Table III-3 summarizes the number of students in the lottery study. See Section V for more information about the impact study associated with this sample of students.

Table III-3. Cohort Study Sample by School Year and Treatment Status

School Year	Valid Lottery Cohorts	Treatment Students	Control Students	Total Students Randomized
2020-21	4	98	112	214
2021-22	14	307	356	677
2022-23	8	189	248	445
TOTAL	**26**	**594**	**716**	**1,336**

RECN schools used different names and branding for their cohort groups. For example, one school referred to its cohort as the "pilot group," as they were testing strategies to scale to all students and prepare them for college-level coursework. Another RECN school called its group the "Aspire cohort" and branded its Early College program around the theme of postsecondary aspirations.

KC 1.1b: Cohort Met Regularly

Cohort meetings provided the primary time and space to support students' academic progress and postsecondary planning among peers. Data reported by the schools indicated that, by Year 4 of the program, all 15 schools held cohort meetings at least once per week, with most cohorts meeting more frequently—often four to five times per week. Cohort meetings most frequently took place during designated advisory or homeroom periods, referred to by school-specific names such as Advisory, Impact, Plus, PRIDE, or Resource Time.

Most schools reported meeting for 20 to 30 minutes per session, while a smaller number offered longer blocks ranging from 45 to 90 minutes. Despite the regularity of these meetings, not all sessions focused explicitly on Early College. Schools blended academic support, relationship-building, and college- and career-readiness activities into the format that best suited their students and staff. For example, one school implemented a weekly program called "RECN It's Thursday," which featured Early College-specific content such as virtual college tours, guest speakers from higher education institutions and local businesses, and career exploration activities. Another school incorporated a daily "Preparing for College and Careers" course that offered differentiated content for students in the Early College program.

Students and staff emphasized the value of regular cohort meetings to develop a shared identity and purpose among Early College participants. One staff member described that the cohort structure improved upon traditional study hall periods because RECN Early College students received more intentional guidance. A student explained that cohort time created a sense of common purpose, "We're all trying to get to the same place… we want to get as much college done as we can." Another student described their daily "Impact for Us" meeting as a flexible space to complete assignments, collaborate with peers, and receive college-oriented advising from counselors.

KC 1.1c: Common Time/Space for Cohort

A shared time and physical space for cohort meetings supported connections among Early College students across RECN schools. This structure contributed to what CELL and many school leaders described as a "sense of place"—a key element of the College-Going Culture Core Principle—by helping students begin to see themselves as college students, even while attending their home high schools. All 15 participating schools reported having designated times and locations for cohort interaction, typically during advisory periods or scheduled classes with fellow cohort members.

In addition to scheduled meeting times, several schools created dedicated physical spaces for Early College students to gather, study, and socialize. These spaces served as informal hubs of activity, reinforcing the students' shared identity and purpose. Many schools developed "Early College lounges," where students often chose to eat lunch, work during study halls, or connect with peers across different grade levels who were also taking Early College courses. One school described that their Early College area was intentionally designed to be like a common area on a college campus, complete with informational displays and a coffee bar, giving students an atmosphere in which to collaborate with peers and staff that helped get them in a college mindset.

All 15 RECN schools implemented some form of common scheduling to support their cohorts. Most schools limited the common scheduling of cohort students to designated advisory periods. However, a few schools extended this structure into academic coursework, particularly for core academic subjects in Grade 9. For example, one school placed cohort students together in both advisory and English 9, and many of those students were also enrolled in shared Algebra I or Geometry sections. In addition, several schools offered a version of the "Preparing for College and Careers" course with specialized content for Early College students, allowing them to engage in content related to college planning and readiness alongside their cohort peers. A few schools also described plans to maintain cohort groupings beyond Grade 10. At one school, a staff member explained, "We're trying to keep this group together for all four years, which is not something that we necessarily do with those homeroom groupings that we typically have."

KC 1.1d: Common Scheduling

All 15 RECN schools implemented some form of common scheduling to support their cohorts. Most schools limited the common scheduling of cohort students to designated advisory periods. However, a few schools extended this structure into academic coursework, particularly for core academic subjects. For example, one school placed cohort students together in both advisory and English 9, and many of those students were also enrolled in shared Algebra I or Geometry sections. In addition, several schools offered a version of the "Preparing for College and Careers" course with specialized content for Early College students, allowing them to engage in content related to college planning and readiness alongside their cohort peers. A few schools also described plans to maintain cohort groupings beyond Grade 10. At one school, a staff member explained, "We're trying to keep this group together for all four years, which is not something that we necessarily do with those homeroom groupings that we typically have."

III.1.2: College Exposure Activities

The second element addressed college exposure activities with the Early College cohort students. College exposure activities included campus visits, preparation for college readiness exams, and instruction in college readiness skills. Table III-4 summarizes the number of schools meeting FOI on each indicator of college exposure activities.

Table III-4. Fidelity of Implementation for College Exposure Activities (KC 1.2)

KC	Indicator	Definition	Implementation Score	Year 3 Schools Meeting	Year 4 Schools Meeting
a)	College Campus Visits	Students visit a two-year or four-year college campus. Visits may take place during the school day or outside of school hours. For years impacted by COVID, campus visits may be conducted virtually (such as video calls with students, admissions officers, etc.)	1 = >90% of students visit 1+ college campuses in school year 0 = <90% of students visit a college campus during the school year	12/15	14/15
b)	Preparatory Content for College Readiness Exams	Schools offer cohort students preparatory content for dual credit placement exams. These include the *Knowledge Assessment*, Accuplacer, and/or PSAT. Examples of artifacts could include curriculum, lesson/unit plans, or other study resources.	1 = School offers preparatory content for dual credit placement (such as *Knowledge Assessment*) and/or PSAT 0 = School does not offer preparatory content for dual credit placement and/or PSAT	12/15	12/15
c)	College Readiness Skills Embedded in Advisory and/or Core Courses	Schools offer cohort students lessons on college-level expectations and college readiness skills for cohort students. Examples of artifacts could include curriculum, lesson/unit plans, or other study resources.	1 = Courses (advisory or core classes) contain lessons on college-level expectations and college readiness skills for cohort students 0 = Courses (advisory or core classes) do not contain lessons on college-level expectations and/or college readiness skills for cohort students	15/15	15/15

KC 1.2a: College Campus Visits

RECN schools prioritized college visits and interactions with higher education institutions to support a college-going culture and provide students with meaningful exposure to postsecondary options. By integrating these experiences into the Early College model, schools expanded opportunities for younger students in Grades 9 and 10 to explore college pathways that were previously reserved for juniors and seniors.

As noted in the FOI summary, 12 of 15 schools in Year 3 and 14 of the 15 schools in Year 4 reported that over 90% of their cohort students had participated in at least one college campus

visit. Students toured a wide range of institutions across Indiana and neighboring states, including Ball State, Purdue, Butler, Indiana University, Indiana State, Vincennes University, Ivy Tech, IUPUI, Hanover College, Southern Indiana, and regional campuses of several universities. Some schools also visited smaller institutions and technical colleges. These visits often included guided campus tours, admissions presentations, information about specific academic programs, and, in some cases, direct interaction with faculty and college students. As one student reflected, "We've had a lot more field trips and learning more about the colleges that we could possibly go to than some of the other classes have."

When in-person visits were not possible, especially during pandemic-related disruptions in the first two years of RECN, schools adapted by offering virtual tours and Zoom sessions with college representatives. For example, one school invited its cohort to participate in virtual college sessions, allowing younger students to hear directly from college representatives. Schools also hosted initiatives such as "College Go Week" that promoted college options for students. In some cases, summer opportunities helped to connect cohort students with higher education partners. For example, one school brought its cohort to Ivy Tech during the summer to meet with liaisons and college coaches, helping students see college as an attainable next step.

KC 1.2b: Preparatory Content for College Readiness Exams

Another component of college readiness involved integrating preparatory content for college readiness exams into the Early College experience as part of their commitment to the Curriculum and Plan of Study Core Principle. In both Years 3 and 4, 12 of the 15 participating schools reported offering exam preparation to their Early College cohort students. Most commonly, this preparation focused on the PSAT and SAT; however, some schools also helped prepare students for the Knowledge Assessment exam, which is used to determine eligibility for dual credit.

Schools varied in how they delivered preparation for college readiness exams, with some embedding it into the school day through classroom lessons, advisory time, or structured study hall support. They reported using a variety of tools and resources, such as Khan Academy, Study Island, and Chalk Talk, to support student review. However, interviews and surveys with students indicated that the integration of this preparation was not a regular activity (i.e., weekly or more frequently), making it unlikely to be as consistent and widespread as would be needed to demonstrate improved results.

The Year 3 student survey contained items about the frequency of activities to support success on college readiness exams (such as Knowledge Assessment). Treatment students indicated that they most frequently received support in building skills to be successful on college placement exams. Students reported that test-taking tips for the PSAT/SAT/ACT and college placement exams were less frequent.

KC 1.2c College Readiness Skills

All 15 RECN schools reported embedding college readiness skills into advisory periods and core courses. Schools included time management, organization, meeting college-level expectations, and developing "soft skills" such as communication and self-advocacy. Many schools utilized teacher-led lessons or presentations from counselors and college connection coaches to guide students in developing skills such as composing professional emails, managing deadlines, taking notes, and preparing for tests. Multiple schools used tools like Naviance to support student exploration and planning. Individual schools also described strategies such as providing students with planners to improve their organization or inviting recent graduates to speak about their college experiences.

Schools also emphasized the role of the dual credit "Preparing for College and Careers" course as a key structure for building postsecondary readiness. Some RECN schools had students take the course in Grade 8, but some specialized the content for Early College with their cohort students. One student said, "They're putting us on the path to get to those classes...so we're already on that path and not trying to catch up once we get there." Additionally, some schools noted that participation in dual credit courses themselves helped students develop the independence and academic behaviors necessary for college success.

In the Year 3 student survey, approximately 75% of the cohort students reported receiving college and career readiness activities at least once a month. As shown in the figure below, students reported more emphasis on general college and career resources and the skills/knowledge for college classes than on activities focused on career planning.

III.1.3: Career Exposure Activities

The third element addresses career exposure activities, including indicators that career exploration activities occur at least once per month and that community interactions occur at least once per semester.

As shown in Table III-5, schools reported better implementation of career exposure activities with their cohorts in Year 3 (12 of 15 schools met fidelity) than in Year 4 (10 of 15 schools met fidelity). The lower numbers in Year 4 indicated that fewer schools were implementing career exploration activities on a monthly basis and maintaining regular connections with the community for their cohorts.

Table III-5. Fidelity of Implementation for Career Exposure Activities (KC 1.3)

KC	Indicator	Definition	Implementation Score	Year 3 Schools Meeting	Year 4 Schools Meeting
a)	Career exploration	Schools offer cohort students lessons on career exploration at least once a month. Examples of artifacts could include curriculum, lesson/unit plans, or career assessments.	1 = Career exploration activities take place at least once per month 0 = Career exploration activities do not take place at least once per month	12/15	10/15
b)	Community interactions	Students have a guest speaker or other community interaction at least once per semester. These could include opportunities to connect with local employers and professionals or service learning events.	1 = Students have a guest speaker or other community interaction at least once per semester 0 = Students do not have a guest speaker or other community interaction at least once per semester	14/15	10/15

KC 1.3a: Career Exploration

Career exploration was another part of the cohort work that aimed to prepare students for educational opportunities and careers beyond high school. Schools used various resources to expose students to career pathways, including career-focused videos, guest speakers, presentations on internships, career fairs, and self-assessments to identify student interests and strengths. Schools used online platforms such as Naviance, Learn More Indiana, Xello, Everfi, and Major Clarity to support student research and planning. Several schools also drew on resources from programs like AVID, Jobs for America's Graduates (JAG), and the ASVAB assessment to broaden access to career-related content.

Some schools structured career exploration activities as part of regular class time, particularly during advisory periods. One student in Grade 9 shared, "Every Thursday, we all watch videos on different majors and career groups...it's pretty interesting seeing about different jobs and what we might want to do." Schools also described virtual and in-person job site tours, follow-up conversations based on career interest surveys, and projects that encouraged students to explore their future aspirations. Interviews with partner schools highlighted examples of expanded career readiness offerings specifically for cohort students. One school planned an "Employability Skills Day" featuring mock interviews with community members. Another school designed a capstone course that would allow Early College students to engage in summer internships aligned with their job interests and local employers.

Survey data and interviews supported these findings. In Year 3, students reported engaging most frequently in discussions with adults about careers and learning about different jobs and their requirements, with 92% of cohort students responding that they had discussions with

adults at school about careers and work. Fewer students had participated in business or industry field trips or received instruction on how to search for a job. In Year 4, staff surveys indicated strong confidence in the quality of career readiness activities school-wide, with approximately 85% of staff agreeing that their school equips students with the skills needed to succeed in the workforce.

KC 1.3b: Community Interactions

Community interactions were also designed to help cohort students understand the connection between students and the broader world beyond high school. Schools reported community interactions, including guest speakers, service-learning projects, job-based tours, information about internship opportunities, or similar activities, as part of the FOI measures. Some schools also welcomed visits from military recruiters or hosted events that connected students with professionals from a wide range of industries. For example, one school featured speakers from a local bank, social workers, and an engineer from a local auto manufacturer, which offered students exposure to both career pathways requiring different types of postsecondary education. In Year 3, 14 of 15 schools met fidelity on community interactions; however, only 10 schools met fidelity in Year 4.

In several cases, schools invited recent graduates who were then in college or working in the community to share their postsecondary experiences and explain how their high school choices contributed to their future success. Helping cohort students interact with similar-aged peers from the same community also helped reinforce the idea that college and career success is attainable. Schools also shared that they incorporated service-learning or civic engagement activities into their community interactions for the Early College cohort. For instance, students at one school organized a homeroom food drive. Other schools coordinated events such as food collections, holiday programs for children, or cultural outings like attending a ballet performance. These projects enabled students to contribute to their local communities beyond their academic work.

III.1.4: Advising and Support

The fourth element for cohort students involved advising and support. Indicators include specific support for students who may struggle to attend college without additional support, creating individual four-year plans, meeting regularly with an advisor (e.g., teacher, counselor) to discuss data and plans, and parent outreach.

As shown in Table III-6, nine of the 15 schools met fidelity for all indicators in Year 3. However, the RECN schools improved the regularity of advising and support in Year 4, with 13 of 15 schools meeting fidelity. All schools indicated that their students had four-year plans in both years. The number of schools providing advising conversations with students and parent outreach activities during Year 4 also increased.

Table III-6. Fidelity of Implementation for Advising and Support (KC 1.4)

KC	Indicator	Definition	Implementation Score	Year 3 Schools Meeting	Year 4 Schools Meeting
a)	Specific support for students with barriers to college access	Schools provide lessons/programming/support that address challenges for students (such as first-generation students). Examples of artifacts could include curriculum, lesson/unit plans, or other instructional resources.	1 = Lessons/programming/ support is offered that address challenges in accessing college (such as being first-generation college-attending) 0 = Lessons/programming/ support is not offered	14/15	13/15
b)	Individual four-year plan	Each student has an individual four-year plan with high school and dual credit coursework that aligns with their future plans. The plan is updated at least once per year as students progress through high school.	1 => 90% of students have an individual four-year plan with high school and dual credit coursework 0 = <90% of students have an individual four-year plan	15/15	15/15
c)	Students meet with an advisor to focus on progress data and individual plans	Students meet with an early college advisor/cohort teacher about course progress, focused on data (such as grades and attendance), at least once per month.	1 => 90% of students met with an early college advisor/cohort teacher about course progress focused on data (such as grades and attendance) at least once per month 0 = <90% of students with an early college advisor/cohort teacher about course progress at least once per month	11/15	15/15
d)	Parent outreach	Schools conduct at least one parent outreach event each school year targeted at families of cohort students that helps communicate about the Early College program. Events can be conducted during, after, or before school hours.	1 = At least one parent outreach event for cohort student families occurred during the school year 0 = A parent outreach event for cohort students did not occur	11/15	14/15

KC 1.4a: Support for Students Who May Struggle to Attend College

RECN schools provided support tailored to students who may struggle to attend college without additional intervention. These efforts acknowledged that many cohort students may be the first in their families to attend college or may face barriers related to academic preparation, financial access, or limited exposure to postsecondary pathways.

Schools described several targeted strategies they used with cohort students, including specialized guidance and mentorship from advisory teachers, counselors, and college liaisons. Support structures included before- and after-school tutoring, social-emotional learning lessons, and guidance on financing college. Some schools developed lessons specifically designed for first-generation college students, often delivered by the guidance department or

incorporated into advisory periods. For example, at one RECN school, a first-generation college graduate who is now a college professor returned to speak with students about their experiences.

These supports often built upon the broader college readiness strategies described in KC 1.2, which were seen as especially important for students who lacked college experience at home. Lessons on goal setting, college expectations, and "soft skills" helped students develop the necessary skills to attain postsecondary success.

KC 1.4b: Individual Four-Year Plan

All 15 RECN schools reported that Early College cohort students completed individual four-year plans. These plans were designed as structured roadmaps to guide students through the coursework needed for their postsecondary plans. The specific format and implementation varied by school; however, as part of the Early College cohorts, schools often emphasized earning dual credit and completing the Indiana College Core (ICC) where possible.

Several schools used the *Preparing for College and Careers* course as the starting point for developing these plans, integrating course content with personalized academic advising. At one school, a student explained, "We planned our classes for the next three years. If we earn the credit for our class, we go to the second level, and we can take honors or regular classes to earn our credits."

While all Grade 9 students typically developed a four-year plan, RECN cohort students were provided additional support tailored to their individual goals. Schools reported that these students were more likely to receive one-on-one advising, participate in individualized scheduling meetings, and receive guidance on incorporating dual credit courses into their long-term academic plans. One school noted that RECN students were "further ahead than other 9th graders" in thinking through their pathways and postsecondary options.

KC 1.4c: Students Met with Advisor

Meeting regularly with advisors helped support success among cohort students, touching both the Supports for Student Success and the Data Collection, Analysis, and Use Core Principles. The goal of individualized advising sessions was to help students discuss academic progress, set goals, and plan for coursework with trusted adults. Early College cohorts typically received advising during cohort meetings facilitated by cohort teachers, counselors, or, in some cases, higher education partners (e.g., College Connection Coaches).

Students generally recognized that their advising experiences differed from those of their peers who weren't in the Early College cohort. One student explained, "We look at our grades more than other students." Another noted the regular check-ins, saying, "Every so often, our teacher will come around with a computer and ask us about our different classes. And if you have any missing assignments or anything that you need help with, they ask you about that. So, we can get it solved, and they help us."

Survey data from Year 3 showed that not all students experienced advising in the same way. While 89% of cohort students in Grade 9 reported meeting at least once a month with a teacher or counselor to discuss their high school classes, fewer students reported similar levels of support in other areas. For example, 44% of students reported that they had never discussed their college course plans, and 30% indicated that they had never spoken with an advisor about their grades. These findings highlighted inconsistencies in how advising was implemented and pointed to opportunities for strengthening the consistency and comprehensiveness of regular advising practices across schools.

KC 1.4d: Parent Outreach

Parent outreach was the final component of support and advising for students. This work aligned with the Parent Outreach indicator in the Supports for Student Success Core Principle rubric. These activities aimed to raise awareness of the Early College model and increase parental involvement in and support for the program.

In Year 4, 14 of the 15 RECN schools reported parent outreach activities, which was an increase from 11 schools in Year 3. Outreach activities included Early College newsletters, parent information nights, email and letter communications, academic banquets, and discussions of Early College at orientation events. Some schools hosted standalone Early College events, while others integrated Early College sessions into family engagement opportunities available to all students. Several schools implemented creative strategies to increase visibility and encourage informal interactions with families. Two schools delivered Early College yard signs to students' homes, allowing staff to introduce the program in person and strengthen connections to the school.

Schools also combined outreach with community-building events to deepen connections with families. For example, one school held an Early College tailgate party, inviting students and families to a football game free of charge. Additionally, three schools organized "track or treat" events at Halloween that doubled as outreach opportunities to share information about Early College and get students engaged in their communities.

III.1.5: Staff Collaboration for Early College Cohorts

The final elements of the cohort intervention connect to staff collaboration for Early College cohorts. The indicator relating to *all* Early College staff meetings as a PLC to discuss cohort students and activities had the lowest implementation of all indicators.

In Year 3, only four of 15 schools indicated that Early College staff members met as a PLC outside SLT meetings; the number increased to nine schools in Year 4. All schools, however, reported meeting throughout the school year as an SLT. Due to the low number of schools meeting as a full Early College staff, fidelity was not met for the staff collaboration Key Component.

Table III-7. Fidelity of Implementation for Staff Collaboration for Cohorts (KC 1.5)

KC	Indicator	Definition	Implementation Score	Year 3 Schools Meeting	Year 4 Schools Meeting
a)	EC staff meet as a PLC to discuss cohort students and activities	Early college/dual credit teachers meet as a PLC at least four times per year to discuss program, rigor, and data. This PLC includes all teachers of dual credit courses to ensure alignment of expectations and resources across the school. Examples of artifacts include meeting agendas or minutes.	1 = Early college/dual credit teachers meet as a PLC at least four times per year to discuss program, rigor, and data 0 = Early college/dual credit teachers do not meet as a PLC four times per year	4/15	9/15
b)	School Leadership Team (SLT) meets to discuss Grade 9 supports	In addition to meeting to discuss other RECN activities, the SLT meets at least four times per year to discuss supports. Examples of artifacts include meeting agendas or minutes that indicate cohort-specific activities.	1 = SLT meets at least four times per year to discuss cohort supports 0 = SLT does not meet at least four times per year to discuss cohort supports	15/15	15/15

KC 1.5a: Early College Staff Meet as PLC

As noted in the next section about KC 1.5b, School Leadership Teams (SLTs) for Early College were established across all 15 schools to provide a consistent structure for guiding program activities. For KC 1.5a, the FOI named additional meetings of all Early College staff as a professional learning community (PLC). In Year 3, only 4 of 15 schools reported having Early College staff meet regularly as a PLC; this number increased to 9 of 15 schools in Year 4. In some cases, schools may have interpreted PLC work as part of SLT responsibilities. Where PLCs existed, their focus included coordination with Ivy Tech, discussion of the Indiana College Core (ICC), scaffolding for dual-credit coursework, and shared strategies for student support. For instance, one RECN partner school held consistent Wednesday morning meetings to discuss academic progress, non-academic student support, scheduling, and program updates. At another school, a staff member described convening AP and dual credit teachers to discuss student needs and instructional challenges, describing the process as "essentially looking at problems of practice."

KC 1.5b: SLT Meetings about Cohort Supports

All 15 RECN schools reported meeting regularly as School Leadership Teams (SLTs), with specific attention given to the needs and progress of Early College cohort students. Throughout Years 3 and 4, schools used SLT meetings to address a broad range of topics related to Early College (not just the cohort students in Grades 9 and 10). These included student support, college and career readiness activities, dual credit course planning (especially related to the Indiana College Core), teacher credentialing, recruitment and retention, and professional development.

Several schools highlighted how their SLTs adapted support as they learned more about student needs. The regular SLT meetings provided a structure in which teams could strategize how to serve individual students. Other schools emphasized the use of the SLT structure for strategic planning. These topics included RECN endorsement planning, advisory curriculum development, expanding teacher credentialing for dual credit, working with middle schools to ease the transition to high school, and strategies to promote a college-going culture.

III.2: School-Level Fidelity of Implementation Summary for Key Component 2

RECN schools were expected to participate in various school support activities provided by CELL and the mentor schools to help enhance their Early College programs. Key Component 2 included school-level participation in various activities to support Early College. These activities were primarily facilitated by CELL and the mentor schools to support increased implementation of the Early College Core Principles. Overall, the program met fidelity on 4 of 5 elements under Key Component 2 in both Years 3 and 4, which included Professional Development and Coaching, Planning for Early College Enhancements, Dual Credit Teacher Credentialing, and Pathways and Work-Based Learning. Fidelity was not met for the Key Component of School-to-School Mentoring, specifically the indicator of regular mentor-partner contact. Schools also had more difficulty meeting the requirement for additional professional development outside of RECN, with 9 of 15 schools meeting FOI in Year 3 and 12 of 15 schools meeting FOI in Year 4. Table III-8 summarizes the fidelity assessment by program year.

Table III-8. Whole-School FOI Summary (KC 2.1-2.5)

Key Component and Indicator	Year 3		Year 4	
	# of Schools Meeting	Program Fidelity Met	# of Schools Meeting	Program Fidelity Met
Professional Development and Coaching (KC 2.1)	**15/15**	**Yes[10]**	**14/15**	**Yes**
RECN EC Network/Quad Meetings	15/15		15/15	
Project Leadership Team (PLT) Meetings	15/15		12/15	
School Leadership Team (SLT) Meetings	15/15		15/15	
Coaching/Technical Assistance from CELL	15/15		15/15	
Other Professional Development	9/15		12/15	
Role-Specific Coaching/Technical Assistance	Met		Met	
School-to-School Mentoring (KC 2.2)	**8/15**	**No**	**7/15**	**No**
Regular Mentor-Partner Contact	8/15		7/15	
Mentor-Partner School Visits	15/15		15/15	
Planning for Early College Enhancements (KC 2.3)	**15/15**	**Yes**	**15/15**	**Yes**
Annual Early College Self-Assessment	15/15		15/15	
Plan for Early College Enhancements (Action Plan)	15/15		15/15	
Dual Credit Teacher Credentialing (KC 2.4)	**15/15**	**Yes**	**15/15**	**Yes**
Needs Assessment for Dual Credit Credentials	15/15		15/15	
Support for Teachers to Earn Dual Credit Credentials	15/15		15/15	
Pathways and Work-Based Learning (KC 2.5)	**Met**	**Yes**	**Met**	**Yes**

[10] Note for KC 2.1, fidelity was met at the school level if at least 5 of 6 indicators were met.

| | CELL Support for Pathways and Work-Based Learning | Met | | Met | |

III.2.1: Professional Development and Coaching

This element of the whole-school intervention addressed professional development and coaching to support the growth of program schools' Early College programs. The FOI matrix defines six indicators for professional development and coaching. Indicators include those for meetings (network/Quad, Project Leadership Teams (PLT), and SLT), technical assistance/coaching from CELL, additional professional development, and structures for role-alike networking. For the program to meet fidelity on Key Component 2.1, 80% of schools needed to meet at least five of six indicators (KC 2.1a-2.1f).

Table III-9. Fidelity of Implementation for Professional Development and Coaching (KC 2.1)

KC	Indicator	Definition	Implementation Score	Year 3 Schools Meeting	Year 4 Schools Meeting
a)	RECN EC Network/ Quad Meetings	At least three members from each SLT attend scheduled bi-monthly RECN network or Quad meetings (in-person or virtual) facilitated by CELL.	1 = At least 3 SLT members attended ≥ 80% of RECN meetings 0 = At least 3 SLT members attended < 80% of RECN meetings OR Less than 3 SLT members attended ≥ 80% of RECN meetings	15/15	15/15
b)	Project Leadership Team Meetings	One representative from each Mentor and Tier 1-3 school attends scheduled bi-monthly virtual PLT meetings.	1 = School attended ≥ 80% of PLT meetings 0 = School attended < 80% of PLT meetings	15/15	12/15
c)	School Leadership Team Meetings	SLTs meet at their school site to discuss and address issues related to their EC programs and to identify needed areas of support for technical assistance. These meetings may or may not be joined by mentor school SLTs.	1 = School SLT met at least once in ≥ 8 months (August – May) 0 = School SLT met at least once in < 8 months (August – May)	15/15	15/15
d)	Coaching/ Technical Assistance	CELL provides in-person or remote support for SLTs and other EC school staff to assist with team processes and achieve high levels of EC Core Principle implementation, as outlined in the rubric. Year 2 began the focus on getting to EC endorsement. Once endorsed, this support will help the programs to grow, maintain quality (at a rubric level of 4 or 5 for each Core Principle), and address new issues such as context changes, budgets, and turnover.	1 = School received at least one substantive contact in ≥ 8 months (August – May) 0 = School received at least one substantive contact in < 8 months (August – May)	15/15	15/15

				9/15	12/15
e)	Professional Development	School receives professional development, attends conferences (from CELL or other providers) for EC Core Principle implementation outside of RECN network meetings, with topics informed by individual school plans. PD differs from coaching/technical assistance in that it has more structure and intentionality. Sessions may be customized for individual RECN schools or groups of RECN schools with similar foci.	1 = School received ≥ 12 hours of PD 0 = School received < 12 hours of PD	9/15	12/15
f)	Role-specific Coaching/ Technical Assistance	CELL will help to facilitate sessions for teachers and counselors, with a PLC-type structure to work on EC and other related topics. These sessions include, but are not limited to, counselor lunch-and-learns, counselor Quad meetings, and subject-area-specific dual credit teacher sessions.	1 = CELL organized/ facilitated role-specific sessions 0 = CELL did not organize or facilitate role-specific sessions	Met	Met

KC 2.1a: RECN EC Network/Quad Meetings

RECN had two primary types of network meetings: 1) full network meetings involving all 20 schools and 2) "mini-network" meetings involving each mentor school and the three partner schools they supported. Because these meetings involved three schools in Year 2, they were called "Triads"; in Years 3-5, they involved four schools and were referred to as "Quads." These meetings, facilitated by CELL, provided the primary structure for professional development and collaboration among the RECN schools. These meetings were designed to help schools address challenges with their Early College programs and strengthen relationships and learning both within and among schools. All RECN School Leadership Teams (SLTs) were expected to attend an annual conference (known as the "mini-conference" in Years 1-3 and the "Early College Summit" in Years 4-5) and retreat, two RECN network meetings, and two Quad meetings (known as Triad meetings in Year 2) per year.

At the outset of the project, CELL planned to convene the RECN network in person for four annual network meetings during the school year. However, the onset of COVID in Year 1 led to significant restrictions on in-person gatherings. Feedback from participants indicated that early attempts to move full-day network meetings fully online did not work well. As COVID restrictions allowed limited attendance at in-person gatherings in Year 2, the structure of this Key Component changed to include two shorter virtual full-network meetings and two in-person regional "Triad" meetings between the mentor school and its partner schools. Schools appreciated this new arrangement and felt that it helped them to establish better relationships within their mentorship groups. As a result, RECN continued with this structure as the Tier 3 schools joined for regular "Quad" meetings in Years 3-5. These "Quads" served as a mini-

network structure that the evaluation team explores in more detail in our upcoming brief on mentorship.

In addition, CELL encouraged schools to participate in at least two of the four statewide Early College Network meetings, which are open to all Indiana Early College schools (i.e., not specific to RECN). Throughout the project, CELL brought guest speakers to network meetings to help connect the RECN schools with new ideas and resources. Speakers included the Indiana Secretary of Education and other leaders within the Indiana Department of Education, representatives from Indiana colleges and universities, leaders of rural collaboratives in other states, experts on braiding/blending funding sources, and experts on policy and legislation.

The combination of full-network and mini-network meetings provided schools with more personalized learning and support, allowing deeper relationships to form among school teams. All 15 RECN partner schools met the fidelity requirement for attendance at network and Quad meetings in both Years 3 and 4.

KC 2.1b: Project Leadership Team (PLT) Meetings

CELL hosted bi-monthly virtual meetings attended by the principal or designee from each mentor and treatment school, typically focused on 1) project and policy updates, 2) planning of future mini-network meetings, 3) reflection on past project activities and/or evaluation data, and 4) discussion of any issues brought by the schools. All 15 schools met fidelity for attending all required meetings in Year 3; in Year 4, however, only 12 of 15 schools met the attendance requirements.

KC 2.1c: School Leadership Team (SLT) Meetings

The SLT served as an implementation team for the RECN project in each school. During project orientation sessions, CELL staff conveyed expectations for the SLTs, also outlined in the FOI. School SLTs are composed of the principal, counselor(s), college liaison(s), and dual credit teachers. Some teams also included other school (assistant principal) or district (Director of Curriculum) administrators. In final-year interviews, all interviewed schools indicated that they planned to keep the SLT as a sustainable leadership structure for Early College beyond the RECN grant period.

KC 2.1d: Coaching/Technical Assistance from CELL

CELL provided in-person or remote support to SLTs and other Early College staff, helping them with team processes and achieving high levels of EC Core Principle implementation based on the rubric. For schools planning to pursue Early College endorsement within the next year, coaching and TA most often focus on endorsement preparation. When schools experienced leadership changes, coaching and TA from CELL also helped bridge institutional knowledge and onboard new school leaders to the Early College Core Principles.

To provide coaching and TA, CELL team members split responsibility for the schools by tier (i.e., one staff member served the Tier 2 schools, and a different staff member served the mentor schools). Additionally, school staff reported that CELL sent out monthly newsletters and provided weekly updates on speakers, problems, and solutions other schools were experiencing, and promptly responded to email questions and requests. Additionally, the CELL team visited the principals and superintendents in all project schools annually in person to review their progress and learn about local changes that could impact Early College and how RECN supports could adapt to meet evolving needs.

KC 2.1e: Professional Development

Each school was also expected to receive professional development or attend conferences (from CELL or other providers) for Core Principle implementation outside of RECN network meetings, with topics informed by individual school plans. The most common forms of external professional development were attendance on the April trip to visit P-TECH schools in New York, attendance at conferences (e.g., National Forum to Advance Rural Education), and school-specific PD on topics including rigor, student support, Socratic seminars, and general Early College information for staff.

KC 2.1f: Role-Specific Coaching and Technical Assistance

CELL also provided support to sub-networks of school staff members with similar roles across the RECN program. The sub-networks for principals and counselors met regularly throughout the RECN grant period through online engagements (such as the Project Leadership Team and Counselor Lunch-and-Learns) and dedicated sessions at network and Quad meetings. The RECN grant originally intended to have similar role-alike meetings for teachers. However, COVID-19 and a shortage of teachers and substitutes prevented teacher networks from materializing before Year 4.

CELL continued role-specific sessions in Year 4, with more emphasis on PD for teachers than in previous years, and a dedicated CELL staff member to support teacher PD. During Quad meetings, teachers gathered to get to know one another and share details about their Early College programs from an instructional perspective. Teachers also observed classes taught by dual credit teachers at the Quad's host school. Discussions throughout the year focused on rigor, the role of teachers on SLTs, and sharing instructional resources with same-subject peers. CELL also facilitated time for teachers to work together during network meetings and through follow-up Zoom calls.

III.2.2: School-to-School Mentoring

RECN mentor schools had all completed the endorsement process prior to the outset of the program. They provided support to partner schools as they aspired to improve their Early College programs and receive CELL's endorsement. School-to-school mentoring had two FOI indicators: 1) regular mentor-mentee contact and 2) mentor-mentee school visits. The school-

to-school mentoring Key Component was met with fidelity if at least 80% of schools met both FOI indicators. All schools met the indicator related to school visits through Quad meetings. However, only 7 of 15 schools (Year 3) and 8 of 15 schools (Year 4) met the indicator for regular mentor-partner school contact. Thus, fidelity on this Key Component was not met. However, CELL staff noted that regular contact dropped significantly once partner schools achieved endorsement. Therefore, the lower levels of contact between mentor and partner schools by Year 4 may not be a concern, given that the same level of support needed when initiating Early College was not necessarily needed after endorsement.

Table III-10. Fidelity of Implementation for School-to-School Mentoring (KC 2.2)

KC	Indicator	Definition	Implementation Score	Year 3 Schools Meeting	Year 4 Schools Meeting
a)	Regular Mentor-Partner Contact	Each treatment school has at least one substantive contact with its mentor school to address elements of the EC program within the 10 school year months (August – May).	1 = School received at least one substantive contact in ≥ 8 months (August – May) 0 = School received at least one substantive contact in < 8 months (August – May)	8/15	7/15
b)	Mentor-Partner School Visits	Mentor and partner schools visit each other's buildings once per year. As the network grows, the groups will visit each other's schools (e.g., in Year 4, the mentor-Pgm Chrt 1-Pgm Chrt 2-Pgm Chrt 3 group will each visit each other).	1 = School visited and hosted at least one of their other paired mentor/partner schools 0 = School did not visit or did not host at least one of their other paired mentor/partner schools	15/15	15/15

KC 2.2a: Regular Mentor-Partner Contact

Each partner school was expected to have at least one substantive contact (defined the same as for PD and coaching) with their mentor school each month outside of regular meeting structures. Only 8 of 15 mentor-partner school pairs in Year 3 and 7 of 15 pairs in Year 4 had substantive contacts in at least eight months. One reason cited for the fewer mentor-partner connections in later RECN years was that partner schools required less individualized support as their programs matured and achieved endorsement status. Schools also noted that the connections they established during the PLT, full network, and Quad meetings fulfilled the need for additional contact outside of those structures.

KC 2.2b: Mentor-Partner School Visits

Each mentor-partner pair was also expected to visit each other throughout the RECN grant period. In Years 3 and 4, the twice-annual Quad meetings were when most schools visited each other. Each school team was able to visit each other through the Quad meeting rotations in Years 2-4. Some schools also hosted teams from outside the RECN network. Thus, all 15 partner schools met fidelity on this indicator.

Two RECN partner school counselors reflected on the value of these visits. One counselor stated, "One of the things that I appreciate most probably was a visit to our mentor school. We collected up some ideas there that we wouldn't have even thought of." A counselor at a different school noted, "I thought it was particularly helpful to actually see the school. I always find that interesting because I worked at the same school system for my entire career. So, I always enjoy seeing other schools and what they're doing."

III.2.3: Planning for Early College Enhancements

To aid with planning for Early College Enhancements, each partner school completed an annual self-assessment and action plan focused on the Core Principles. All partner schools completed an annual self-assessment using the Early College Core Principles rubric and submitted the results to CELL in both Year 3 and Year 4. All partner schools also submitted an annual action plan before the start of Years 3, 4, and 5. Thus, fidelity was met for these indicators.

Table III-11. Fidelity of Implementation for Planning for Early College Enhancements (KC 2.3)

KC	Indicator	Definition	Implementation Score	Year 3 Schools Meeting	Year 4 Schools Meeting
a)	Annual EC Self-Assessment	Each treatment school will complete an annual self-assessment on the EC Core Principles using the rubric and submit its results to CELL. Self-assessments will also include career readiness components related to EWIN. The self-assessments will inform school-level plans and CELL's support for the next year of services. In Years 3 and 4, schools were expected to bring a completed self-assessment to the annual retreat following the 2021-22 and 2022-23 school years.	1 = School completed EC self-assessment 0 = School did not complete EC self-assessment	15/15	15/15
b)	Plan for Early College Enhancements (Action Plan)	Each school develops an annual plan to identify areas for improvement in its EC program, aiming to gain and sustain endorsement, using a template provided by CELL. Schools are expected to use the plan to guide their EC program work for the following school year.	1 = School developed an action plan 0 = School did not develop an action plan	15/15	15/15

KC 2.3a: Core Principle Self Assessments

Each year, schools identified ratings for their programs on the Core Principles rubric. Note that these were *self-reported* ratings that reflected each SLT's perspective on the degree to which they were implementing the Core Principles; however, schools were asked to document evidence of their Early College implementation in each Core Principle as they prepared for endorsement. All 15 partner schools in Tiers 1-3 submitted a self-assessment at the end of Years 3 and 4, so this indicator was met. The table below presents the changes in rubric ratings

by school tier and year. Tier 3 schools that were not yet endorsed submitted an additional self-assessment, as indicated by a mean of "Years 4-5." As noted in the table, all groups of schools improved their implementation of the Core Principles during the grant period, with the highest average ratings in the elements related to the underlying structures of Early College and dual credit, specifically through Curriculum/Plan of Study and Collaboration and Partnerships. However, those areas also had the highest baseline values. Schools demonstrated the most self-assessment growth on four different Core Principles – Targeted Student Population, College-Going Culture, Supports for Student Success, and Data Collection, Analysis, and Use.

Table III-12. Core Principle Self-Assessment Summary

Core Principle	Rubric Indicator	Tier 1			Tier 2			Tier 3	
		Year 2	Year 3	Year 4	Year 2	Year 3	Year 4	Year 3	Year 4-5
Targeted Student Pop.	Recruitment Plan	3.9	4.2	4.8	3.0	4.0	4.8	3.3	3.8
	Application & Selection	3.5	4.4	4.8	3.2	4.6	4.8	3.8	4.1
Curriculum/ Plan of Study	Pathway	4.5	4.6	5.0	4.2	4.8	4.8	4.5	4.8
	Dual Credit Offerings	4.5	4.8	5.0	4.2	4.8	5.0	4.5	5.0
	Placement & Supports	4.2	4.0	4.4	3.6	4.4	4.8	4.8	4.0
College-Going Culture	College-Going Culture	3.5	4.2	4.2	2.8	3.8	4.6	3.5	4.0
	College Visits	3.3	4.6	4.6	1.8	3.8	4.5	3.8	4.3
Rigorous Instruction	Rigor in Instruction	4.1	4.0	4.3	3.4	3.8	4.6	4.2	4.3
Supports for Student Success	Continuum of Supports	3.5	3.8	4.2	2.6	4.0	4.4	3.7	3.8
	Parent Outreach	3.5	3.6	4.0	2.8	3.2	4.4	3.0	4.3
Collaboration & Partnerships	Higher Education	4.3	4.4	4.8	3.8	4.6	5.0	4.4	5.0
	Business & Community	3.5	3.8	4.2	2.4	3.4	4.2	2.6	4.0
Leadership & Staffing	Staffing Plan	3.9	4.2	4.4	3.0	4.0	5.0	3.2	4.0
	Professional Development	2.7	3.4	4.2	2.9	3.2	3.7	3.2	3.8
	School Leadership Team	N/A	4.4	4.8	N/A	4.4	4.6	4.2	4.3
Data Coll., Analysis, & Use	Formative Data for Prgm Monitoring & Adj.	3.1	3.6	4.0	2.6	3.4	4.2	3.4	3.5
	Summative Data to Evaluate Prgm Eff.	2.9	3.2	3.8	2.2	3.0	4.0	2.6	3.5
	Rubric Rating								
	2.0 or lower								5.0

KC 2.3b: Early College Action Plans

As noted in the FOI summary, schools developed action plans for their Early College programs in each year of the grant period. The analysis of annual action plans provides a glimpse of schools' priorities for Early College during RECN. A large share of action plan goals throughout all years focused on strengthening communication and building awareness of Early College with different stakeholder groups. Schools initially focused on developing staff buy-in and understanding of the Early College model and the Core Principles to build internal awareness

and support. In later years, the focus shifted to outreach strategies targeting families, communities, and external partners.

Student supports also appeared regularly across action plans. Schools worked to enhance key elements, including advising, self-advocacy, and academic and social-emotional support, for Early College students. Schools also emphasized building a college-going culture among students through campus visits and postsecondary discussions, organizing events to recognize student accomplishments in college and career readiness, and embedding college awareness activities.

Schools also focused on instructional quality and system-level planning through professional development for teachers on rigor and understanding how dual credit courses differ from high school-only courses. Schools also identified data collection and use as an ongoing area for growth. Annual action plans referenced data for decision-making and monitoring student outcomes. Schools also used data to inform the expansion of college-level course opportunities. Other action plan goals addressed preparations for endorsement, sustainability, strengthening School Leadership Teams, and logistical components, such as cohort scheduling and pathway alignment.

III.2.4: Dual Credit Teacher Credentialing

Having enough credentialed teachers was a significant challenge for RECN schools in their efforts to expand dual credit options for their students. In 2015-16, the Indiana Commission for Higher Education announced a policy that dual credit teachers must meet the same expectations as instructors in postsecondary institutions – that is, to have a master's degree in the content area they are teaching or at least 18 credit hours of graduate coursework in the subject area. Throughout the RECN grant period, the deadline for implementing this requirement was pushed back and eventually left up to the partner college to determine whether each instructor met the requirements. However, schools continued to work toward having all dual credit instructors meet these requirements because the primary partner colleges maintained this expectation.

KC 2.4 has two indicators: annual needs assessment for dual credit credentials and support for teachers to earn dual credit credentials. All 15 partner schools indicated regular needs assessment for dual credit teachers. Thus, fidelity on this Key Component was met.

Table III-13. Fidelity of Implementation for Dual Credit Teacher Credentialing (KC 2.4)

KC	Indicator	Definition	Implementation Score	Year 3 Schools Meeting/ Program Met	Year 4 Schools Meeting/ Program Met
a)	Needs Assessment for DC Credentials	CELL collaborates with program schools to collect and review data on dual credit courses offered in alignment with the ICC and technical certifications. CELL and the school will also review the number of dual credit teachers with faculty qualifications from the IN Commission for Higher Education, and each school to determine credentialing needs. The school indicates whether they need support from CELL for dual credit teacher credentialing in that year.	1 = School conducted a dual credit needs assessment 0 = School did not conduct a dual credit needs assessment	15/15	15/15
b)	Support for Teachers to Earn DC Credentials	CELL offers support (including funding and assistance with finding affordable courses and programs) for schools to credential their dual-credit instructors.	1 = CELL offered funding and a list of programs for schools that need support for dual credit credentialing, or the school identifies that they do not need support 0 = CELL did not offer support for dual credit credentialing for the school identifying they needed support	Met	Met

KC 2.4a: Needs Assessment for Dual Credit Credentials

Regular assessment of having credentialed teachers for dual credit courses was an ongoing area of focus for SLTs and in network/Quad meetings. In both Years 3 and 4, interviews with school and CELL team members demonstrated that schools continued to support teachers in obtaining credentials and seeking candidates with dual credit credentials to fill vacancies. Schools also noted planning for potential upcoming retirements and transfers to ensure all ICC courses could still be offered.

KC 2.4b: Support for Teachers to Earn Dual Credit Credentials

CELL provided access to programs such as STEM Teach and Teach Dual Credit Indiana that schools used to support teachers in gaining credentials. Schools could also allocate up to 40% of their RECN budget to costs associated with teacher credentialing and incentives to teach dual credit courses. Project surveys and interviews with school staff confirmed that schools actively used these funds and opportunities to certify more teachers to teach dual credit courses. Table

III-14 summarizes the scale means on the annual staff survey for the presence of dual credit credentialing support. The survey results show increases from the baseline years, with similar means from Year 3 (2021-22) to Year 4 (2022-23).

Table III-14. Year 4 Dual Credit Credentialing Scale Mean

Tier	2019-20	2020-21	2021-22	2022-23	Change from Baseline
Tier 1	4.78	4.80	4.93	4.92	0.14
Tier 2	4.52	4.56	4.70	4.79	0.27
Tier 3		5.12	5.20	5.23	0.11

Note. Response coding: 1 = Strongly Disagree, 2 = Disagree, 3 = Somewhat Disagree, 4 = Somewhat Agree, 5 = Agree, 6 = Strongly Agree.

III.2.5: Support for Pathways and Work-Based Learning

In the original RECN proposal, increasing college readiness and postsecondary enrollment was the first goal of the RECN grant, and increasing career readiness and preparation was the second goal. CELL proposed supporting schools for career readiness in several ways, including asset mapping, business partnership development, pathway selection and sequencing, alignment with state CTE programs, work-based learning implementation, and parent communication.

The onset of COVID-19 and staff turnover at CELL resulted in some loss of momentum on this goal in the first two and a half years of the project. During project Year 3, CELL transitioned the work from Educator Workforce Innovation Network (EWIN) to the Postsecondary Readiness Senior Coordinator, who leads career-focused work for RECN and other CELL initiatives. These initiatives built momentum in the final two years of the grant period within several RECN schools. Career readiness programming was supplemented through grant funding for *Three E* projects, which aimed to connect students with authentic employment experiences and college-level CTE coursework. These projects also led to CELL establishing the *Pathways to Career and Postsecondary (P-CAP)* initiative, which utilizes structures from RECN to support intensive college and career readiness programming for students in rural settings. CELL provided ongoing support for elements of pathway development and work-based learning in Years 3 and 4, so fidelity was met for this indicator.

Table III-15. Fidelity of Implementation for CELL's Support for Dual Credit Teacher Credentialing (KC 2.4)

KC	Indicator	Definition	Implementation Score	Year 3 Program Met	Year 4 Program Met
a)	Support for Pathways and WBL	CELL will provide support to schools for career readiness, including asset mapping, business partnership development, pathway selection and sequencing, alignment with state CTE programs, WBL implementation, and parent communication.	1 = CELL provided support to RECN schools for career readiness activities 0 = CELL did not provide support to RECN schools for career readiness activities	Met	Met

As CELL staff members described, their support for career readiness through pathways and work-based learning was built on deep work already occurring within the RECN schools. School Leadership Teams within 13 of the 15 RECN partner schools completed a Year 3 pathways and WBL survey that helps to explain which components were present throughout the schools. Results of the CELL survey indicated that across RECN schools, most work-based learning activities were offered to students to align with phases of Indiana's work-based learning continuum (see Figure III-1). Schools had particularly robust offerings in the exploration phase. The lowest reported offerings were in school-based enterprises (7), short-term internships (6), and industry-developed PBL challenges (6).

Figure III-1. Indiana's Work-Based Learning Continuum Offerings at RECN Schools
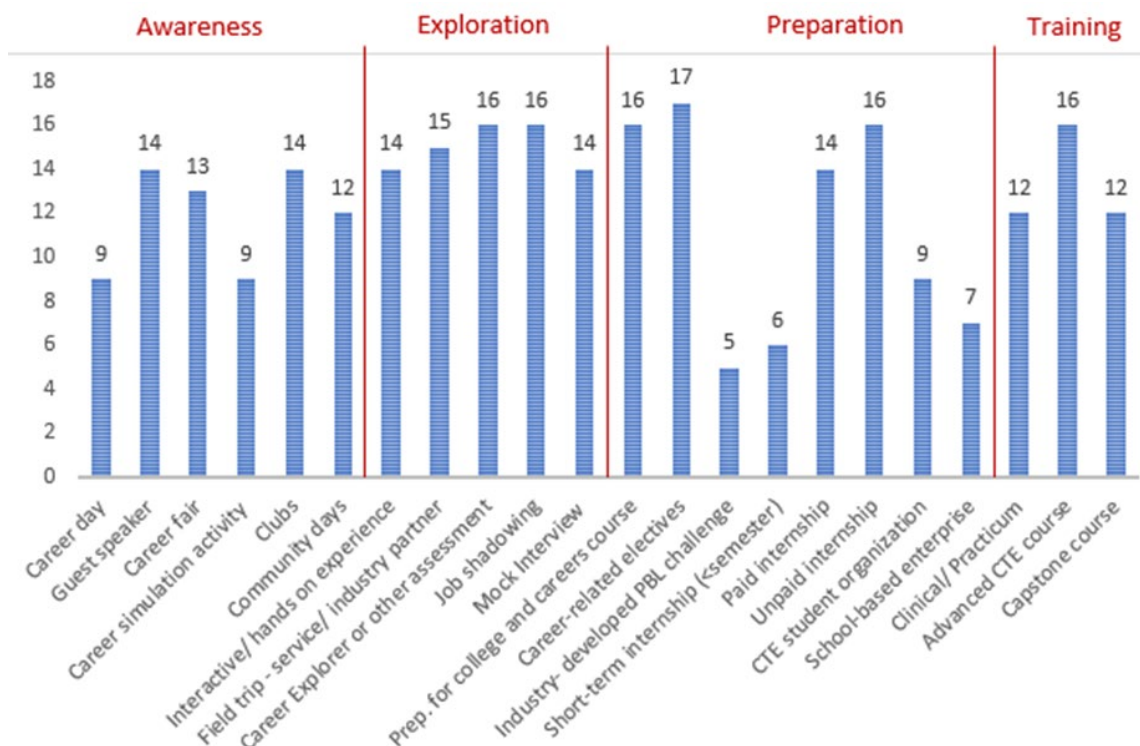
The survey also included items related to CTE pathway offerings at RECN schools. Results indicated that 75% or more of RECN schools offered ten core CTE pathways (not shown). In addition, most RECN schools indicated that their pathway offerings were either partially or fully aligned with industry partnerships and local industry demands (not shown). These results indicate that RECN schools offered students several CTE pathways, WBL activities, and career preparation opportunities. Based on these survey results and follow-up conversations between CELL staff and RECN SLTs, the results indicated areas for growth within WBL, including industry-developed PBL challenges, school-based enterprise, career simulation activities, career days, and information regarding local industry demand. Identified career pathway growth areas included alignment of pathways with local industry demand and filling pathway gaps at individual schools.

In addition to the CELL survey, staff surveys included items related to staff's perceptions of the quality of career readiness activities that they provide to students. Approximately 80% of staff across all Tiers *agreed* or *strongly agreed* that their school provided students with the skills needed to be successful in the workforce. The lowest level of agreement was observed in career preparation for graduates who do not plan to enroll in postsecondary education, with fewer staff members (65%) *agreeing* or *strongly agreeing* that these students were well prepared to navigate the world of work.

III.3: Sustainability and Scale Fidelity of Implementation Summary for Key Component 3

The final set of fidelity indicators involved activities supporting sustainability and scale. These activities included the Collaborative for Rural Education, support for mentor schools, and CELL's

facilitation of partnerships and policy to support Early College. In contrast to Key Components 1 and 2, which were only assessed for the 15 partner schools, Key Component 3 includes measures that expand to all 20 RECN schools (i.e., adding the five mentor schools). As shown in the table, the RECN program met fidelity on Key Components related to support for mentor schools and partnerships and policy. Additionally, fidelity was partially met for the Collaborative for Rural Education, although the bar of 100% of superintendents attending at least two meetings each year at the same time proved challenging.

Table III-16. Sustainability and Scale FOI Summary (KC 3.1-3.3)

Key Component and Indicator	Year 3		Year 4	
	# of Schools Meeting	Program Fidelity Met	# of Schools Meeting	Program Fidelity Met
Collaborative for Rural Education (KC 3.1)	**16/20**	**No**	**14/20**	**No**
Collaborative for Rural Education Formation and Meetings	Met		Met	
Collaborative for Rural Education Superintendent Attendance	16/20		14/20	
Support for Mentor Schools (KC 3.2)	**5/5**	**Yes**	**5/5**	**Yes**
Mentor School Plan for Early College Enhancements (Action Plan)	5/5		5/5	
Support from CELL for Mentor Schools	5/5		5/5	
Partnerships and Policy (KC 3.3)	**Met**	**Yes**	**Met**	**Yes**
Partnership Facilitation	Met		Met	
Policy Advocacy	Met		Met	

III.3.1: Collaborative for Rural Education

CELL formed the Collaborative for Rural Education in Year 1 of RECN to build partnerships and share practices related to rural education throughout the state. The work of the Collaborative primarily involved superintendents of RECN school corporations (the name for school districts in Indiana). The Indiana rural schools worked with other rural collaboratives across the country (e.g., Illinois) through meetings and conferences. Although FOI was met for the formation of the Rural Collaborative, the challenge of regular attendance at the same gatherings for over 80% of superintendents proved challenging. Despite having 80% attendance in Year 3, the program did not meet fidelity in Year 4, with 70% of superintendents present at Collaborative meetings.

Table III-17. Fidelity of Implementation for Collaborative for Rural Education (KC 3.1)

KC	Indicator	Definition	Implementation Score	Year 3 Schools Meeting/ Program Met	Year 4 Schools Meeting/ Program Met
a)	Collaborative for Rural Education Formation	CELL forms the Collaborative for Rural Education to form partnerships and share practices related to rural education throughout the state. The Collaborative will regularly convene the partners to discuss issues and identify areas for development. The work of the Collaborative will explicitly support district superintendents in RECN-related work.	1 = Collaborative for Rural Education formed and met ≥ 2 times per year 0 = Collaborative for Rural Education did not form or met < 2 times per year	Met	Met
b)	Collaborative for Rural Education Meeting Attendance	Superintendents (or other district representatives) attend meetings of the Collaborative for Rural Education (in person or virtual).	1 = School's district representative attended ≥ 2 meetings 0 = School's district representative attended < 2 meetings	16/20	14/20

Although the Rural Collaborative formed because of RECN and was initially limited to districts participating in the grant, the group's focus was broader than Early College, particularly in the aftermath of COVID. The issues they addressed, however, nearly always tied back to Early College programs. A CELL staff member explained the connection, "If I can help them with recruitment and retention, that's our Early College teachers; our dual credit teachers are in high need. So that's something that's going to support their Early College." CELL's Director of Rural Education worked with rural superintendents outside of RECN, but they were not formally part of the Collaborative to date.

In the first three years of RECN, CELL convened the superintendents at three annual in-person gatherings. The approach to meetings shifted in Year 4 because superintendents preferred to meet in person, and scheduling challenges prevented three annual meetings with everyone at the same time and place. During Year 4, the Collaborative met once as a whole group to discuss legislative updates, addressing the teacher shortage, and issues with chronic absenteeism, with 14 of the 20 districts in attendance. CELL hosted four regional sessions in the spring, addressing RECN sustainability, teacher stipends, and the future of Early College networks with groups of superintendents. CELL also met with each superintendent one-on-one in their respective districts, which helped to focus on local issues related to the Collaborative.

III.3.2: Support for Mentor Schools

This element of sustainability and scale recognizes that the endorsed mentor schools have areas where they can improve and maintain their Early College programs. It involved targeted planning related to the Early College Core Principles. Like the Tier 1-3 schools, the mentor

schools completed an annual plan that identifies areas for improvement in their Early College programs, with support from CELL. CELL also provided support to help mentor schools effectively support their partner schools through an online community of practice facilitated by the RECN director. Mentor schools received similar support to improve their Early College programs as other schools, including participation in network meetings, Quad meetings, professional development and coaching, and financial support from the grant. Principals of mentor schools received CELL assistance for being mentors through regular Zoom calls (2-3 per year) and one-on-one meetings as needed.

The FOI requirements for supporting mentor schools stated that each mentor school was to develop a plan that identifies areas for improvement in their Early College programs. Because each mentor school submitted a self-assessment and action plan and received support from CELL in Years 3 and 4, the program met FOI for this Key Component.

Table III-18. Fidelity of Implementation for Support for Mentor Schools (KC 3.2)

KC	Indicator	Definition	Implementation Score	Year 3 Schools Meeting/ Program Met	Year 4 Schools Meeting/ Program Met
a)	Mentor School Plan for EC Enhancements	Each mentor school develops a plan that identifies areas to improve its EC program.	1 = Mentor school developed a plan 0 = Mentor school did not develop a plan	5/5	5/5
b)	Support for Mentor Schools	CELL provides support to each mentor school to improve their EC program in alignment with their plan. CELL also provides support in helping mentor schools effectively support their partner schools.	1 = Mentor school received at least one substantive contact in ≥ 8 months (August – May) 0 = Mentor school received at least one substantive contact in < 8 months (August – May)	5/5	5/5

Mentor principals shared that they grew during RECN by observing and supporting their partner schools as they went through the endorsement process. One mentor principal shared, "What we have gained by being a part of that has been tremendous; just watching other schools go through that process… causes us to reexamine what we do and why we do it." The process of looking at the data together also helped the mentors to guide data-driven conversations within their Quads, with one principal stating, "CELL has helped us to be very intentional about conversations and helping us move people forward and set goals. They provide us with a lot of data. We have survey data, we have time to reflect on that and to help lead each other through that."

III.3.3: Partnerships and Policy

Under this element, CELL facilitated partnerships among schools, local businesses, colleges, and economic development organizations. As CELL provided both partnership facilitation and advocacy for schools regarding how to implement new policies, the program met fidelity for this indicator in Years 3 and 4.

Table III-19. Fidelity of Implementation for Partnerships and Policy (KC 3.3)

KC	Indicator	Definition	Implementation Score	Year 3 Schools Meeting/ Program Met	Year 4 Schools Meeting/ Program Met
a)	Partnership Facilitation	CELL facilitates partnerships among schools, local businesses, colleges, and economic development organizations. Support includes providing toolkits, helping schools and districts access state/national leaders, and organizing partnership meetings.	1 = CELL provided partnership support 0 = CELL did not provide partnership support	Met	Met
b)	Policy Advocacy	CELL advocates for state policies to support and expand EC, dual credit, dual credit credentialing, and EWIN programs.	1 = CELL conducted policy advocacy 0 = CELL did not conduct policy advocacy	Met	Met

Support for partnerships included providing resources, helping schools and districts access state and national leaders, and organizing partnership meetings. Throughout the project, CELL helped to facilitate partnerships at the local level by working with schools on outreach to local businesses in connection with CTE programs. CELL also established additional connections between its Early College network and rural collaboratives in other states, partnerships for place-based education, and other organizations supporting Early College and dual credit nationally. One outcome of these efforts is that CELL became the lead organization of the Great Lakes Hub of the National Rural Schools Collaborative in 2023.

RECN also helped schools navigate policy changes outside of advocacy efforts. The final two years of RECN also coincided with many legislative changes that impacted college and career readiness programs. These areas included performance-based funding to schools for students completing the ICC or an associate degree and the implementation of Next Level Programs of Study in CTE. CELL brought in guest speakers with legislative and policy expertise and facilitated conversations at the Early College Summit, network, Quad, and Rural Collaborative meetings to help schools make sense of these policies and to capture questions that state officials could answer. CELL also hosted counselor lunch-and-learns to support schools' understanding of new legislative requirements.

Section IV: Survey Results from Staff and Students

This section focuses on data gathered through two surveys. One was administered to staff at RECN schools and matched comparison schools that offered dual credit but did not participate in RECN. The other was administered to students in Grade 11 at RECN schools in two groups: either 1) selected through a lottery to join the EC program starting in Grade 9 or 2) not selected to participate. The staff and student surveys complement the impact analysis by providing insights into the implementation of RECN and the perceived impact from those directly involved. The staff survey gathered information from teachers, administrators, and advising personnel on how the EC model was being carried out in their schools, focusing on schoolwide implementation of eight EC Core Principles that underpin EC endorsement in Indiana (see Table II-1). These principles encompass advising, instructional strategies, student supports, postsecondary partnerships, and school culture.

The student survey was designed to examine differences in experiences between EC cohort students and their peers enrolled in the standard high school program. It collects information on students' perceptions of college readiness, access to college coursework, support services, school belonging, and encouragement to pursue postsecondary education. Unlike the staff survey, which focuses on schoolwide implementation, the student survey evaluates students' exposure to and experiences with key components of the cohort-based EC intervention in RECN schools. These components represent how the eight EC Core Principles are operationalized at the student level to support the success of the EC cohort.

Together, these surveys provide insight into the alignment between school-level implementation (Key Component 2) and student experience (Key Component 1), highlighting both strengths and areas for improvement. They also functioned as a monitoring tool to assess fidelity to the EC model and inform continuous improvement efforts throughout the project. While findings are descriptive and self-reported, they reflect the perspectives of those directly involved in the RECN effort and offer a meaningful lens for evaluating the model's impact on school climate, instruction, and student engagement.

IV.1: Staff Survey

The staff survey addressed the following research questions:

1. To what extent did staff at RECN high schools implement the EC Core Principles over time?
2. How did the implementation of the EC Core Principles in RECN high schools compare to the implementation of dual credit in similar schools that were not part of RECN?

IV.1.1: Staff Survey Methodology

RECN schools were expected to strengthen their implementation of the eight EC Core Principles and collaborate with CELL staff and mentor schools as part of the EC endorsement process. To monitor implementation progress and perceived impacts, the evaluation team administered a

staff survey to all staff at 15 RECN schools each spring, beginning at baseline (2020-21) and continuing through the third full year of implementation (2023-24).[11] A similar survey was administered to an administrator or counselor at 16 matched-comparison schools in spring 2021 and spring 2024. This report uses data only from the baseline (spring 2021) and final year (spring 2024).

Design and Validation. The evaluation team drew on project documents, validated instruments from other evaluations of EC, baseline interview data from mentor school principals, and feedback from CELL staff to design the staff survey. The survey was pilot-tested and refined based on feedback from a small group of staff at mentor schools. After collecting baseline survey data, the evaluation team conducted psychometric analyses to assess item normality and missingness, as well as Classical Test Theory (CTT) statistics and Exploratory Factor Analyses (EFA) to evaluate scale structure. Most scales reflected single dimensions, except for the rigorous instruction scale, which was intentionally designed to capture multiple aspects of instruction. Table IV-1 summarizes the items and scales used in this analysis, along with their corresponding reliability statistics.

Table IV-1. Staff Survey Scale Descriptions

Core Principle	Scale/Construct	Sample Item	# Items	Response Options	Cronbach's Alpha Reliability
College-Going Culture	College-Going Culture	My school purposefully focuses on helping students to identify their future career directions.	7	1 = Strongly Disagree; 6 = Strongly Agree	0.84
Leadership & Staffing	Dual Credit Credentialing	Teachers in my school are encouraged to earn credentials to teach dual credit courses.	4	1 = Strongly Disagree; 6 = Strongly Agree	0.80
	Professional Development	This year, there is a regular schedule for PD to help improve the early college or dual credit program in my school.	6	1 = Strongly Disagree; 6 = Strongly Agree	0.87
	Early College Leadership	The school leadership has a clear mission and vision for the early college initiative that drives key decisions.	9	1 = Strongly Disagree; 6 = Strongly Agree	0.94
Supports for Student Success	Student Success Supports	Our school has a clear system to serve students in need of academic support.	5	1 = Strongly Disagree; 6 = Strongly Agree	0.85

[11] We administered a baseline survey in March-April 2020, just after the COVID shutdowns began. Because of the uniqueness and uncertainty surrounding school practices during this period, we decided to utilize the Spring 2021 results as the baseline. We made this decision in consultation with the program staff and ran a sensitivity analysis with the 2020 results to ensure there were not significantly different conclusions from the data. Using the 2021 survey as the baseline also allowed us to look at Tiers 1-3 in the same baseline year because all schools took the survey for the first time during this year.

	Early College Communication : School	My school shares information with parents about opportunities for students to earn dual credit.	4	1= Never; 5 = Almost every day	0.94
	Early College Communication : Self	I share information about dual credit opportunities with my students.	3	1= Never; 5 = Almost every day	0.84
Data Collection, Analysis, and Use	Data Usage: School	My school has collected or received data on student performance in dual credit classes.	4	1= Never; 5 = Almost every day	0.83
	Data Usage: Self	I have collected, received, or analyzed data for student subgroups (e.g., economically disadvantaged or English learners).	4	1= Never; 5 = Almost every day	0.86
Rigorous Instruction	21st Century Skills	This school year, how frequently have you asked students to apply what they have learned to solve a new problem?	6	1= Never; 5 = Almost every day	0.82
	Literacy	This school year, how frequently have you asked students to communicate what they had learned in writing?	7	1= Never; 5 = Almost every day	0.86
	Project-Based Learning	This school year, how frequently have you had students work on projects in your classroom?	4	1= Never; 5 = Almost every day	0.74
Implementation Factors	Early College Buy-In: Collective	I feel that the teachers and staff in this school share a goal of increasing students' early college participation and success.	8	1 = Strongly Disagree; 6 = Strongly Agree	0.95
	Early College Buy-In: Personal	I believe that the early college initiative in my school will benefit students.	8	1 = Strongly Disagree; 6 = Strongly Agree	0.94
	Awareness (Item)	How familiar are you with the RECN program in your school?	1	1 = I am not aware of the RECN program in my school; 4 = I have a clear understanding of the RECN program…	N/A

Note: *Items and scales from implementation science (not core EC principles) included in the survey.

Administration. Each spring, staff at RECN schools were invited to complete the survey. Treatment staff were asked about their level of involvement in their schools' EC program. In comparison schools, surveys were administered in the spring of 2021 and 2024. Due to the high cost of obtaining a sufficiently large teacher sample, only principals, other administrators, or counselors were invited to participate in comparison schools, with the goal of having at least one representative complete the survey at each comparison school. In spring 2021, 545 staff across 15 treatment schools completed the survey, yielding a 72% participation rate. In spring 2024, 554 staff completed the survey at the same schools, with a 73% participation rate. The analysis included 16 comparison schools with administrator or counselor data available at

baseline or in the impact year. In spring 2024, 18 administrators or counselors from comparison schools completed the survey.

Analysis. We used staff survey data from two time points—spring 2021 (baseline) and spring 2024 (impact year)—to examine the implementation of the EC model. Scale scores were calculated by averaging items within each scale. Because responses were nested within schools, all models were estimated using hierarchical linear modeling (HLM) to account for this clustering. HLM analyses were conducted using SPSS's MIXED procedure with random intercepts at the school level and restricted maximum likelihood (REML) estimation. Staff surveys were anonymous and did not include unique identifiers, preventing us from tracking individual responses over time or accounting for staff turnover. As a result, findings reflect changes at the group (school) level rather than within-individual changes.

Change Over Time (Treatment Schools Only). To assess change in EC implementation over time, we used HLM to model item and scale means across the two time points (2021 and 2024) among staff at treatment schools. The model included a fixed effect for the survey year and a random intercept for the school to adjust for nesting. Subgroup analyses were also conducted to explore differences between staff who reported involvement in their school's EC program and those who did not.

Treatment vs Comparison. To compare implementation between treatment and matched comparison schools in 2024, we used HLM models that included a fixed effect for treatment status and controlled for a set of school-level covariates used in the original matching process for the administrative data impact analysis. For schools with multiple administrator and counselor responses, all administrator/counselor responses were used in the models. These covariates included demographic composition, graduation and college enrollment rates, and dual credit/AP participation rates. Baseline implementation levels for each scale were also included to adjust for pre-intervention differences. Because only administrators and counselors completed the survey at comparison schools, scales focused on instructional practices were excluded from this analysis. The language in the comparison survey was modified to reference the "dual credit" program instead of EC to ensure consistent interpretation of items.

IV.1.2: Staff Survey Findings

Change over Time (Treatment Schools Only). Results from the change-over-time analysis indicated that the RECN project showed positive impacts on several areas aligned with the EC Core Principles. Table 5 below presents descriptive statistics, including scale means at baseline and the final impact year, differences between time points, and effect sizes (in standard deviation units) between baseline and the impact year.

Key Findings:

- *College-Going Culture* improved significantly, with a moderate positive effect size, suggesting that schools increasingly fostered a college-focused environment for students.

- *Early College Leadership* and *Collective Early College Buy-In* demonstrated statistically significant gains, with moderate positive effect sizes, indicating strengthened leadership commitment to EC work and increased collective staff belief in EC work.
- *Personal Early College Buy-In* was stable over time, but baseline levels were already high, suggesting a possible ceiling effect that limited the potential for further growth.
- *Professional Development* for staff saw a large and statistically significant improvement, indicating enhanced efforts to train and support staff in EC practices.
- *RECN Awareness* among staff increased significantly, suggesting greater familiarity with the project's goals and activities over time.
- *Student Success Supports* improved modestly, indicating enhanced academic and non-academic supports for students.
- *Rigorous Instruction through Project-Based Learning (PBL)* practices also increased with a moderate positive effect size, indicating some growth in the use of project-based instructional methods.
- *Individual Staff Data Usage* and *Dual Credit Credentialing* also showed slight improvements, but these improvements only approached statistical significance.

In summary, staff survey findings indicated a positive and statistically significant shift on most scales over time, suggesting a strengthened implementation of EC principles across RECN schools, along with growing staff awareness of and engagement with the project.

Table IV-2. RECN Staff Survey Changes Over Time Analysis (Three-Year Impacts from 2020-21 to 2023-24 – All Staff)

Scale	Baseline N	Unadjusted Baseline Mean (SD)	Year 3 N	Model Adjusted Year 3 Mean (SD)	Model Adjusted Year 3 - Baseline Mean	*p*-value	Standardized Diff. (Hedges' *g*)
College Going Culture	585	4.88 (0.70)	589	5.04 (0.70)	0.16	0.00	0.23***
Data Usage: School	79	3.32 (0.93)	61	3.52 (0.91)	0.21	0.18	0.22
Data Usage: Self	542	2.31 (0.97)	549	2.42 (0.98)	0.11	0.06	0.11
Dual Credit Credentialing	521	4.81 (1.03)	529	4.91 (1.05)	0.10	0.08	0.10
Early College Buy-in: Collective	528	4.57 (0.84)	541	4.72 (0.81)	0.15	0.00	0.18**
Early College Buy-in: Personal	523	5.05 (0.86)	542	5.06 (0.87)	0.01	0.82	0.01
Early College Communication: School	95	2.84 (0.94)	88	2.93 (0.92)	0.09	0.51	0.10
Early College Communication: Self	537	3.16 (0.99)	540	3.18 (1.02)	0.03	0.68	0.02
Early College Leadership	544	4.79 (0.89)	549	4.94 (0.88)	0.16	0.00	0.18**

	N	Mean (SD)	N	Mean (SD)	Diff	p	Effect
Professional Development	259	3.88 (1.07)	278	4.28 (1.07)	0.40	0.00	0.37***
RECN Awareness	523	2.27 (1.11)	553	3.01 (0.93)	0.74	0.00	0.73***
Rigorous Instruction 21st Century Skills	500	3.91 (0.70)	521	3.96 (0.76)	0.05	0.29	0.07
Rigorous Instruction Literacy	500	3.15 (0.76)	520	3.13 (0.84)	-0.02	0.71	0.02
Rigorous Instruction PBL	502	2.97 (0.80)	519	3.14 (0.82)	0.18	0.00	0.22**
Student Success Supports	555	4.64 (0.80)	569	4.78 (0.83)	0.13	0.00	0.16**

Note. Baseline Year: Spring 2021 for all schools. Impact Year: Spring 2024 for all schools.
*Statistically significant, $p < .05$; ** $p < .01$; *** $p < .001$.

We also examined differences between staff who reported being involved in their school's EC or dual credit program and those who did not, using the same analytic approach as described above. Table IV-3 summarizes the model-adjusted differences between baseline and impact year. Results suggest that, in some cases, the perceived impacts noted above are driven by staff involved in their school's EC program. Both groups reported statistically significant positive changes in *College-Going Culture*, *Awareness of RECN*, and *Rigorous Instruction through PBL*. Notably, for *Awareness of RECN*, both involved and non-involved staff showed increased awareness of the RECN project's goals and activities, but the magnitude of the difference was greater for non-involved staff. Finally, only the staff involved in EC or dual credit reported statistically significant gains in *Collective Early College Buy-in*, *Early College Leadership*, and *Student Success Supports*.

Table IV-3. RECN Staff Survey Changes Over Time Analysis by Early College Involvement

Scale	Staff	
	Early College Staff	Non-Early College Staff
College-Going Culture*	0.17***	0.17**
Data Usage School	0.12	Not asked of non-Early College staff
Data Usage Self	0.14	0.09
Dual Credit Credentialing	0.11	0.07
Early College Buy-in: Collective*	0.17*	0.11
Early College Buy-in: Personal	0.01	0.02
Early College Communication School	0.01	Not asked of non-Early College staff
Early College Communication Self	-0.01	0.04
Early College Leadership*	0.21**	0.10
Professional Development*	0.40**	Not asked of non-Early College staff
RECN Awareness*	0.61***	0.86***
Rigorous Instruction 21st Century Skills	0.07	0.03
Rigorous Instruction Literacy	0.05	-0.12
Rigorous Instruction PBL*	0.14*	0.22**
Student Success Supports*	0.22***	0.07

Note. Baseline Year: Spring 2021 for all schools. Impact Year: Spring 2024 for all schools.

*Statistically significant, * *p* < .05; ** *p* < .01; *** *p* < .001.

Treatment vs Comparison School Differences. Results for the treatment vs. comparison school analysis suggest positive impacts for treatment schools across most items; however, in most cases, these trends did not reach statistical significance (see Table IV-4). For example, treatment schools showed higher scale scores on *College-Going Culture*, *Dual Credit Credentialing*, *Collective Early College Buy-In*, and *Professional Development*. Of these, only *Collective Early College Buy-In* reached statistical significance, while *Dual Credit Credentialing* and *Professional Development* only approached significance. It should be noted that the small sample size for comparison schools limited the statistical power to detect differences.

Table IV-4. Treatment and Comparison School Impact Differences

Scale	Treatment N	Model Adjusted Treatment Mean (SD)	Comparison N	Unadjusted Comparison Mean (SD)	Model Adjusted Treatment Comparison Mean	*p*-value	Standardized Diff. (Hedges' *g*)
College Going Culture	55	5.17 (0.52)	18	4.95 (0.52)	0.22	0.17	0.42
Data Usage: School	50	3.19 (0.90)	18	3.22 (0.77)	-0.03	0.90	-0.04
Data Usage: Self	50	2.66 (0.83)	18	2.68 (0.67)	-0.02	0.94	-0.02
Dual Credit Credentialing	49	5.48 (0.59)	18	5.00 (0.87)	0.48	0.09	0.71
Early College Buy-in: Collective [a]	51	5.04 (0.70)	18	4.32 (0.81)	0.72	0.01	0.98*
Early College Buy-in: Personal	50	5.53 (0.70)	18	5.56 (0.48)	-0.03	0.90	-0.05
Early College Communication: School	51	3.01 (0.88)	18	2.79 (0.81)	0.21	0.51	0.24
Early College Communication: Self	50	3.87 (0.90)	18	3.52 (0.85)	0.36	0.27	0.39
Early College Leadership	52	5.32 (0.66)	18	5.26 (0.58)	0.05	0.83	0.08
Professional Development	44	4.57 (1.08)	18	3.91 (1.26)	0.66	0.13	0.57
Student Success Supports	54	4.84 (0.72)	18	4.82 (0.55)	0.02	0.95	0.02

Note: [a] The baseline value was not entered in the model for this scale because this scale was not administered in the baseline year.

* *p* < .05; ** *p* < .01; *** *p* < .001.

IV.2.3: Staff Survey Summary

Survey findings indicated encouraging trends in the implementation of the Early College model across RECN schools. Staff reported improved practices and supports aligned to EC Core Principles, with statistically significant gains in areas such as college-going culture, professional

development, and leadership. Notably, staff already held strong personal beliefs in the value of the EC model at baseline, which may have limited detectable growth on some measures. Differences between treatment and comparison schools generally favored the treatment schools, although few reached statistical significance—likely due to the small sample size of the comparison staff.

IV.3: Student Survey

The student survey helped us answer the following research question:

> To what extent did students randomly assigned to the EC cohort at RECN high schools report different schooling experiences and related attitudes or beliefs that may influence postsecondary outcomes compared to their peers at the same schools who were not assigned to the EC cohort?

IV.3.1 Student Survey Methodology

RECN schools were expected to implement the Cohort Intervention Key Components, starting with EC cohort students in Grades 9 and 10, to promote deeper postsecondary readiness experiences and improved outcomes. The evaluation team developed and administered a survey to treatment and control students across all 15 treatment schools in spring 2022 and spring 2024, when students were in Grades 9 and 11, respectively. This report presents findings from the final administration of the student survey. Below, we describe the survey development and administration process, which followed many of the same steps used for the staff survey.

Design and Validation. The student survey was designed to assess the implementation of the Key Components, which were developed through collaboration between the evaluation team and CELL staff, as well as content analysis of key project documents and insights from promising practices from pilot cohort schools. The evaluation team also incorporated psychometrically validated instruments developed from previous evaluations, as well as items and scales from large-scale national education studies focused on secondary and postsecondary transitions. The survey was pilot-tested with two groups of cohort students in Grade 10 at RECN schools. Their feedback was used to refine the wording of items to accurately reflect local practices, improve clarity, and reduce confusion. Validation of the final version, administered in the spring of 2022, followed procedures similar to those used for the staff survey. Results indicated that most items and scales functioned as intended, with low rates of missing data. Most scales formed single dimensions. Table IV-5 provides a summary of reliability statistics for each scale.

Table IV-5. Student Survey Scale Descriptions

Key Component/ Mediator	Scale/Construct	Sample Item	# Items	Response Options	Cronbach's Alpha Reliability

KC1.2 College Exposure Activities	College Visits	Have you visited a college/university campus this year?	1	1= No; 2 = Yes	n/a
	Test Preparation Support for College Readiness	How frequently did you receive support from your school to use test-taking tips or strategies to be successful on college placement exams (e.g., PSAT, SAT, ACT)?	4	1= Never; 5 = Almost every day	0.74
	College Knowledge	My school has made resources available to me about college and careers.	4	1 = Never; 5 = Almost every day	0.81
	Dual Credit Taken (Self Report)	Have you or are you currently taking a dual credit class this year?	1	1 = Yes; 2 = No	n/a
KC1.3 Career Exposure Activities	Career Preparation Activities	This school year, how frequently have you studied about the different kinds of jobs and their requirements in class?	8	1 = Never; 5 = Almost every day	0.88
KC1.4 Advising and Support	Meeting with Advisor about Data	This school year, how frequently do you talk with an advisor about your grades in your current classes?	5	1 = Never; 4 = Several times a month or more	0.86
	Impact on Postsecondary Preparedness	My school helps every student to leave high school prepared for college or career training.	10	1 = Strongly disagree; 4 = Strongly agree	0.94
(M) Relationships	Staff Relationships	My teachers care about me.	13	1 = Strongly disagree; 4 = Strongly agree	0.94
	Peer Belonging	I could call or text another student from class if I had a question about an assignment.	4	1 = Strongly disagree; 4 = Strongly agree	0.75
(M) Academic Readiness	High School Success	I have the support I need to be successful in my high school classes.	2	1 = Strongly disagree; 4 = Strongly agree	n/a
	Readiness for College Courses	I feel prepared to write complex papers or essays.	14	1 = Not at all prepared; 4 = Well prepared	0.94
(M) Readiness Mindset	Persistence	I keep trying when my schoolwork becomes hard.	6	1 = Never; 5 = All the time	0.91
(M) Exposure to College &	Dual Credit Success Support	I have the support I need to be successful in my dual credit classes.	7	1 = Strongly	0.89

Career Readiness				disagree; 4 = Strongly agree	
	College Application Preparation Activities	Researching potential colleges that offer programs or majors that I'm interested in.	5	1 = Not planning to; 5 = Completed	0.85
(M) Expectations for Postsecondary Education Attainment	Postsecondary Education Expectations	I wish I could finish…	1	1 = High school or less; 4 = More than 4 years of college	n/a

Note: (M) indicates that the item or scale is designed to measure a mediator specified in the project's logic model.

Administration. The student survey was administered in the spring of 2024 to cohort treatment and comparison students across all 15 RECN schools in Grade 11. At this point, treatment students were in their third year of the EC program. Survey instructions, links, and student rosters were sent to each school principal, who was asked to administer the online survey in a consistent setting for both treatment and control students. Overall, 77% of treatment students and 56% of control students took the survey, resulting in a total participation rate of 66%.

Analysis. Treatment students were compared to control students using the scales designed to measure Key Components and mediators of cohort implementation. Scale scores were created by averaging the items within each scale. We used HLM to compare the scale means of the treatment students with those of the control students, using the same approach noted above with the staff survey. No covariates were included in the statistical models because the surveys were anonymous.

IV.3.2: Student Survey Results

In this section, we present results comparing student perceptions of schooling experiences and attitudes between EC cohort and control group students. Overall, treatment students reported more positive experiences than control students on several survey items and scales (see Table IV-6). Two components, including college visit frequency and the frequency of meetings with an advisor about data (e.g., attendance, grades, coursework), showed statistically significant differences, with EC cohort students reporting more frequent engagement. Additionally, a higher proportion of treatment students reported participating in dual credit, but this finding was not statistically significant at the *p* < .05 level. One item, taking steps to complete a college application, showed a negative trend for treatment students, but the difference was also not statistically significant at the *p* < .05 level.

Table IV-6. Student Survey Treatment-Control Differences in Grade 11

Scale	Treatment N	Model Adjusted Treatment Mean (SD)	Comparison N	Unadjusted Comparison Mean (SD)	Model Adjusted Treatment Comparison Mean	*p*-value	Standardized Diff. (Hedges' *g*)
College Visits	214	73.0% (43.0)	189	62.0% (49.0)	11.0%	0.02	0.24**
Test Preparation Support for College Readiness	205	3.12 (1.18)	187	3.15 (1.11)	-0.04	0.77	-0.03
College Knowledge	202	3.38 (1.03)	187	3.27 (0.97)	0.11	0.28	0.11
Dual Credit Taken (Self Report)	193	95.0% (23.0)	179	90.0% (30.0)	5.0%	0.11	0.17
Career Preparation Activities	200	2.28 (0.82)	183	2.17 (0.68)	0.11	0.16	0.15
Meeting with Advisor about Data	199	1.93 (0.76)	183	1.65 (0.51)	0.28	0.00	0.43***
Impact on Postsecondary Preparedness	189	2.93 (0.63)	177	2.90 (0.64)	0.03	0.69	0.04
Staff Relationships	198	3.09 (0.59)	181	3.02 (0.52)	0.07	0.22	0.13
Peer Belonging	199	3.10 (0.68)	181	3.10 (0.64)	0.00	0.99	0.00
High School Success	194	3.31 (0.56)	181	3.34 (0.56)	-0.03	0.58	-0.06
Readiness for College Courses	191	3.12 (0.62)	178	3.17 (0.58)	-0.05	0.44	-0.08
Persistence	195	3.79 (0.88)	181	3.84 (0.79)	-0.05	0.58	-0.06
Dual Credit Success Support	181	3.25 (0.54)	161	3.20 (0.46)	0.05	0.56	0.10
College Application Preparation Activities	172	2.41 (0.86)	158	2.57 (0.63)	-0.16	0.07	-0.21
Postsecondary Ed Expectations	190	2.90 (0.83)	178	2.95 (0.79)	-0.05	0.37	-0.06

Note. *Statistically significant, $p < .05$; ** $p < .01$; *** $p < .001$.

IV.3.3 Student Survey Summary

Student survey results also suggest some positive impacts, particularly in areas related to advising and college exposure, with treatment students more likely to report college visits and regular advisor meetings. Across both staff and student surveys, the results were either positive, showed a positive trend, or indicated little change, underscoring the potential benefits of RECN involvement for schools. There were no substantial differences between treatment

and control responses; this is likely due to the limited differentiation for cohort students in some schools, as discussed in Section III.1.

Section V: Impact of Cohort Strategies in Grades 9 and 10

The evaluation utilized two distinct research designs to assess the impact of the RECN program. The first design, a Randomized Controlled Trial (RCT), focused on the impact of targeted Early College strategies on students in Grades 9 and 10. However, the benefits of RECN were not limited to only students in early high school grades, as schools built Early College programs designed to allow more students to earn college credit in high school. The second design, a quasi-experimental study (QED), used a comparative short interrupted time series (CSITS) to assess the impacts of RECN participation on school-level measures for students in all grades in RECN schools compared to non-program schools with similar baseline characteristics. The design and results of the QED are detailed in Section VI.

Independence of the evaluation. The Early College Research Center at SERVE conducted the impact evaluations (both the RCT and QED studies) independently of the program developers at CELL, which is consistent with EIR reporting expectations. The analysts and authors of the evaluation reports are not affiliated with the program developer. The evaluators independently worked with schools to conduct random assignment and collect evaluation data. The evaluators also worked with IDOE to obtain student-level data that was not accessible to the program developers at CELL.

Study pre-registration. We submitted the pre-registration of the RCT study to the Registry of Efficacy and Effectiveness Studies (REES). The study is registered under #10540.1v1 with a publish date of June 3, 2022.

V.1: Research Design

The research design is presented in the following sections: 1) research questions, 2) sample definitions, 3) treatment and control student conditions, and 4) attrition.

V.1.1: Research Questions

We asked two research questions that aimed to strike a balance between providing students with sufficient time to experience the program and the benefits of a larger sample size. Our confirmatory research question asked about the impact of participating in the program for two years and included students in the RCT from two of the three student cohorts (2020-21 and 2021-22 school years):

1. What is the impact of two years of exposure to student-targeted RECN EC program services on the following Grade 10 student outcomes: a) attendance, b) on-track completion of core academic high school courses, c) number of college credits, and d) scores on college readiness exams, compared to students in the same schools not receiving those services?

The exploratory research question assessed outcomes for all three cohorts of randomized students (2020-21, 2021-22, and 2022-23 school years) but could only measure the impact of

one year of exposure through outcomes at the end of Grade 9. This question is exploratory in that one year of exposure may not be enough to observe the desired changes from the program.

2. What is the impact of one year of exposure to student-targeted RECN EC program services on the following key student outcomes: a) attendance, b) on-track completion of core academic high school courses, and c) receipt of college credits compared to students in the same schools not receiving those services?

V.1.2: Sample Definitions

Districts and schools were recruited simultaneously for the study because all the rural districts participating in the first two Tiers (program cohorts) had a single high school. CELL selected the ten schools for participation in Tiers 1 and 2 because they had expressed prior interest in implementing the early college model or had begun to implement an early college program. Preference was given to schools that had not experienced recent leadership turnover. Schools that had already achieved their early college endorsement from CELL were not eligible for consideration as a comparison school. Schools were also required to be designated as rural, defined as having an NCES locale code of 32-43. For Tier 3 schools (whose participation began in the 2021-22 school year), CELL conducted an application and selection process for five more program schools.

All RECN partner schools were expected to select students through a lottery for two RECN cohorts. For the 15 partner schools, this means there were to be a maximum of 30 cohorts across the schools. The Tier 1 schools (who began the program partially through the 2019-20 school year) selected cohorts prior to the 2020-21 and 2021-22 school years. The Tier 2 and Tier 3 schools selected cohorts prior to the 2021-22 and 2022-23 school years. One school did not adhere to the treatment assignment, so their two cohorts were removed from the study. Two additional schools had individual cohorts that were not oversubscribed for the lottery; because these cohorts did not have any control students, we dropped two additional blocks from the analysis. Thus, in total, the RCT sample represents 14 of the 15 partner schools and contains the results of 26 cohorts across the program years.

Before the closures associated with COVID-19 in the spring of 2020 and the educational disruptions of the 2020-21 school year, the participating schools had planned to communicate with rising high school students and families about the early college opportunity at their parent nights and have an application process. Not all schools were able to complete this process, however, so the planned process of student identification for assignment of the first two cohorts required some modification.

Some schools selected a target pool of students for randomization in consultation with their middle schools without engaging in a formal application process. Other schools communicated with students and their families, asking them to submit applications for consideration for program participation. After determining their population for selection, each school completed

a spreadsheet with information for its lottery. The information included the number of students they intended to serve in their cohort program.

The ECRC research team then assigned a random number to each student on a school's list. If no demographic criteria were specified, the school received an ordered list of treatment students and a waitlist. Schools offered students a spot in the program in the order they appeared on the list until the desired number of slots was reached. For schools specifying demographic criteria, students were divided into mutually exclusive groups, and separate lotteries were conducted for each group, ensuring the desired proportions were achieved. Schools were instructed to use waitlists corresponding to the same demographic criteria. For example, if a treatment student who was first-generation and economically disadvantaged moved from the district prior to their Grade 9 school year, the first student on the waitlist of first-generation and economically disadvantaged students was selected to take their place. The evaluation team followed up with each school in the fall of students' Grade 9 year to update the treatment status for any students admitted from waitlists.

The study used an Intent-to-Treat design in which all students who were offered enrollment in the intervention, even if they declined and did not participate, were considered treatment students. The control group consisted of all students on the waitlist who were never offered a spot. The impact model included a dummy variable for each randomization block (i.e., for each school, year, and sub-lottery) to account for differences in the probability of treatment assignment across blocks.

Table V-1 displays the alignment of student cohorts to the research design. The green cells correspond to the sample for the confirmatory research question. The blue cells correspond to the sample for the exploratory research question. The gold cell did not have a sufficient sample size to conduct a valid analysis. The outcomes for these students, however, could be assessed through a follow-up study.

Table V-1. RCT Sample Design by Year

Grant Year	Schools First Conducting Randomization in 2020-21		Schools First Conducting Randomization in 2021-22	
Year 1 2019-20	8th Grade Baseline			
	↓ (Random Assignment)			
Year 2 2020-21	9th Grade 1 Yr Trt Pgm Yr 2	8th Grade Baseline	8th Grade Baseline	
		↓ (Random Assignment)	↓ (Random Assignment)	
Year 3 2021-22	10th Gr 2 Yrs Trt Pgm Yr 3	9th Grade 1 Yr Trt Pgm Yr 3	9th Grade 1 Yr Trt Pgm Yr 1	8th Grade Baseline
	↓	↓	↓	↓ (Random Assignment)
Year 4 2022-23	11th Gr 3 Yrs Trt Pgm Yr 4	10th Gr 2 Yrs Trt Pgm Yr 4	10th Gr 2 Yrs Trt Pgm Yr 2	9th Grade 1 Yr Trt Pgm Yr 2

V.1.3: Treatment and Control Student Conditions

Treatment condition. The expectations for the treatment condition are described in this report as Key Component 1. The activities provided to students in specialized cohorts were designed to support their college and career readiness. The evaluation assessed the impact of these activities using a lottery-based experimental design, which measured the outcomes of cohort students in the RECN partner schools. In each of the 15 high schools, two cohorts were expected to be randomly assigned to treatment or control conditions.

Schools then implemented early college-specific activities with treatment cohort students during Grades 9 and 10 to support them in accessing and completing dual credit coursework and preparing for post-high school academics. Students in the treatment group were also supposed to have a higher level of expectation for enrolling in dual credit coursework. More detail about the intervention is provided in Section III, corresponding to the implementation evaluation.

Control condition. Students in the control condition attended the same high schools as the treatment students but participated in the standard programming in Grades 9 and 10 that all students in the school received. This programming included standard courses, academic supports, and access to resources such as counseling and guidance. Students in the control condition also participated in standard college-readiness activities and had access to dual credit coursework. We utilized student surveys at two time points (the 2021-22 and 2023-24 school years) to understand the differences in experiences between the treatment and control students. It is important to note that both treatment and control students may have benefited from the schoolwide activities.

V.1.4: Attrition

Attrition from the study occurred through two primary mechanisms. First, the IDOE was unable to match every student's name with the corresponding alternate student ID in the administrative data. The state was able to match over 97% of the student names to IDs, resulting in relatively low study attrition due to the inability to match IDs. Second, some students were successfully matched in the administrative data to their corresponding IDs but were missing outcome data.

We used raw attendance files from IDOE to form the foundational data source to generate student-level attendance outcomes and demographic covariates as the basis for the RCT sample. Because the attendance files contained several of the pre-treatment covariates, students who did not appear in at least one attendance file from 2017 to 2023 were excluded from the RCT sample and were treated as cases of attrition. We linked the list of student IDs to the corresponding school of enrollment, as well as an indicator of their RCT block.

Table V-2 summarizes the sample sizes at randomization and in the sample for all analyses. Our confirmatory analyses are conducted for students in Grade 10, with students participating in RECN cohort activities for two consecutive school years. We also include the sample sizes in the larger sample, which includes students who started high school in 2022-23 and have only one year of data available for the study.

Table V-2. Sample Sizes at Randomization and in Analytic Sample

Outcome Measure	Control Group		Treatment Group	
	# Randomized	# Analytic Sample	# Randomized	# Analytic Sample
Confirmatory Analyses (Two Years of Treatment)				
Cumulative Days Absent (Grade 10)	468	413	405	367
College Courses (Grade 10)	468	451	405	382
PSAT (Grade 10, 2021-22 only)	112	89	98	73
Exploratory Analyses (One Year of Treatment)				
College Courses (Grade 9)	716	694	594	562
Cumulative Days Absent (Grade 9)	716	660	594	544

We use the information in Table V-2 to calculate the attrition for each analytic sample, which is summarized in Table V-3. All RCT attrition rates fell within the cautious boundary in Table C.1 of the What Works Clearinghouse Standards version 5.0. Because the attrition figures fall within the cautious boundary, baseline equivalence assessment is not required for the RCT. However, we report the baseline equivalence for each sample to demonstrate balance on key covariates and to show the characteristics of students in the study.

Table V-3. RCT Sample Attrition

Outcome Measure	Control Group Attrition	Treatment Group Attrition	Total Attrition	Differential Attrition
Confirmatory Analyses (Two Years of Treatment)				
Cumulative Days Absent (Grade 10)	11.8%	9.4%	10.7%	2.4%
College Courses (Grade 10)	3.6%	5.7%	4.6%	2.0%
PSAT (Grade 10, 2021-22 only)	20.5%	25.5%	22.9%	5.0%
Exploratory Analyses (One Year of Treatment)				
College Courses (Grade 9)	3.1%	5.4%	4.1%	2.3%
Cumulative Days Absent (Grade 9)	7.8%	8.4%	8.1%	0.6%

V.2: Data and Measures

We next present an overview of the data and measures used in the RCT analysis, with subsections on: 1) data sources, 2) outcome measures, and 3) treatment of missing data.

V.2.1: Data Sources

The primary source of data was the Indiana Department of Education (IDOE), whose representatives linked lottery records to their administrative data. The files received for the analysis included ATTENDANCE, PSAT, DUAL CREDIT, and AP.

V.2.2: Outcome Measures

We used the source files to examine outcomes that aligned with management plan objectives, either directly measuring them or predicting longer-term outcomes of HS graduation, post-HS college admission, credential attainment, and workforce readiness. All measures are standard educational outcomes available for nearly all students in the impact sample and have been identified as early indicators of progress for EC programs from prior research. The domains for each outcome align with those in the *WWC Transition to College Protocol 4.0.*[12]

Attendance (Grades 9 and 10). This is the number of days absent at the student level. The data were obtained from student-level records provided by IDOE. This outcome aligns with the *Attendance* domain in the WWC Protocol. We constructed the days absent outcome using attendance datasets from IDOE. We used the data from all years to generate a days absent outcome for each grade level. For example, we calculated a variable for each student corresponding to the number of days absent in Grade 8, days absent in Grade 9, etc. Thus, we used the same procedure to calculate the baseline days absent and post-treatment days absent outcomes. Students missing attendance records for a given year had a missing value. For students with multiple school records in the same year, attendance values were summed (in some cases across multiple schools if a student attended multiple schools to calculate a total number of days absent. Students who were no longer enrolled in a RECN school continued to

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[12] https://ies.ed.gov/ncee/wwc/Document/257

be part of the analysis under their confirmed treatment status under the Intent-to-Treat framework.

We also used the attendance files to extract the demographic covariates for each student. For each student ID in the matched RCT sample, we first looked for an attendance record in their Grade 8 year. If a student had multiple attendance records in Grade 8, we used the record with the largest number of days enrolled. Within each record, we generated dichotomous variables corresponding to gender, race, economically disadvantaged (based on free/reduced lunch status), English learner, and special education status. If a student did not have a Grade 8 attendance record, we looked for a record of Grade 7 attendance using the same procedure as Grade 8. Finally, if a student did not have an attendance record from either Grade 7 or 8, we looked for a record in Grade 6. We had two students missing attendance records from all pre-treatment middle school years, who were excluded from this analysis.

College Readiness Exams (Grade 10). This outcome uses the composite student score on the PSAT, which is administered to all Indiana students in Grade 10. This outcome aligns with the *Academic Achievement* domain. We constructed the PSAT outcome variable by linking PSAT scores with student IDs in the full RCT panel. For students with multiple PSAT records, we retained the highest grade-level record, ensuring only one score per student is included. The confirmatory analysis we report is from the composite score, which is the sum of the verbal, math, and writing sub scores.

The PSAT sample included all RCT sample students who had a valid score on the PSAT exam in Grade 10. The original intent was to have a sample of a similar size to the attendance outcome by utilizing data from sample students in 2022 and 2023. Due to an issue with the testing vendor, IDOE could not provide PSAT testing data for the 2023 school year (during which many of the RCT sample students took the PSAT). Consequently, PSAT-based analysis is limited to a subset of the RCT sample, with scores available only for students who took the test in 2022. The unavailability of PSAT data in 2023 severely limited the sample size and, consequently, the statistical power of the PSAT analysis.

College Credits Earned (Grades 9 and 10). This outcome measures the number of records associated with college-level courses (dual credit or AP courses). Credit is determined by a "passing" flag in the dual credit data or receiving a score of 3 or higher on the AP exam. This outcome aligns with the *College Readiness* domain. Our original plan was to assess this outcome using the *total number* of college credits earned in Grades 9 and 10. However, the number of credits associated with each course was not observable in the IDOE dual credit data. Thus, we changed our outcome to assess the percentage of students with one or more dual credit or AP records. We also examined the total number of course records observable in the data.

Students who did not take any college-level courses are not included in the source files from IDOE related to AP and dual credit course-taking. As a result, we needed a different data source

to identify the full sample. We used the base sample definition for the college-level credits sample, which included all students who had ever appeared in the IDOE data and whose ID was matched with the RCT sample. This definition did not depend on an attendance record for students during high school. Thus, the sample size for college-level credits is slightly higher than that for attendance. We note some issues with under-counting in the dual credit data in Sections V.4.3 and VI.4.4.

For each student, we summarized dual credit participation annually and cumulatively across one, two, and three years of RECN participation. For each time window, we calculated a) the number of dual credit courses taken and passed, b) whether the student passed at least one ICC and/or CTE course, and c) whether the student passed any dual credit course overall. We merge these dual credit outcomes into the main RCT analytic sample and combine them with previously constructed AP outcomes to create additional summary indicators. These variables indicate whether a student passed either an AP exam or an ICC course, or any combination of AP exams and dual credit courses, across one, two, or three years. We replaced missing values with zeros to maintain consistency across records. In other words, if a student appeared at *any point* in the attendance file (i.e., in middle school but not high school) but not any of the dual credit or AP files, we assumed that the student had values of 0 for all outcomes.

We used the dual credit course-taking dataset to construct student-level outcome variables that capture cumulative participation and success in dual credit courses over the first three years of RECN exposure. These outcome variables include both continuous (course count) and binary (any participation) indicators, disaggregated by pathway—Indiana College Core (ICC) and Career and Technical Education (CTE).

For AP courses, we utilized the AP test score source file from IDOE. Any score of 3 or higher indicated that the student earned (potential) college credit from the AP exam. The confirmatory outcome looked at whether students earned any college credit by either taking and earning a 3+ score on an AP exam or with the indication of a passing record for one or more dual credit courses.

V.2.3: Treatment of Missing Data

For missing baseline data in the Grade 8 year, we used each student's most recently available pre-treatment reading and math test scores. For example, in the 2020-21 cohort, we used Grade 7 testing data (from 2018-19) for student baselines because testing did not occur in Spring 2020 due to COVID-19. We converted all testing data to *z*-scores (relative to the mean and standard deviation of all test-takers in the state) to ensure the results were comparable across years.

We used the dummy variable method[13] for missing pre-test and covariate data. Our models also include an indicator *D* for each covariate, which takes a value of one for cases where X is missing and zero for cases where *X* is not missing. In cases of missing data, we replaced the missing value with a constant and set the value of the dummy to 1 for the covariate of interest.

V.3: Model Specifications

For the RCT study, we used a two-level hierarchical linear model with students nested within randomization blocks. Random intercepts are estimated for each block, representing the deviation of each block from the grand mean intercept and treatment effect. The model estimates a treatment-control difference within each randomization block and then creates an overall impact estimate using weights that are inversely proportional to the treatment effect in each block.[14]

V.3.1: Impact Model

$$Y_{ij} = \beta_0 + \beta_1(T_{ij}) + \beta_2(Y_{ij}^*) + \beta_3(Y_{ij}^* * Gr\_7) + \beta_4(Y_{ij}^* * Gr\_6) +$$
$$\sum_{m=1}^{M} \beta_{5.m} X_{mij} + \sum_{j=1}^{J-1} \beta_{6.j} Block_j + \varepsilon_i \text{ (Formula V-1)}$$

Where,

Y_{ij} = the *outcome* for the ith student in the jth block.

β_0 = the intercept (i.e., the covariate-adjusted mean outcome for students in the comparison group in the reference block).

β_1 = the treatment effect.

T_{ij} = 1 if student *i* is assigned to treatment within block *j*, and = 0 if assigned to comparison within block *j*.

β_2 = the effect of the pretest.

Y_{ij}^* = a pre-test measure for the ith student in the jth block.

β_3 = the effect of the baseline test measurement in 7th grade.

Gr_7 = 1 if student *i*'s pretest score is from 7th grade, and 0 if pretest score is from 6th or 8th grade

β_4 = the effect of the baseline test measurement in 6th grade.

Gr_6 = 1 if student *i*'s pretest score is from 6th grade, and 0 if pretest score is from 7th or 8th grade

$\beta_{5.m}$ = the effects of student covariates.

X_{mij} = the mth of *M* additional covariates representing demographic characteristics of student *i* in block *j* (e.g., special education designation, gender, free/reduced lunch, dummies to represent grade-level of students (e.g., 4th, 5th, 6th grades), or other student-level covariates).

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[13] https://ies.ed.gov/ncee/pubs/20090049/section_3a.asp

[14] Price, C., Wolf, A. (2017). *Analysis Models in Group Design Evaluations: Selecting a Model for Your Design*. Prepared for the Institute of Education Sciences, U.S. Department of Education. Washington, D.C..

$\beta_{6.j}$ = the effect of block (i.e., the difference in the intercept between block j and the reference block).

$Block_j$ = 1 if student is in block j (j=1,2, …, J), otherwise = 0.

β_7 = the effect of missing data.

D_{ij} = 1 if the student is missing data, and 0 if the student is not missing any data.

ε_i = a residual error term for student i.

V.3.2: Baseline Equivalence Model

We assessed baseline equivalence between the treatment and control groups in terms of demographic composition (economically disadvantaged, race, gender, English Learner status, and disability status) and prior-year academic performance (pre-high school math and ELA test scores). All baseline equivalence analyses included the same randomization block dummy variables that will be used in the impact analysis. To calculate the effect size of the differences on each covariate, we used Cox's Index for dichotomous variables and Hedges' g for continuous variables.

We used a baseline equivalence model that was a modified form of the impact model for each outcome. The dependent variable in this model is Y_i where i represents each student. The model is of the form:

$$Y_i = (\beta_0) + \beta_1(T_{ij}) + \sum_{m=1}^{M-1} \beta_{1+m}(MatchBlock_m) + \varepsilon_j \quad \text{(Formula V-2)}$$

In both models, the coefficient $\hat{\beta}_1$ is the difference between treatment and control students at baseline. This coefficient is labeled as the "treatment-control difference" in the table below. A model of the same form was used for all RCT baseline equivalence analyses.

V.3.3: Subgroup Analysis

We conducted subgroup analyses for economically disadvantaged and non-economically disadvantaged students, using the designations for each student in Grade 8, as coded by IDOE.

We used a model with an interaction term between the subgroup and treatment to assess whether there were significant differences in outcomes between students who were economically disadvantaged versus those who were not (Formula V-3).

$$Y_{ij} = \beta_0 + \beta_1(T_{ij}) + \beta_2(Subgroup_{ij}) + \beta_3(Subgroup_{ij} * T_{ij}) + \beta_4(Y_{ij}^*) + \sum_{m=1}^{M} \beta_{5.m} X_{mij} + \sum_{j=1}^{J-1} \beta_{6.j} Block_j + \varepsilon_i \text{ (Formula V-3)}$$

We present the estimates for each group using the following measures:

- A = The mean days absent for non-economically disadvantaged control students.
- B = The value of the model treatment β_1 coefficient.
- C = The value of the model economically disadvantaged β_2 coefficient.

- D = The value of the model interaction β_3 coefficient between treatment and economically disadvantaged status.

We then calculate the subgroup means according to Table V-4:

Table V-4. Algebraic Calculations for Subgroup Estimates

	Control	Treatment
Not Economically Disadvantaged	A	A + B
Economically Disadvantaged	A + C	A + B + C + D

V.3.4: Decision Rules for Including or Excluding Covariates

We determined the covariates in our models a priori. Our models included dichotomous measures of gender, race, economic disadvantage (based on free or reduced lunch status), English learner status, and special education status. We also included continuous measures of prior attendance and academic performance in the relevant analyses. We operationalized prior academic performance by each student's end-of-grade testing *z*-scores in ELA and math relative to other test-takers in the state, using the most recent pre-treatment (or pre-high school) measure available.

V.3.5: Effect Size Calculations

To calculate the effect size of the differences on each covariate, we used Cox's Index for dichotomous variables (e.g., whether students earned college credit, membership in demographic subgroups), and Hedges' *g* for continuous variables (e.g., test scores, number of credits earned, days absent). Our Cox's Index calculations used the unadjusted control proportion and the model-adjusted treatment proportion (the impact estimate plus the control proportion) for each measure. We calculated Hedges' *g* using the pooled standard deviation of the treatment and control scores and the difference between the unadjusted control mean score and the adjusted treatment mean score (the impact estimate plus the control mean score). These procedures are reflected throughout the baseline equivalence and results tables.

V.4: Confirmatory Analysis Results

We present the results of baseline equivalence analysis, primary results, and subgroup results for the confirmatory analysis.

V.4.1: Confirmatory Analysis 1: Attendance

Baseline equivalence. Appendix Table B-3 summarizes the baseline equivalence for the sample for the first confirmatory analysis. As shown in the table, all covariates had baseline differences of less than .25 SD, which meant our outcome models did not require additional adjustment for pre-treatment differences.

Primary results. Table V-5 summarizes the results of the cumulative days absent outcome with two years of treatment. As noted in the table, there were no significant differences in

cumulative days absent, with both treatment and control students each averaging a total of a little more than 18 days absent (i.e., an average of nine days absent *each year*) in grades 9 and 10. It is worth noting that the intervention took place during the COVID-19 pandemic, and the average number of days absent increased from baseline levels across the full RCT sample.

Table V-5. Confirmatory Impact Analysis Results (Cumulative Days Absent)

Outcome Measure	Comparison Group			Treatment Group			Treatment – Control Difference	Standard Error	Standardized Difference	p-value
	Sample Size	Mean	Standard Deviation	Sample Size	Model-adjusted Mean	Standard Deviation				
Cumulative Days Absent (2 Yrs)	413	18.05	15.72	367	18.23	14.72	0.18 days	0.93 days	0.01	.85

Subgroup analysis. We also conducted a subgroup analysis for this outcome based on whether students were economically disadvantaged. Although data were available to examine differential outcomes for other subgroups, our sample size was not sufficient to assess the impacts of other subgroups (e.g., English learners, students with disabilities, and race/ethnicity groups). We determined students' status using their flag for economic disadvantage from the last pre-randomization year available (Grade 8 for most students).

Table V-6 shows the raw mean days absent for the non-economically disadvantaged control students and the model-adjusted means for the other subgroups using the formulas in Table V-4. On average, control students missed slightly fewer days of school than treatment students in both economically disadvantaged and non-economically disadvantaged subgroups. However, none of the differences between groups was statistically significant.

Table V-6. Primary Outcome Subgroup Analysis – Days Absent

	Control	Treatment
Not Economically Disadvantaged	16.76	16.94
Economically Disadvantaged	18.93	20.28

V.4.2: Confirmatory Analysis 2: PSAT Composite Scores

Baseline equivalence. The baseline equivalence assessment for the PSAT outcome is provided in Appendix Table B-4. Due to the low sample sizes, the baseline differences between variables had large effect sizes, particularly for demographic characteristics that had a small prevalence in the sample (i.e., English learners and students with disabilities). However, because the experimental contrast was maintained for the RCT blocks in question (and overall and differential attrition fell within the cautious boundary), the design is underpowered but still aligns with WWC standards.

Results. The PSAT impact results in Table V-7 show no significant differences between treatment and control students within the RCT sample. Note that the source data scaled PSAT scores from 8 (minimum) to 38 (maximum). For the composite score, this translated to a range of 24 (minimum) to 114 (maximum).

Table V-7. Confirmatory Impact Analysis Results (Individual-Level Assignment Study)

Outcome Measure	Comparison Group			Treatment Group			Treatment – Control Difference	Standard Error	Standardized Difference	p-value
	Sample Size	Mean	Standard Deviation	Sample Size	Model-adjusted Mean	Standard Deviation				
PSAT (Grade 10)	89	70.08	9.83	73	69.73	10.47	-0.35	0.97	-0.03	.72

Subgroup analysis. Due to the low sample sizes for the available outcome data, we were unable to conduct a subgroup analysis for the PSAT outcome.

V.4.3: Confirmatory Analysis 3: College-Level Credits

Baseline equivalence. We used the same procedure to assess baseline equivalence for the RCT student sample for college coursetaking and success as we did for the days absent outcome. Appendix Table B-5 summarizes the baseline equivalence measures.

Data issues. There was an issue with the dual credit course-taking data that the evaluation team was unable to resolve with the IDOE. The number of dual credit courses appeared to be undercounted in the data we received, as the number of courses identified through self-reporting from the schools was significantly higher than those observed in the administrative data from IDOE. We describe this issue in more detail in Section VI.4.4, as it is a greater problem for the QED analysis. Although it appears that the overall number of college-level credits is undercounted, we do not have any reason to think that the undercounting affected courses taken by treatment and control students differently.

Results. Table V-8 summarizes the results of college course-taking outcomes with two years of treatment. The confirmatory outcome includes any college-level courses for which college credit was earned. For dual credit courses, a student earning credit for a course was flagged in the administrative data. For AP courses, we indicated that students earned college credit if they scored 3 or higher on the AP exam. The overall college course-taking outcome also includes dual credit courses on different pathways, such as the Indiana College Core (ICC) or career-technical education (CTE) courses. Follow-up analyses help to unpack some of the differences depending on the types of college-level courses for which students earned credit.

Table V-8. Confirmatory Impact Analysis Results (Earning Any College Credit)

Outcome Measure	Comparison Group			Treatment Group			Treatment – Control Difference	Standard Error	Standardized Difference	p-value
	Sample Size	Mean	Standard Deviation	Sample Size	Model-adjusted Mean	Standard Deviation				
College Courses – Any Dual Credit or AP Courses (2 Yrs)	451	41.2%		382	41.8%		*0.6 pp*	*3.1 pp*	.02	.85
Any Dual Credit Courses Passed	451	39.2%		382	40.0%		0.7 pp	3.0 pp	.02	.82
Any ICC Course Passed	451	26.6%		382	29.0%		3.4 pp	2.7 pp	.10	.21
Any AP Test Passed, or ICC Course Passed	451	28.6%		382	32.4%		3.8 pp	2.8 pp	.11	.17
Any CTE Course Passed	451	20.8%		382	14.8%		6.0 pp	2.5 pp	-.25	.02
Any AP Tests Passed	451	2.7%		382	3.7%		1.0 pp	1.2 pp	.20	.39
Number of ICC Course Records	451	0.353	0.655	382	0.408	0.702	0.055 course records	0.036 course records	.08	.12

Subgroup analysis. We used the same model to assess any differences in treatment impacts between economically disadvantaged and non-economically disadvantaged students on each of the outcomes related to earning college credit. None of the subgroup coefficients was statistically significant, indicating no significant differences between subgroups. Table V-9 shows the model-adjusted estimates for the subgroup analysis. 50.1% of non-economically disadvantaged treatment students earned credit through dual credit or AP, while 45.6% of non-economically disadvantaged control students did. A slightly different trend appears for economically disadvantaged students, with 38.2% of treatment students earning credit, compared to 42.8% of the control students. The interaction term had p = .14, however, indicating that the subgroup difference was not statistically significant.

Table V-9. Primary Outcome Subgroup Analysis – Any Dual Credit or AP

Subgroup	Control	Treatment
Not Economically Disadvantaged	45.6%	50.1%
Economically Disadvantaged	42.8%	38.2%

We also conducted sub-analyses by subgroup for the other unpacking outcomes related to college credits, summarized in Table V-10. Although these results are not a confirmatory analysis, they help to understand the mechanisms of the results. For every category of outcome except CTE coursework, non-economically disadvantaged treatment students earned credit at slightly higher levels than control students. For economically disadvantaged students, the opposite was true – control students earned credit at a slightly higher rate than treatment students.

Table V-10. Unpacking Subgroup Outcomes for College Credits

Outcome	Not Economically Disadvantaged		Economically Disadvantaged	
	Control	Treatment	Control	Treatment
College Courses – Any Dual Credit or AP Courses	45.6%	50.1%	42.8%	38.2%
Any Dual Credit Courses Passed	43.4%	47.8%	39.9%	35.6%
Any ICC Course Passed	32.4%	39.8%	29.0%	27.0%
Any AP Test Passed, or ICC Course Passed	34.6%	43.1%	32.2%	29.9%
Any CTE Course Passed	21.0%	15.4%	15.0%	8.5%
Any AP Tests Passed	2.9%	4.8%	5.5%	5.3%
Number of ICC Course Records	0.460	0.556	0.412	0.412

V.4.4: Confirmatory Analysis Discussion

It is first important to contextualize these (and all program) results, which took place during the COVID-19 pandemic (See Section II.3 for a more detailed look at COVID's impacts). Disruptions to school operations during and after the pandemic limited the extent to which schools could fully implement cohort structures as originally planned, particularly with the initial cohort who started Grade 9 in 2020-21. Consequently, the RECN model may have had a more limited influence on engagement-related outcomes, such as attendance, than may have been the case under non-pandemic conditions. The average of approximately nine days absent per school year was also higher than the average middle school baseline of six days absent per school year, which was also potentially impacted by COVID-19-related absences that impacted schools across the United States.

The RCT did not show statistically significant differences in attendance between students in the treatment and control groups, with both groups averaging just over 18 days absent across Grades 9 and 10. This finding was not entirely surprising, as the RECN cohort intervention, as implemented, was not designed to influence attendance explicitly and was more focused on exposure to college readiness strategies. Additionally, student survey responses (provided in

Section VI of the report) indicated limited differentiation between treatment and control conditions within schools, likely due to implementation crossover and lower emphasis on the cohort intervention within the program schools.

For the PSAT, the evaluation team did not observe a differentiated explicit focus on PSAT test prep or on academic skills that would be measured on the PSAT. The inclusion of more explicit instruction designed to improve performance on the PSAT would be necessary to expect to see an impact. Additionally, the missing data from the 2022-23 school year severely limited the power of the analysis. As noted in Section V.4.2, we only had a sample of 172 students for the confirmatory analysis. Not only did this provide insufficient power to detect an impact, but it also provided a very narrow look into RECN's impact on PSAT.

The primary analysis on college courses also had a null result. The percentage of treatment and control students earning credit from dual credit or AP courses was 41.8% and 41.2%, respectively. In unpacking the results, treatment students were slightly more likely to enroll in AP and ICC coursework, although the differences between each of those measures were not statistically significant. Treatment students were less likely to enroll in CTE dual credit courses in Grades 9 and 10. Only 14.8% of treatment cohort students took and passed at least one CTE course, compared to 20.8% of the control students. The number of ICC courses taken and passed was slightly higher in the treatment students, although this difference was not statistically significant. The subgroup analysis also did not yield statistically significant results for either group. Unpacking the subgroup analysis by different college credit-related outcomes reveals a similar pattern: non-economically disadvantaged treatment students earned slightly more college credits than their control counterparts.

V.5: Exploratory Analyses

We next look at the results from the two exploratory analyses based on one year of treatment.

V.5.1: Exploratory Analysis 1: Days Absent After One Year of Treatment

Sample. We used the same procedure to identify students in the attendance files as described in the section on confirmatory analysis. However, instead of limiting to students with at least two years in a RECN cohort, the exploratory analysis focuses on students enrolled for one or more years. This analysis enabled us to include students who started Grade 9 in the 2022-23 school year in the sample, increasing the statistical power.

Difference in outcome from confirmatory analysis. We constructed the days absent outcome using the same attendance datasets from IDOE described in the confirmatory analysis. However, we used only the cumulative days absent for all Grade 9 students in this analysis. In other words, this exploratory analysis expanded the sample and examined whether the intervention had an initial impact on attendance in students' first year in a RECN cohort.

Baseline equivalence. We calculated the baseline equivalence using Formula V-1 for the sample with one year of treatment, summarized in the table below. English learners had a large standardized difference due to the subgroup representing a small proportion of the overall sample. All other measures had standardized differences between treatment and control students of 0.12 *SD* or smaller. See Appendix Table B-7.

Results. The results in Table V-11 show a small, non-significant impact of the RECN cohort intervention of approximately 0.28 fewer days absent (*p* = .48).

Table V-11. Exploratory Impact Analysis Results (Individual-Level Assignment Study)

	Comparison Group			Treatment Group						
Outcome Measure	Sample Size	Mean	Standard Deviation	Sample Size	Model-adjusted Mean	Standard Deviation	Treatment – Control Difference	Standard Error	Standardized Difference	p-value
Cumulative Days Absent (1 Yr)	660	8.26	8.42	544	7.98	7.69	-0.28 days	0.40 days	-0.03	.48

Subgroup analysis. As shown in Table V-12, the model-adjusted means indicate that treatment students missed slightly fewer days over the course of one year of treatment than control students in both the economically disadvantaged and non-economically disadvantaged subgroups. However, none of the subgroup results was statistically significant.

Table V-12. Primary Outcome Subgroup Analysis – Days Absent in One Year of Treatment

	Control	Treatment
Not Economically Disadvantaged	7.76	7.45
Economically Disadvantaged	8.15	7.91

V.5.2: Exploratory Analysis 2: College-Level Credits After One Year of Treatment

Sample. We use the same procedure to identify students in the college-level credits sample as described in the section on confirmatory analysis. However, instead of limiting to students with at least two years in a RECN cohort, the exploratory analysis focuses on students enrolled for one or more years. Examining the impact of one year of treatment enabled us to include students who started Grade 9 in the 2022-23 school year in the sample, as was done for the exploratory analysis of the attendance outcome.

Difference in outcome from confirmatory analysis. We constructed the college-level credits outcome using the same procedures described in the confirmatory analysis. For this analysis, however, we restricted the analysis to the dual credit and AP test records for Grade 9 only.

Baseline equivalence. We calculated the baseline equivalence using Formula V-1 for the sample, summarized in the table below. Similar to the results for the attendance outcome, English learners had a large standardized difference, as the subgroup represented a small proportion of the overall sample. All other measures had standardized differences between treatment and control students of 0.13 *SD* or smaller. See Appendix Table B-7.

Results. We first examine whether students earned any college-level credit through the end of one year of treatment. As shown in Table V-13, 19.1% of treatment students (model-adjusted) earned college credit at the end of Grade 9, compared to 16.9% of control students. However, this difference was not statistically significant (*p* = .25). In unpacking the outcomes, CTE courses were much more prevalent for Grade 9 students than were ICC courses. This result was expected because the ICC courses often require additional academic background from high school courses before students are eligible to take them. Treatment students took and earned credit from CTE dual credit courses at a slightly higher rate than control students, which suggests the difference in CTE coursetaking and success through two years in the confirmatory analysis was not the same for only one year of outcomes.

Table V-13. Unpacking Confirmatory College Credit Results by Sub-Outcome

	Comparison Group			Treatment Group						
Outcome Measure	Sample Size	Mean	Standard Deviation	Sample Size	Model-adjusted Mean	Standard Deviation	Treatment – Control Difference	Standard Error	Standardized Difference	p-value
College Courses – Any Dual Credit or AP Courses (2 Yrs)	694	16.9%		562	19.1%		2.3 pp	2.0 pp	.09	.25
Any Dual Credit Courses Passed	694	16.9%		562	19.1%		2.3 pp	2.0 pp	.09	.25
Any ICC Course Passed	694	0.3%		562	1.4%		1.1 pp	0.5 pp	.98	.04
Any AP Test Passed, or ICC Course Passed	694	0.3%		562	1.4%		1.1 pp	0.5 pp	.98	.04
Any CTE Course Passed	694	16.6%		562	17.7%		1.1 pp	1.9 pp	.05	.56
Any AP Tests Passed	694	0.0%		562	0.0%		0.0 pp	N/A	N/A	N/A

Number of ICC Course Records	694	.003		562	.011		.008 course records	.005 course records	.98	.04

V.5.3: Exploratory Analysis Discussion

The findings from our exploratory analyses trended in different directions than those from the confirmatory analyses. The attendance findings are non-significant for both our confirmatory and exploratory analyses, although Grade 9 students were absent descriptively fewer days. The impacts for coursetaking were different for the exploratory analyses. For our confirmatory sample of students in Grades 9 and 10, the only statistically significant impact was a negative impact on CTE dual credit coursetaking. In contrast, when we use the larger sample examining college coursetaking in Grade 9, we observe statistically significant impacts on taking any ICC course. We also observe higher numbers of CTE courses taken by the treatment students compared to the control students, although the difference is not statistically significant.

It is unclear why we observe different patterns in college coursetaking between Grade 9 and Grade 10. One possibility is that the one-year coursetaking sample includes a larger proportion of students who were enrolled in school as we emerged from the pandemic. As noted above, the pandemic inhibited schools' ability to offer dual credit courses as they were dealing with the immediate ramifications of shutting down. A second possible explanation is that the Early College model is accelerating students' enrollment in college courses, but that control students may eventually take those courses and catch up to the treatment group. Future research could provide further insight into this question.

Section VI: QED Impact Evaluation of School-Level Outcomes

The RCT study was limited to examining the impacts of the targeted supports on a cohort of early college students for the first two years of high school. However, schools were also engaged in a range of other activities intended to create opportunities for *all* students to increase their postsecondary readiness and earn college credit in high school. As such, the QED portion of the impact study was designed to assess the impact of RECN on the whole school and focused on outcomes for all students in grades 9-12 compared to other similar rural high schools in Indiana. In tandem, the results from the RCT and QED studies are designed to complement each other.

Study pre-registration. We submitted the pre-registration of the QED study to the Registry of Efficacy and Effectiveness Studies (REES). The study is registered under #10540.2v1 with a publish date of June 3, 2022.

VI.1: Research Design

The research design is presented in the following sections: 1) research questions, 2) sample definitions, and 3) treatment and comparison school conditions.

VI.1.1: Research Questions

The confirmatory analysis focuses on outcomes in four domains. Each domain from the WWC *Transition to College v4.0* protocol is in italics before each research question. We designed the QED research questions to have some overlap with the RCT study, allowing for the measurement of both within-school and between-school contrasts. These research questions reflect similar outcomes to the RCT study for students in Grades 9 and 10.[15]

4. (*College Readiness*) What is the impact of at least two full years of school participation in RECN activities on the average number of cumulative credits earned (dual credits or AP credit equivalents) by the end of Grades 9-12, compared to other Indiana schools not part of the RECN program?

5. (*Attendance*) What is the impact of at least two full years of school participation in RECN activities on attendance for students in Grades 9-12, compared to other Indiana schools not part of the RECN program?

6. (*Academic Achievement*) What is the impact of at least two full years of school participation in RECN activities on a) PSAT scores in Grade 10 and b) SAT scores in Grade 11, compared to other Indiana schools not part of the RECN program?

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[15] We intended to answer the following question from the *Progressing in School* domain: What is the impact of at least two full years of school participation in RECN activities on completion of core academic high school courses in Grades 9 and 10 compared to other Indiana schools not part of the RECN program? However, the data available for treatment and comparison schools from IDOE did not allow us to assess this outcome.

VI.1.2: Sample Definitions

The treatment schools in the quasi-experimental study are identical to those in the random assignment study; however, our QED analysis includes all 15 schools compared to only 14 with valid lottery implementation. The criteria for participation in the QED were the same as described in Section V.1.2 of the RCT section; schools were required to be located in rural areas and had not yet reached the endorsement phase of Early College development.

We conducted the school-level quasi-experimental design (QED) by matching the 15 treatment schools with a set of 60 comparison schools (for a 4:1 match) and using panel data from pre-treatment and post-treatment years to conduct a short comparative interrupted time series (CSITS) design. We matched the schools in blocks, such that each Tier of five treatment schools (Tier 1 started in 2019-20, Tier 2 in 2020-21, and Tier 3 in 2021-22) was matched to a set of 20 comparison schools. We then used dummy variables corresponding to each block group in the QED impact models.

VI.1.3: Treatment and Comparison School Conditions

Treatment condition. The intervention condition included students enrolled in grades 9-12 in each of the 15 RECN partner schools located in rural areas across Indiana (see Section V for the school locations). These schools each participated in school-level activities aligned with the school-level part of the implementation study (see a discussion of Key Component 2 in Section V.2). The goal of this study design was to detect changes in outcomes among RECN partner schools compared to other similar high schools in the state not explicitly implementing an Early College program at the time the study period began, but that had similar baseline characteristics such as the number of college course records for each student.

Comparison condition. Schools considered for the comparison pool had to meet the same rurality criteria as the treatment schools (locale codes of 32-43) that served grades 9-12 (but, like some of the treatment schools, may also have served middle school students). We also excluded schools that had already received endorsement from CELL for their early college programs (including the project mentor schools) and excluded charter and non-public schools. These schools were excluded from the comparison group because they were not eligible for participation as treatment schools. These comparison schools offered similar levels of college-level coursework in pre-treatment years as RECN treatment schools and matched on other characteristics, as demonstrated in the baseline equivalence analysis.

VI.2: Data and Measures

We next present an overview of the data and measures used in the QED analysis, with subsections about 1) data sources, 2) the construction of the school-level analytic data set, 3) matching, and 4) outcome measures.

VI.2.1: Data Sources

As with the RCT study, the primary source of data for the QED was the Indiana Department of Education (IDOE). We used many of the same student-level files as used for the RCT, but we applied data transformation to create school-level files.

The primary source data to define the student sample within each school came from the ATTENDANCE files from the Indiana Department of Education (IDOE), which contained student-level records on enrollment dates, grade level, and demographic characteristics. We restricted all school-level measures to students in grades 9-12 with valid student IDs (i.e., if a school served students in Grades 7 and 8, their records were not considered for inclusion in the school-level measures. We added indicators using the beginning date and ending date for each student enrollment record to determine whether students were present on October 1, the official pupil count date for IDOE. Students present in the school on the pupil count date formed the denominator for each school-level measure; we excluded other records from the analysis. These files served as the primary source for defining which students contribute to the school-level measures.

VI.2.2: Building the School-Level Analytic Dataset

We built the analytic data set using student-level data for students in all Indiana public schools from 2015 through 2023. We combined all indicators into a single panel dataset for use in matching and impact analysis. Each row in the data set represented all available data for each school in a given year. Because the study period spanned nine school years, the panel data set includes nine rows for each school, with each row corresponding to a specific school year. For matching, we limited the data set to years from the panel data set corresponding only to pre-treatment years for each school. The method for aggregating the variables for this dataset is described in the following paragraphs.

VI.2.3: Matching Schools for the QED

The evaluation team conducted a matching procedure to identify sets of schools that were as similar as possible to each group of RECN (treatment) schools using data on outcomes from 2014-15 to each school's last pre-program year (i.e., 2018-19 for Tier 1 schools, 2019-20 for Tier 2 schools, and 2020-21 for Tier 3 schools). The goal of matching was to find a set of 20 schools for each group of five schools in each tier, for a total of 60 comparison schools matched to the 15 treatment schools.

We formed a panel data set with summary variables by school year by first limiting the dataset to only pre-treatment years. For each measure, we included three variables for matching: a) the last pre-treatment year, b) the mean of all pre-treatment years, and c) the slope of all pre-treatment years. We supplied the data to a genetic matching algorithm implemented through the *matchit* package in R. We ran the matching algorithm for ten iterations to narrow the pool of potential comparison schools from the total sample to no more than 50 comparison schools for each cohort. We then randomly sampled subsets of 20 schools from that pool and

calculated the baseline equivalence of each comparison school subset with the five treatment schools in each Tier. We identified the final set of comparison schools through an iterative process to minimize the total standardized difference across all measures and ensure that no values had standardized differences greater than .25 SD, in line with What Works Clearinghouse guidelines. We repeated this process for Tiers 1-3 and pooled the results from each group to form the comparison sample.

VI.2.4: Matching Variables

Demographics. We used these samples to calculate school-level demographic variables for each school. We used each student's most recent demographic information based on the last pre-treatment year and grade in which they appeared in the data. We used these data to compute counts and proportions of students by subgroup, including socioeconomic status (i.e., the proportion of students receiving free or reduced-price lunch), ethnicity, English learner status, special education status, and gender. These measures were calculated for each school in each year of the dataset.

High School Testing. We used historical high school testing records from 2016 through 2021 to infer each school's baseline level of student achievement in the pre-treatment years. These data included student-level scores for Grade 10 ISTEP+ exams in English/Language Arts (ELA), Mathematics, and Science. We calculated subject-specific z-scores for each student based on statewide means and standard deviations by year and grade. We then computed the average z-scores and average scale scores for each school in our analytic sample by subject and year to use as matching covariates.

SAT Testing. We used statewide SAT testing records from 2015 to 2021 in the SAT file from IDOE to create summary outcome files at the school level. We limited our analysis to students who took the exam in Grade 11 to allow for comparability across schools. We computed the composite z-scores for each school using statewide means and standard deviations for all Indiana test-takers in Grade 11 each year. Our original intent was to use the statewide SAT testing as an outcome variable. The state, however, changed the testing structure in 2022 and 2023, so these measures did not meet the representativeness criteria in those years. Thus, the school-level SAT z-score was used only for the pre-treatment years as a matching variable.

Graduate Types. During the pre-treatment period, Indiana students could earn one of three types of high school diplomas – General Diplomas, Core 40 Diplomas, and Honors Diplomas. Each of these diploma types had different criteria students had to meet in order to earn them; thus, the school-level proportions of students who earned each diploma type serve as a matching covariate to approximate the rigor of students' programs of study. We used the GRADUATE file from IDOE to calculate the percentage of graduates receiving each diploma type by school and year, which served as matching covariates.

VI.2.5: Outcome Measures

The evaluation team obtained outcome data from the Indiana Department of Education (IDOE). The confirmatory outcomes are defined as follows:

Attendance. This outcome examined the number of days absent for students in Grades 9-12. The data came from student-level records provided by the IDOE. The student-level measure represented the number of days a student was absent in a given school year. The baseline measure of this outcome was calculated as the total number of days absent divided by the total number of students enrolled in the most recent school year before treatment (coded as P or T) began. We used the same sample inclusion criteria to summarize key attendance metrics for each school: the mean number of days enrolled and the total number of days absent in a given school year. The school-level mean number of days absent across all students included in the analytic sample in each year served as the outcome for the attendance analysis. This outcome aligns with the *Attendance* domain.

Scores on Postsecondary Readiness Exams. This outcome examined student scores on statewide administrations of the PSAT test in Grade 10 and the SAT test in Grade 11. We used statewide testing records from IDOE from 2015 through 2022 to construct summary outcome files at the school-grade and school levels (the state was unable to supply these data for 2023). Students took the PSAT and SAT at different time points during high school. For comparability across years, we limited the PSAT and SAT files to include only records from the statewide administration each year. We computed the composite z-scores for each school using statewide means and standard deviations for all test-takers across Indiana each year. The baseline measure was calculated as the school mean z-score from the two exams administered in each school's most recent year before treatment (coded as P or T) began. These outcomes align with the *Academic Achievement* domain.

College Credits Earned. At the student-level, this outcome measures the number of records associated with college-level courses (dual credit or AP courses). Credit is determined by a "passing" flag in the dual credit data or receiving a score of 3 or higher on the AP exam. We calculated the school-level measure of records per student by adding all passing records for a given year and dividing by the total number of students in the sample as the student level. We also calculated the percentage of students in each school with one or more college course passing records in a given school year.[16] This outcome aligns with the *College Readiness* domain. Because the records came from multiple source data files and contributed to various sub-outcomes for unpacking the results, we include more detail in the following sections.

Dual Credit Data. We used dual credit course-taking data from 2015 through 2023 to construct summary dual credit outcome files at the student, school-grade, and school levels. These data

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[16] As with the RCT analysis, our original plan for the QED was to assess this outcome using the *total number* of college credits earned across the school each year. However, the number of credits associated with each course was not observable in the IDOE dual credit data.

include student-level records on school ID, course subject, proficiency, and whether the state approved the course for dual credit. Student records were included using the same sample inclusion criteria described above.

For each course, we created classification variables that identified the subject area and whether the course aligns with the Indiana College Core (ICC) or Career and Technical Education (CTE) pathways. Each dual credit course was assigned a subject area based on the leading digits of its subject code. We then classified each course into one of two dual credit pathways: Indiana College Core (ICC) or Career and Technical Education (CTE). ICC courses were typically aligned with general education requirements, including English Language Arts, Math, Science, Social Studies, World Languages, and the Arts. CTE courses included Business, Health Sciences, Engineering, Advanced Manufacturing, Agriculture, Education, and other career-oriented fields. This coding allows us to disaggregate participation by pathway in school- and student-level summaries.

We generated summaries at multiple levels. First, we aggregated dual credit outcomes at the student level by year, school, grade, and pathway. We then calculated the number of dual credit courses each student attempted and the number of courses passed (proficient). We rolled up these student-level records to generate summaries at both the school and school-grade levels. For each grade and year, we calculated the number of students participating in dual credit, the total number of courses taken, the number of approved courses, and the number of passed courses. We disaggregated these metrics by ICC and CTE pathways to examine course-taking rates among different pathways. We inserted values of zero for school-grade-year combinations where no students in a school had dual credit records.

AP Test Data. We used statewide AP testing records from 2015 to 2023, provided by IDOE, to construct summary Advanced Placement (AP) testing files at the student, school-grade, and school levels. We restricted the records to only those students who met the sample inclusion criteria. First, we generated a student-level summary to aggregate AP test outcomes by student and year, including the number of AP tests taken, the number passed (defined as a score of 3 or higher), and an indicator for whether each student passed at least one exam. We then used the student-level summary to generate school- and grade-level summaries. For each grade and year within a school, we calculated the number of students taking at least one AP exam and the number passing at least one exam. We replicated these summaries at the school level as a whole. At each level, we calculate the average AP score, the total number of exams taken and passed, and the percentage of tests passed for use in the models.

Additional College-Level Course Variables. We generated additional variables for the models related to ways in which students earned college credit. The source data came from the AP and dual credit data files, respectively. We used these data to create indicators that reflected the extent and type of college-level coursework completed by students across RECN treatment and comparison schools. We merged AP and dual credit summaries by student, school, and year to construct a set of combined college-level course-taking indicators. These include whether a

student took or passed a) any AP or dual credit course and b) both AP and dual credit courses. Additional indicators identify students who participated in both ICC and CTE dual credit pathways.

VI.2.6: School Samples by Year (Tiers Based on When Schools Started RECN)

Table VI-1 shows the coding of Tiers 1-3 and years for the CSITS design. Note that the "Tiers" correspond to years in which the schools began participation in the RECN program, not to the student lotteries described in the section about the RCT. This table aligns with the Tier definitions (indicating when schools started in RECN) used throughout the design summary. The years in which the outcomes will be assessed are shaded in green. Dark green shading represents the first full treatment year, and the subsequent treatment years are indicated by light green shading.

Table VI-1. School Coding by Year for the CSITS Design

Phase and Type of School (Treatment or Comparison)	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20[17]	2020-21	2021-22	2022-23	Number of Schools
Tier 1 Treatment	x	x	x	x	x	P	T	T	T	5
Tier 1 Comparison	x	x	x	x	x	p	t	t	t	20
Time coded as:	-4	-3	-2	-1	0	1	2	3	4	
PYr coded as:	0	0	0	0	0	1	0	0	0	
Tyr1 coded as:	0	0	0	0	0	0	1	0	0	
Tyr2 coded as:	0	0	0	0	0	0	0	1	0	
Tyr3 coded as:	0	0	0	0	0	0	0	0	1	
Tier 2 Treatment	x	x	x	x	x	x	T	T	T	5
Tier 2 Comparison	x	x	x	x	x	x	t	t	t	20
Time coded as:	-5	-4	-3	-2	-1	0	1	2	3	
PYr coded as:	0	0	0	0	0	0	0	0	0	
Tyr1 coded as:	0	0	0	0	0	0	1	0	0	
Tyr2 coded as:	0	0	0	0	0	0	0	1	0	
Tyr3 coded as:	0	0	0	0	0	0	0	0	1	
Tier 3 Treatment	x	x	x	x	x	X	x	T	T	5
Tier 3 Comparison	x	x	x	x	x	X	x	t	T	20
Time coded as:	-6	-5	-4	-3	-2	-1	0	1	2	
PYr coded as:	0	0	0	0	0	0	0	0	0	
Tyr1 coded as:	0	0	0	0	0	0	0	1	0	
Tyr2 coded as:	0	0	0	0	0	0	0	0	1	
Tyr3 coded as:	0	0	0	0	0	0	0	0	0	

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[17] We anticipate missing data, particularly for achievement-related measures, due to the suspension of testing related to COVID-19. For matching, in cases for which baseline data are not available, we will use data from the most recent pre-program school year for the covariates. For the CSITS design, we will need to adjust the models to account for missing data for entire years.

VI.2.7: Treatment of Missing Data

We used case-wise deletion for missing data at the student level. In order to contribute to a school's value for a given year, each student needed to be enrolled on October 1 and have a value for the outcome. During the matching phase, we excluded schools for consideration in the comparison pool if they had missing data for one or more panel years. However, given that these administrative data were in place for all schools, the only instances in which a school was excluded from the comparison pool were when all students were missing from an IDOE file. For example, two comparison schools were excluded from consideration because no students appeared in the attendance file in 2022. An IDOE representative informed the evaluation team that these data were not available for those years.

VI.3: Model Specifications

We estimated program-level impacts for each outcome using a Comparative Short Interrupted Time Series (CSITS) design. To make the model more parsimonious, we used school-level data (calculated using student-level data) in the models. We first calculated a mean for each outcome in each school year and at each school (e.g., the percentage of students earning credit from a dual credit course in SY 2021-22). The models had two levels: Year within school (Level 1) and school (Level 2). We pooled the results from each school corresponding to the year, as coded in Table VI-1, into a single model by estimating random effects for each level of nesting. Our models include both random intercepts and random slopes to account for small differences in pre-treatment trends.

The confirmatory analysis focused on outcomes for cohorts whose schools are in at least their second full year of participation at the time the outcomes are measured. Tiers 1 and 2 had student outcomes in Treatment Years 1-3; Tier 3 only had student outcomes in Treatment Years 1-2. Thus, we assessed the program-level impact as a weighted average of the coefficient estimates $\widehat{\beta_{10}}$ and $\widehat{\beta_{11}}$.

VI.3.1: Impact Model

The primary model for QED outcomes is as follows (Formula VI-1):

$$Y_{ij} = \left(\beta_0 + \alpha_{0j}^{School}\right) + \beta_1\left(Time_{ij}\right) + \beta_2\left(Treat_{ij}\right) + \beta_3\left(Treat_{ij} * Time_{ij}\right) +$$

$$\beta_4\left(PYr_{ij}\right) + \beta_5\left(TYr1_{ij}\right) + \beta_6\left(TYr2_{ij}\right) + \beta_7\left(TYr3_{ij}\right) +$$

$$+ \beta_8\left(Treat_{ij} * PYr_{ij}\right) + \beta_9\left(Treat_{ij} * TYr1_{ij}\right) + \beta_{10}\left(Treat_{ij} * TYr2_{ij}\right)$$

$$+ \beta_{11}\left(Treat_{ij} * TYr3_{ij}\right)$$

$$+ \sum_{m=1}^{M-1} \beta_{11+m}\left(MatchBlock_m\right) + \varepsilon_{iGj}^{Years}$$

where,

Y_{ij}		Is the outcome value for student cohort i in school j.
β_0		Is the intercept, which is the comparison school mean score in the pre-treatment year for schools in the omitted matching block.
α_{0j}^{School}		Is a random intercept term for schools. It is the deviation of school j's intercept from the mean intercept, conditional on model covariates, assumed distributed with mean 0 and variance τ_{00}^2.
$Time_{ij}$		Is coded -6, -5, -4, -3, -2, -1, 0, 1, 2, 3, as indicated in Table VI-1.
$Treat_{ij}$	=	1 if school j is an intervention (treatment) school, and = 0 if school j is a comparison school.
PYr_{ij}	=	1 if year is a partial treatment year (training and start-up year when full impact on reading achievement is not expected. (indicated by "P" or "p" in Table VI-1, above); and 0 otherwise
$TYr1_{ij}$	=	1 if year is first full treatment year for treatment schools or the same year for their matched comparison school counterpart (indicated by "T" or "t" in Table VI-1); and 0 otherwise
$TYr2_{ij}$	=	1 if year is the second full treatment year for treatment schools or the same year for their matched comparison school counterpart (indicated by "T" or "t" in Table VI-1); and 0 otherwise
$TYr3_{ij}$	=	1 if year is third full treatment year for treatment schools or the same year for their matched comparison school counterpart (indicated by "T" or "t" in Table VI-1); and 0 otherwise
$MatchBlock_m$	=	An indicator variable that takes the value 1 if school was in the mth of M matching blocks, and 0 otherwise.
ε_{ij}^{Years}	=	The random error effect representing the difference between the score at Year i for school j and the predicted mean score for school j. These residual effects are assumed to be normally distributed with mean 0 and variance σ_{Years}^2. They are assumed to be independent of μ_j^{School}.

VI.3.2: Baseline Equivalence Model

The baseline equivalence model is a modified form of the impact model for each outcome. The dependent variable in this model is Y_{ij}, where time-point "i" corresponds to $Time_{ij}$ = 0 (the last pre-treatment year before treatment begins in the treatment schools). The model is of the form:

$$Y_{ij} = (\beta_0) + \beta_2(Treat_{ij}) + \sum_{m=1}^{M-1} \beta_{2+m}(MatchBlock_m) + \varepsilon_j \text{ (Formula VI-2)}$$

In both models, the coefficient $\hat{\beta}_2$ is the difference between treatment and control schools at baseline. This coefficient will be used to calculate the effect size, specifically Hedges' g, the coefficient divided by the pooled standard deviation of the outcome variable.

VI.3.3: Power Analysis for Minimum Detectable Effect Sizes

We used the Two-Level Cluster Random Assignment Design in PowerUp! (Dong & Maynard, 2013) to calculate the MDES for the QED. The assumptions for the analysis include a harmonic mean of 100 students per grade level per school, $p \le .05$, an intra-class correlation of .10, and a level-2 R^2 of .50. Table VI-2 specifies the MDES depending on the size of the match:

Table VI-2. Minimum Detectable Effect Size by Match Ratio

Match Ratio	Treatment Clusters	Comparison Clusters	MDES
1:1	15	15	0.26
1:2	15	30	0.22
1:3	15	45	0.21
1:4	15	60	0.20

Based on these results, we selected four comparison schools for each treatment school to achieve a lower MDES of .20 SD.

VI.3.4: Effect Size Calculations

We used Cox's Index as the measure for effect size on all dichotomous outcomes. We calculated Hedges' g for all continuous outcomes.

VI.3.5: Representativeness Calculations

As noted in Section VI.2.1, we added indicators using the beginning date and ending date for each student enrollment record to determine whether students were present on October 1, the official pupil count date for IDOE. Students present in the school on the pupil count date formed the denominator for each school-level measure; we excluded other records from the analysis. We calculated representativeness by dividing the number of students with outcome data for a given outcome by the total number of student enrollment records for students enrolled in a school in a given year.

VI.4: Results

We next present the QED results by outcome, starting with an overview of the results, summarized in Table VI-3. The primary analysis is from the second year of treatment and highlighted in gold.

Table VI-3. Confirmatory QED Impact Study Results

Outcome	Baseline Value in Comparison Schools	Baseline Value in Treatment Schools (Model Adj.)	Treatment Year 1	Treatment Year 2	Treatment Year 3
Days Absent	9.70 days	9.42 days	-0.58 days (0.94)	+0.83 days (1.04)	-0.24 days (1.30)
Grade 10 PSAT Performance (Z-Score)	-0.06 SD	-0.04 SD	+0.02 SD (0.10)	+0.02 SD (0.13)	Data not available
% Earning Any Dual Credit or Credit from AP exam	31.5%	33.8%	+0.1 pp (3.0)	+2.6 pp (3.4)	+3.9 pp (4.3)
Mean Number of Dual Credit Courses Passed Per Student	0.62 courses	0.67 courses	+0.08 courses (0.08)	+0.08 courses (0.09)	+0.08 courses (0.11)

VI.4.1: Baseline Equivalence and Representativeness

Baseline equivalence. We used Formula VI-2 to calculate the baseline equivalence in the last available pre-treatment year for all outcomes and model covariates. As shown in Appendix Table B-8, all baseline differences were lower than .25 SD.

Representativeness. For the outcomes of days absent and those related to college coursetaking, the sample was 100% representative. This is because the total enrollment matched the sample definition. All students, however, did not have PSAT and SAT measures in each school year. We include the representativeness tables for those measures in Appendix Tables B-9 and B-10. For the PSAT, the sample met the representativeness criteria (defined by the conservative boundary for attrition in the *What Works Clearinghouse* standards) in 2017 and 2019-2022. The SAT sample met representativeness criteria in 2015-2019 and 2021-2022.

VI.4.2: Confirmatory Analysis 1: Days Absent

The first QED outcome assessed whether participation in the RECN program impacted student attendance. Table VI-4 summarizes the mean days absent in each school year.

Table VI-4. School-Level Mean Days Absent by Treatment Status and School Year

TSch	2015	2016	2017	2018	2019	2020	2021	2022	2023
Comparison	8.1	8.1	8.2	8.9	9.3	7.4	10.3	12.1	11.7
Treatment	8.6	8.7	9.0	9.3	9.0	7.0	9.4	11.0	11.6

We modeled the mean number of days absent each year from 2015 to 2023 and included coding for when treatment schools started the RECN project, the results of which are summarized in Appendix Table B-11. In the baseline year (the last school year before schools started in RECN), students in comparison schools missed an average of 9.70 days per year. Absenteeism among this group rose by an average of 0.17 days per year (p = .039). This trend reflects a nationwide increase in student absences following the pandemic.[18] We saw no significant differences in baseline absences between students in RECN treatment and comparison schools (-0.28 days). This result was expected, given the method used to select a comparison group of schools from the data. Additionally, the difference in pre-treatment trends between treatment and comparison groups was not statistically significant, supporting the assumption that both groups followed roughly parallel trends prior to the program.

The partial treatment year for Cohort 1 schools in 2019-20 showed a decline of 2.33 days in recorded absences. However, this drop was attributed to the school closures associated with

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[18] Fuller, S. C., Swiderski, T., Mikkelsen, C., & Bastian, K. (2023). In school, engaged, on-track? The effect of the pandemic on student attendance, course grades, and grade retention in North Carolina. (EdWorkingPaper: 23-747). Annenberg Institute at Brown University. https://doi.org/10.26300/58h9-3r54

the start of the COVID-19 pandemic rather than to program effects. Fortunately for the impact analysis, both treatment and comparison schools were similarly impacted by these closures, as attendance was not recorded in the final months, resulting in lower total absences. In the years following implementation, absences among students in comparison schools increased by 1.70, 2.49, and 2.77 days in Years 1-3, respectively, compared to the baseline years. This trend was consistent with national patterns of increased absenteeism during and after the pandemic.

The estimated treatment impacts (i.e., the difference-in-differences between treatment and comparison schools) were small and not statistically significant: -0.58 days in year one, +0.83 in year two, and -0.24 in year three. The primary analysis, conducted two years after treatment, revealed an increase in absences in the RECN schools compared to the comparison schools; however, this difference was not statistically significant. Thus, we did not find a measurable effect on student attendance for RECN.

VI.4.3: Confirmatory Analysis 2: PSAT Scores for Grade 10 Students

We next examined whether participation in the RECN program influenced students' performance on the PSAT, using standardized z-scores based on the state mean and standard deviation for all Grade 10 test takers. As noted in the section on the RCT analysis of the PSAT, the lack of data for the 2022-23 school year limited our ability to complete the analysis for more school years. However, the results from the regression analysis from the available data are summarized in Appendix Table B-12.

In the baseline year, students in comparison schools in Cohort 1 had an average PSAT z-score of -0.06, indicating slightly below-average performance statewide. Within the comparison group, PSAT performance showed a slight upward trend for the sample schools relative to the state means, with a difference of 0.012 standard deviations per year; however, this trend was not statistically significant (p = .13).

Treatment schools began with a marginally higher average PSAT z-score than comparison schools at baseline (+0.02), but this difference was not statistically significant. In the year prior to full program implementation (2019-20), the model detected a statistically significant drop in PSAT z-scores (-0.134, p = .04). This drop represents an overall change across both treatment and comparison schools relative to the rest of the state; these values should be comparable from year to year because all PSAT scores are relative to the state mean in a given year. The estimated treatment effects were small and not statistically significant: +0.022 with one year of treatment and +0.024 with two years of treatment, but in the hypothesized direction. Thus, we did not find a statistically significant impact of RECN on PSAT performance.

VI.4.4 Confirmatory Analysis 3: College Credits Earned

The college credits earned outcome was one of the most essential to RECN and involved analyzing dual credit records and scores students earned on Advanced Placement tests. We were able to complete the impact analysis, which is detailed in the following section. However, we first describe some issues with the data received from IDOE that limit the inferences that

can be drawn from the results (see also Section V.4.3 for a brief discussion of how this affected the RCT portion of the study).

Data issues. There was an issue with the dual credit course-taking data that the evaluation team was unable to resolve with the IDOE. First, there were not as many records as would be expected for students earning the Indiana College Core or associate degrees. Each year, endorsed Early Colleges submitted data to CELL regarding the number of ICCs and associate degrees earned per student in the graduating classes of 2018 through 2024. These results are summarized in Figure VI-1. The figure shows steady increases in the number of students earning a credential, indicating at least 30 hours of college credit earned (or approximately 10 college courses passed). Given these numbers of credential earners, we would expect to see similar increases in the number of course records in those years.
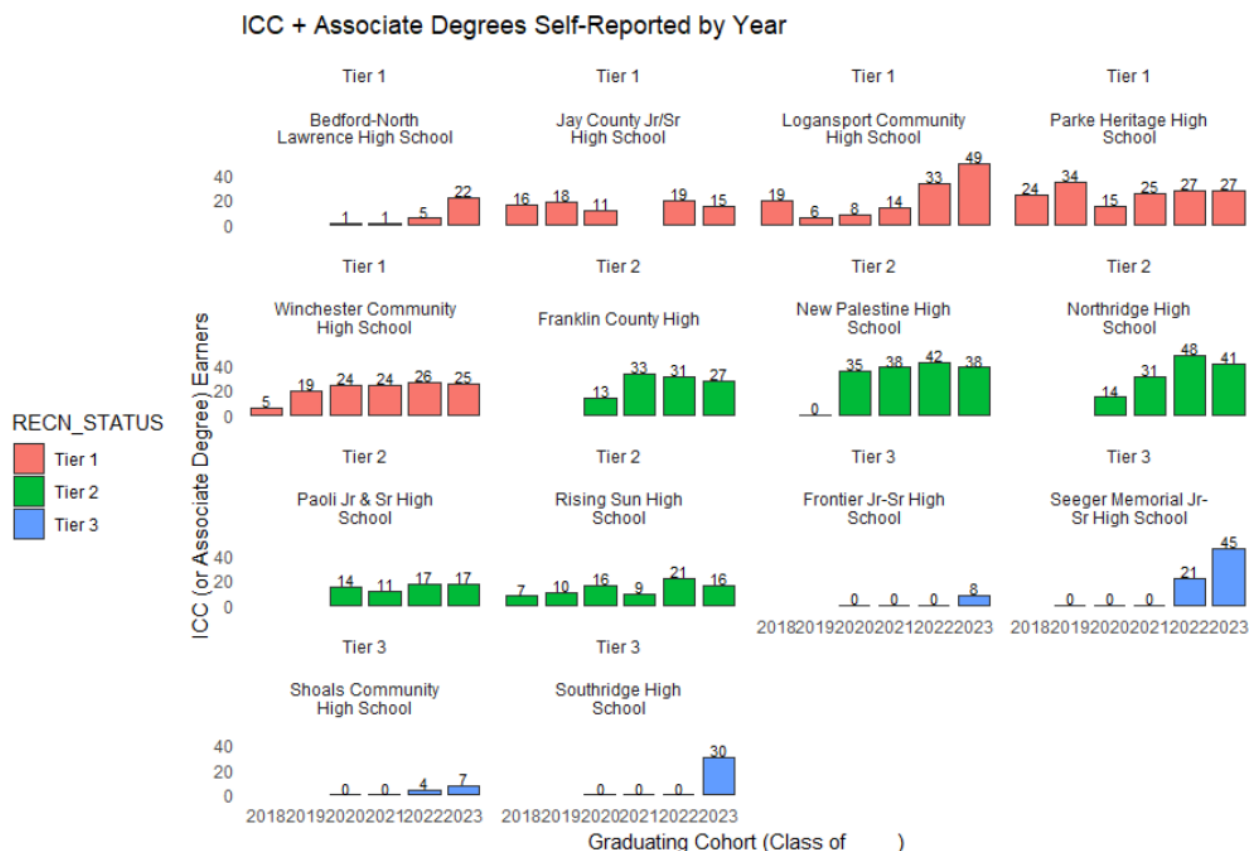
We would expect *no fewer than* 10 dual credit course records for each of these students. However, that is not what we observed in the data. We learned that dual credit courses are sometimes not correctly flagged as such in the state systems. Thus, we have reason to believe that there is significant undercounting of dual credit courses in the administrative data. We have no reason to believe that these values differed between treatment and comparison schools. However, all course-taking impacts were in the positive direction (treatment schools had greater increases in course records than comparison schools).

We also observed issues with records for English Language Arts courses, specifically. The coding for courses changed between 2021 and 2022, leading to substantially fewer ELA course records in those later years. However, reports from individual schools indicated that an increasing number of students were taking college credit and earning an increasing number of credentials.

Average Number of Dual Credit Courses Per Student. We used the available data to assess whether participation in the RECN program influenced the average number of approved dual credit (DC) courses passed each year *per student*. We divided the total number of dual credit course records in the file supplied by IDOE by the total number of students who met our enrollment criteria, as determined from the attendance data. The analysis included both treatment and comparison schools across multiple cohorts and school years. The descriptive values of the average number of courses per student (calculated by dividing the total number of dual credit courses completed by the total number of sample students in Grades 9-12) are provided in Table VI-5.

In the baseline year (prior to the start of RECN implementation), students in comparison schools were approved for an average of 0.63 dual credit courses ($p < .001$). Among comparison schools, dual credit course-taking showed a modest but statistically significant upward trend of 0.024 additional courses per student per year ($p = .0018$), indicating growth over time in both treatment and comparison schools. This growth is comparable to approximately one additional college course passed by every 42 students. The detailed results of the CSITS analysis are summarized in Appendix Table B-13.

Table VI-5. Mean Dual Credit Courses Per Student Per Year

Tier	Tsch	2015	2016	2017	2018	2019	2020	2021	2022	2023
Tier 1	Comparison	.522	.664	.592	.663	.548	.561	.545	.523	.581
	Treatment	.424	.633	.631	.651	.670	.684	.642	.803	.840
Tier 2	Comparison	.524	.524	.558	.619	.640	.659	.674	.626	.669
	Treatment	.693	.639	.762	.779	.761	.715	.725	.682	.817
Tier 3	Comparison	.477	.623	.650	.634	.689	.754	.673	.685	.707
	Treatment	.453	.371	.451	.440	.578	.632	.750	.947	.740

Treatment schools began slightly ahead of comparison schools at baseline, with students taking an average of 0.051 more approved DC courses, though this difference was not statistically significant. In the pre-treatment year for the first set of schools (2019-20), the comparison schools experienced a small decline in the number of courses passed per student.

During the treatment years, according to the IDOE dual credit records, the number of dual credit courses taken per student declined in the comparison schools. Statistically significant decreases were observed in Year 1 (-0.082, $p = .022$) and Year 2 (-0.123, $p = .0015$), while the decline in Year 3 (-0.077) was not statistically significant. These results align with broader challenges reported by schools in maintaining or expanding access to college-level courses

during the pandemic. They also suggest that some records may be missing from the dual credit data.

In contrast, estimated treatment effects in RECN schools were positive in all three post-treatment years: an additional 0.082 courses per student in Year 1, 0.079 in Year 2, and 0.076 in Year 3, equating to approximately one additional college course per 12 to 13 students each year. While none of these effects reached statistical significance, the consistent direction of the estimates suggests that RECN schools may have mitigated the downward trend observed in comparison schools. However, we did not find statistically significant impacts on the mean number of dual credit courses passed per student.

Any Dual Credit Classes. We next examined whether participation in the RECN program affected the percentage of students passing at least one dual-credit course per year. The regression results are summarized in Appendix Table B-14.

In the baseline year, students in comparison schools had a dual credit participation rate of 30.9%, which was statistically significant. Over time, participation in comparison schools increased by an average of 0.92% per year (p = .0031), indicating a steady growth in dual credit participation in both treatment and comparison schools.

Treatment schools started with a 2.5 percentage point higher participation rate at baseline, but this difference was not statistically significant. In the pre-treatment year (2019-20), comparison schools showed a slight decline in dual credit participation (-0.69%), although this change was not significant.

During the post-treatment years, comparison schools experienced a decline in participation, with a significant drop of -3.1% in Year 2 (p = .046). The decline in dual credit participation compared to schools in Year 2 suggests one of two things: 1) schools faced in maintaining access to college-level courses, possibly due to pandemic-related disruptions, or 2) the dual credit data available did not reflect all courses taken in 2021-22 and 2022-23.

We observed a small, positive increase in dual credit participation in treatment schools in all three post-treatment years. In Year 1, treatment schools experienced an increase of +0.4 percentage points, in Year 2, an increase of +2.1 percentage points, and in Year 3, an increase of +3.8 percentage points. Although none of these effects were statistically significant, they suggest that the RECN program may have mitigated some of the declines in participation seen in comparison schools.

We next repeat these analyses for other related outcomes, including examination of types of college-level courses (e.g., ICC pathway, CTE pathway, credit through Advanced Placement exam scores). As shown in Table VI-9, we found positive coefficients that were not statistically significant for the percentage of students earning credit from either a dual credit course or an AP exam. This figure increased throughout the treatment years; the model-adjusted increase for the treatment relative to comparison schools was +0.1 percentage points through Year 1, +2.6 percentage points through Year 2, and +3.9 percentage points through Year 3. When

looking at the proportion of students earning credit in a given year in Grades 9-12, we observed increases in both the ICC and CTE pathways and a slight decrease in AP test-taking. It should be noted, however, that very few students across both the treatment and comparison schools earned college credit through AP test scores (only 2.6% in the baseline year).

We also observed small, non-significant increases in the mean number of dual credit courses passed per student in the ICC and CTE pathways, respectively. Similar to the increasing proportion of students, the direction of the change is positive, but the magnitude is not statistically significant. As noted above, the number of dual credit course records in the IDOE data indicated significant undercounting, specifically in ELA courses. We highlight the primary year of the confirmatory analysis in gold, which maximized the combination of the number of schools participating in RECN and the duration of time they were in the program.

Table VI-9. Unpacking Results for Other College Course Outcomes

Outcome	Baseline Value in Comparison Schools	Baseline Value in Treatment Schools	Treatment Year 1	Treatment Year 2	Treatment Year 3
% Earning Any Dual Credit or Credit from AP exam	31.5%	33.8%	+0.1 pp (3.0)	+2.6 pp (3.4)	+3.9 pp (4.3)
% of Students Earning Credit from 1+ ICC Courses	20.5%	22.2%	+2.5 pp (2.0)	+1.8 pp (2.3)	+2.6 pp (2.9)
% of Students Earning Credit from 1+ AP Courses	2.6%	2.6%	-0.8 pp (0.6)	-0.6 pp (0.6)	-0.4 pp (0.8)
% of Students Earning Credit for 1+ CTE Courses	15.9%	15.9%	+0.2 pp (2.6)	+2.3 pp (2.9)	+2.9 pp (3.7)
Mean Number of Dual Credit Courses Passed Per Student	0.62	0.67	+0.08 Courses (0.08)	+0.08 courses (0.09)	+0.08 courses (0.11)
Mean Number of ICC Courses Passed Per Student	0.42	0.48	+0.02 courses (0.05)	+0.03 Courses (0.06)	+0.02 courses (0.07)
Mean Number of CTE Courses Passed Per Student	0.20	0.19	+0.06 courses (0.04)	+0.05 courses (0.05)	+0.06 courses (0.06)

VI.4.5: Discussion

We did not find statistically significant impacts at the whole school level on days absent, PSAT scores, or college courses. However, the impacts observed with the available college course-taking data indicate that the program schools increased college credit earning rates, but not enough to be statistically significant.

Our results face two primary challenges. First, COVID-19 substantially impacted the RECN program schools, particularly in the 2019-20 and 2020-21 school years (see Section II.3 for a deeper discussion of COVID-19's impacts). Although the schools were not shut down for the same period as other parts of the country, there were substantial challenges to implementing

the program, particularly with teachers and some of the planned interventions for students. In the analysis of days absent, schools in both the treatment and comparison groups showed increases in days absent during the study period. These findings align with national rates from the same period, but the results demonstrate that program schools were also affected. We also observed declines in the number of dual credit course records in the data following the COVID-19 pandemic.

The second issue is with the college course data. Our original plan was to track the total number of college credits earned in the program schools during the study period. As noted in the previous section, however, the data were only available at the record level by subject. When triangulating the state data with reports from individual schools, we observed that the number of course records was significantly lower than expected for students earning credentials such as the ICC or associate degrees. The evaluation team is pursuing different data sources for these records in future work; our goal is to update the analysis with those data once we have access to them.

Section VII: Conclusions

The final section of the report describes work done to sustain Early College programming within the RECN schools, perceived impacts, and lessons learned for Early College programs within and beyond Indiana. Sustainability efforts focused on funding, staffing for college-level courses, and building student readiness, student awareness of Early College opportunities, and buy-in from the school and broader communities. Schools also observed many positive benefits of RECN participation, including increased opportunities for students to earn college credit and credentials, building students' postsecondary knowledge and attitudes, increased staff collaboration within and between schools, and community engagement focused on strong academic programming. Finally, RECN participants noted lessons learned, including the value of implementing Early College and supporting networks of schools that implement Early College.

VII.1: Sustainability

Discussions of sustainability occurred throughout the RECN project. This focus was reflected in the funding structure that CELL established for schools. Partner schools received the highest funding levels at the beginning of the grant as they ramped up their Early College programs. The direct funding to schools gradually decreased in the final project years to help schools manage their Early College programs without guaranteed external funding.

In the final two years of the project, however, sustainability became an increasingly central topic of discussion among CELL and the RECN schools. In Year 4 of the project, items were added to the staff survey administered to mentor and partner schools, asking about the challenges to sustainability they anticipated after the grant ended. The evaluation team analyzed the responses for themes, identifying areas that may pose potential sustainability challenges. The evaluation team also asked questions about sustainability in Year 4 and 5 interviews.

The following section combines data from the survey and interviews to address two key areas: 1) sustaining Early College programs and 2) sustaining network support from RECN.

VII.1.1: Sustaining Early College Programs

The themes about considerations for sustaining Early College programs included 1) funding, 2) personnel, teacher incentives, and credentialing, 3) student readiness and support, 4) student interest and marketing, and 5) buy-in from staff and the community.

Funding. Most responses related to sustainability addressed the end of additional funds associated with RECN and the associated impacts on their Early College programs. This section focuses on responses tied to general funding for Early College; however, funding is noted throughout the other sustainability themes. Schools noted that RECN funds supported activities such as visits to college campuses and materials to help make the Early College program "something special that kids are proud to be a part of." RECN funding also helped compensate staff members for the extra time they invested in building their Early College programs, as well

as provided incentives for earning dual credit credentials and teaching dual credit courses. As one teacher shared, "The grant money helps start programs, but then teachers and staff are expected to continue putting in extra time and running programs even when the grant money is gone." Staff from smaller schools noted that finding funding for specialized programs in areas with limited resources is challenging and that the school corporations would need to find money for activities that require funding after the grant period. However, CELL's tapered design of RECN funding (decreasing each year of the grant) has helped to prepare schools for the post-grant period. Additionally, staff at schools that applied for and received a Year 6 mini-grant (using remaining grant funds) found them helpful in further sustaining the work. Some participants also shared that they were exploring additional ways to fund Early College activities, including applying for new grants or seeking funding from their community foundations.

Personnel, Teacher Incentives, and Credentialing for Dual Credit. Continuing to address staffing and credentialing to expand (or maintain) dual credit offerings was an ongoing concern. For Indiana's dual credit model, courses require instructors with the necessary credentials and willingness to teach them. RECN funds and access to tuition-free programs (e.g., STEM Teach and Teach Dual Credit Indiana) helped to expand the number of credentialed teachers across the schools. Many schools noted that their ability to offer the ICC is tenuous; if one or two teachers leave the school or retire, it could limit their students' ability to earn the 30-credit-hour credential. This challenge has become more urgent as the state has moved to require all high schools to offer the ICC, increasing pressure to maintain sufficient staffing levels. As one principal noted, "Long-term, my biggest concern undoubtedly would be personnel sustainability. Continue to recruit people with credentials to teach dual credit here."

The primary ways in which schools are thinking about sustaining personnel include 1) having better incentives for teachers to get qualified for and teach dual credit courses, 2) hiring new teachers who already have or are willing to get credentialed for teaching dual credit courses, and 3) having multiple qualified teachers within subject areas. As the grant period came to a close, schools explored creative strategies for incentivizing teachers to teach dual credit in lieu of additional pay, such as offering dual credit teachers an additional planning period once per week.

In addition to dual credit courses, RECN stipends also supported partial funding for positions such as an Early College director/coordinator/counselor, as well as for staff members to take on SLT responsibilities. Schools with partially grant-funded positions expressed concerns about continuing them after the grant funding ended. RECN has also helped compensate teachers for taking on the workload of graduate courses, with one teacher explaining, "Asking teachers to teach while taking the financial burden of furthering their education and workload is not sustainable." Although a large number of teachers were able to complete their credentials during the RECN grant period, concerns remain that teacher turnover could make teacher credentialing an ongoing issue for schools.

Student Readiness and Support. Some RECN school staff members also expressed concern about sustaining elements of student support. Schools noted that RECN helped them provide targeted support to help students succeed with rigorous instruction, including additional tutoring and specialized activities for Early College cohorts. One partner school staff member described,

> There will be some aspects of our program that will end due to the grant being gone. One area I fear losing is the tutoring we have funded in part through RECN. What I know is that our administration and staff are fully committed to the dual credit model. The areas where the money falls away without the grant will be strategically assessed.

Other respondents expressed concern with their ability to scale Early College to more students and having to give up resources that allow students who aren't as prepared for dual credit courses to enroll and succeed in them.

Student Interest and Marketing. Schools saw RECN as a way to help generate student and community interest in their Early College programs, promoting a college-going culture and helping students earn dual credit. RECN funds were used for promotional and communication materials about Early College to encourage more students to participate in the program, which will be challenging to continue funding once the grant ends. Respondents also addressed the general challenge of keeping students engaged without relying on marketing efforts, with one administrator sharing, "After the 'shine' wears off, it is hard to maintain high levels of engagement." In particular, some of the smaller RECN schools expressed concern about maintaining enough student enrollment to continue offering the courses needed for the ICC. However, as more students experienced Early College in schools, word about the programs spread more organically, fulfilling the marketing need.

Some participants reported that they used RECN funds for marketing their Early College, which puts the ability to recruit future students in jeopardy after the grant ends. As one teacher shared,

> I would say funding is probably the biggest issue. There's been a lot of funding coming from the grant. That's all been a good incentive for doing things beyond what teachers normally do, attending meetings, or those kinds of things. And then funding for the field trips and the marketing that we want to get kids, and those kinds of things, to make it feel like an inclusive program. That's going to be a struggle.

Buy-in from Staff and Community. While issues such as seeking financial support and addressing staffing and credentialing challenges were seen as important for sustaining the work, buy-in from staff and the broader community was viewed as one of the most critical elements in determining how the work would continue. Our interviews and surveys suggested that buy-in for the project was strong and that many of the structures and routines established through the grant would continue if staff continued to build on previous work; as one teacher aptly put it, "We built that base." The SLT was cited by several staff as an important structure

for building shared ownership of efforts and sustaining the work. Several staff members we interviewed said that they planned to continue using the SLT as a way to maintain momentum, but that team members would need to set aside time and make efforts to sustain the focus without the external support from CELL. One theme to emerge from the interviews was that there was a core group of teachers, counselors, and administrators involved with Early College and that sustainability was seen as a shared responsibility and collective investment, as one principal noted

> "It takes an effort from the whole team, from the top down. We've got a good administrative team, we've got great teachers, so we've got a lot of good input. It's not all on the [Early College Director's] shoulders; all of us are part of the whole process. So, that's important that we all stay on the same page and keep moving forward.

Although staff interviews suggested that staff buy-in was high among those most involved with Early College, and this was seen as an important element in sustaining the work, it should be noted that from the staff surveys, we also learned that some respondents noted that buy-in was uneven, especially among those not directly involved in the Early College work.

VII.1.2: Sustaining Network Activities and Professional Development

Another sustainability consideration involves what will happen to the structures established by RECN after the grant ends. RECN provided structure through monthly touchpoints, access to CELL staff, opportunities to connect with other schools, and professional development. Without additional funding, staff reported that maintaining such structures would be difficult. Still, some staff expressed a desire to continue being involved in network activities, even if on a smaller scale. As one counselor shared when reflecting on role-alike and Quad meetings, "…hopefully at least, maybe periodically, we can at least gather the really local schools and still sort of have our own smaller version of the network." RECN has also provided accountability for schools to progress through the endorsement process. One administrator described, "The grant establishes an accountability component that will no longer be available once the grant period is over; this could potentially create an apathetic approach to some of the requirements that make early college successful; the 'busyness' of everyone creates the ability to forget or not focus as intently on what makes early college successful." A dual credit teacher added, "Once the grant is over, there won't be as much pressure to sustain an emphasis on college expectations for students."

A few schools shared that they have built enough structures to sustain and improve the program even in the absence of CELL support and additional funding, also noting that some valuable elements of the project will be missed, such as staying up to date with the legislature and learning from other schools. As one partner administrator shared, "We set up these things, and it can't just stop now that we're endorsed. So, if we keep working through those systems that we developed, I think that sustainability will come from that. The funding is a different conversation." And a teacher added,

I think it's well enough established at this point. Now that we're up and running, where can we get better? What other supports can we find for these students? How can we use our advisory better? Some things we've already mentioned: how can we do a better job at pinpointing the students who need the Early College supports? So, making it work for a larger population compared to just the 10 or 20 that we had in the first couple of cohorts.

Participants were asked how valuable it was for them to continue participating in an Early College network and receiving CELL support. Four participants expressed a desire to continue participating in the network but with fewer meetings: a once-a-year in-person meeting and possibly another Zoom meeting. As one principal noted, "I think if you don't have a common hub, then that wheel or those spokes of that wheel are going to fly off. You've got to have that core piece in the middle that connects everything."

Lack of time, funding for professional development and trips, and the voluntary nature of participation could be barriers to attendance. As one mentor principal noted,

I think a once-a-year meeting would be helpful and just a way to keep people connected. I think finding the time, even more so than the money for the meetings, will be the issue for most. When it's part of a grant, and you have to go, everybody knows you got to go, and people in your building know, your central office staff knows, you got to go. You make time for it.

Another principal added, "I also think that whenever you have that yearly meeting, let's say six months before it or in between, we could have some of those principals for leadership team meetings via Zoom."

Participants also believed it was essential for CELL and schools in the network to collectively advocate with the legislature for policies that support Early College in Indiana. As one mentor principal noted,

So, if there are things that we can do as individual schools or as a collective … to try to get some more exposure for our program with the people that hold the purse strings, … So, what are things that we can do that are best practices to influence things politically?

VII.2: Perceived Impacts

Over the years, school staff members from 14 schools and students from 11 schools reflected on the perceived impacts of RECN through surveys and interviews. The following sections summarize the perceived impacts of the program on students and schools, respectively.

VII.2.1: Perceived Impacts on Students

Interviews with staff and students indicated that, over the years, they observed the impacts of the project on students in two key areas: 1) effects on students earning credentials, and 2) effects on students' beliefs, attitudes, and knowledge.

Students earning postsecondary credentials. Educators and students noted impacts of RECN on students earning postsecondary credentials and understanding the benefits of taking advantage of college coursework while in high school. Highlights included:

- An increased number of students enrolling in dual credit courses, including those who did not consider it feasible before;
- A rise in the number of students who graduate with the Indiana College Core;
- A small but growing number of students earning associate degrees in high school;
- Time and cost savings related to earning college degrees and credentials.

Across RECN schools, educators consistently observed that more students were enrolling in dual credit courses—including students who "wouldn't have considered it in the past." As one teacher explained, "It wouldn't have been something that they felt was achievable, kind of not even on their radar." The Early College model helped to change that. Several stakeholders noted a steady rise in the number of students earning the Indiana College Core (ICC), with one principal emphasizing, "We are seeing that steady increase… that has been because of Early College."

These opportunities translated into perceived benefits for students and families. A counselor shared, "We've had multiple graduates come back and say, 'I was able to finish my bachelor's [degree] in three years because I had school credits going to college… now I'm done.'" Others shared how early credits positioned them for advanced education: "'I'm going to get my master's,' 'I started medical school,' or something like that."

Students also provided reflections in their own words. One student noted, "In college, when I go, I won't have to take as many classes, so it'll be less stressful. And it's helping me get the study skills for college." Another added, "Taking college credits in high school – it saves you money and time once you get to college."

Students' beliefs, attitudes, and knowledge. Educators and students also noted the benefits of Early College on postsecondary readiness, including:

- Greater confidence among students—particularly those who may struggle to attend college without additional support —that they can attend college;
- Improved college readiness, including a better understanding of college expectations and increased exposure to postsecondary options through campus visits and informational sessions;
- Better exposure to career information and opportunities to explore career choices;
- A clear post-graduation goal for the students leads to increased motivation, effort, and academic performance;
- A stronger sense of pride in personal academic achievement; and
- Closer relationships and a greater sense of community among cohort students.

Participation in RECN helped shape students' knowledge of college and careers, as well as their aspirations. Students, particularly those who initially didn't see themselves as college students, gained confidence in their ability to succeed in postsecondary education. One principal observed, "I think it's a sense of pride. There's a lot more confidence in some of these kids. I mean, they're seeing that they are smart enough, and they can pursue these careers. But to get to those careers, you're going to need some education beyond high school."

Students gave similar responses. "I feel like I've benefited from being more confident," one student said. Another reflected, "I feel like knowing that I'm in the Early College program basically helped me [reach] a goal. Being in the early college program made me step up my game and my grades. I finally paid attention to my classes. ... Before I went to high school, I didn't think about going to college."

Getting used to the expectations of college coursework also helped students feel more prepared. One student explained, "It kind of prepares you for what college classes are going to be like because they're a little bit different than high school classes." Others highlighted how the experience helped them mature and understand responsibilities, "[Our teacher] grades it like college, like an actual college class." Another added that it was valuable to experience "the syllabus and the structure of the class, getting to know what a college class might feel like before going to college."

Early College experiences also broadened students' understanding of career pathways through dual credit. Several students described how exposure to specific courses helped them refine their career interests: "We have some of the medical classes. I was like, 'Oh, that might be fun.' And then I got in there and was like, 'Oh yeah, I really like this.'" Others realized what wasn't a good fit: "It's shown me that I don't really like medical classes, and it's kind of difficult for me." Students also appreciated dedicated opportunities to learn about postsecondary options. One student said, "I really like the college visits. Not everyone else gets to do them as a class." Another noted, "It definitely helps you isolate what kind of career you want to do."

In addition to individual impacts, students described a stronger sense of connection and community within their cohorts. "I feel like we've all been super close," one student shared. "That's really good to have a good community so we're all trusted."

The benefits did not come without challenges for students, however. Schools noted that while some students were well prepared for dual credit coursework, others struggled, especially in their junior year when course loads became more demanding.

VII.2.2: Perceived Impacts on Schools

Participants also noted the impacts of RECN on their schools, which fall into the following categories: 1) effects on Core Principle implementation, 2) effects on the professional culture within the schools, and 3) effects on the community.

Effects of RECN on the Implementation of the Core Principles. A primary goal of RECN was to help schools improve their implementation of all eight Core Principles and achieve endorsement as an Early College from CELL. Many participants shared an observation that RECN had dramatically shortened the time needed to prepare for endorsement compared to other schools aspiring to become endorsed outside the project. One principal shared, "I really believe that being a part of RECN is the only reason that our Early College has moved as much as it has. If we didn't have RECN to force us to go forward, I think we would still be back a few years."

RECN schools thoroughly developed the Core Principles over the grant period. Schools built a curriculum and plan of study that allowed students to earn, at minimum, the ICC and as much as an associate degree. Schools also established a distributed structure for School Leadership Teams, and more teachers earned their graduate credentials to teach dual-credit courses. The RECN schools strengthened their partnerships with their postsecondary partners and built community collaborations to support their Early College programs. Schools also expanded their college-going culture to help students understand how their aspirations may match their postsecondary options. More information about the survey results is included in Section IV.

Two Core Principles that were mentioned most often in sustainability interviews were improving access to Early College by the targeted population and improving student support. As one mentor principal noted,

> So, I do see a shift in our mentee (partner) schools and even in our school as well, which is focusing on that targeted population that you have, trying to offer supports to get more kids through. So, really moving the needle, instead of providing services to your kids that are going to be successful regardless of the targeted supports and interventions that we can provide.

A teacher from a partner school shared, "I think it is changing our focus from just thinking about our upper-level students as the students taking dual credit that are planning to go into college."

The impact study design, which required schools to actively recruit students who may struggle to attend college without additional support and select them into an early college cohort through a lottery, helped schools use data to identify students who may not have sought early college on their own. The cohort design also allowed schools to pilot college-going culture and student support activities with this selected group of students, which they could later expand to more students. As one mentor principal shared, "I think that along with the student supports, … I've seen the cultures of more college-going culture really start to develop. And then also, CELL provided a lot of rigor where teachers could talk to teachers."

Effects of RECN on the professional culture within schools. Many effects of RECN on school culture came through the creation and ongoing engagement of the SLT. Participants noted the following about the SLT as a beneficial structure:

- The SLT is a good vehicle for the project implementation;

- The SLT supports a sense of community among staff members;
- The SLT helps to develop teacher leadership; and
- The SLT helps to sustain the Early College work.

As one mentor principal shared, "This [SLT] has replaced any sort of leadership that we've had in the building. And it's been so much better than anything that we've ever had. So, in many ways, it decentralizes leadership, and that's very positive."

Two interviewees discussed how working towards the same goal brought staff together, provided a shared vision for the school, and made staff proud of the school's achievements and their roles in it. A principal noted, "I think it's just the whole culture of the school has changed with this project. And it really comes from those Core Principles that make you focus on those eight things and pushes you to sharpen all your edges." A counselor from a different school reflected on how traveling to the network meetings helped them foster closer relationships among SLT members,

> Just my relationships within the building, because on most days, I don't leave my little office area, so I don't have conversations with the English teachers or the online course supervisor. But when we're in the car for an hour and a half or two hours driving to wherever for those meetings, that's been really fun. You just build relationships with people that you may not have had time to. And then, you get to know their perspective on the same stuff.

A RECN counselor shared, "I think bringing on teachers in different leadership positions keeps the sense of community. We're all in this together, regardless of what position we're in." Teachers in one school noted that they can now support their counselors in guiding students through high school and beyond because working on the project helped them gain knowledge about the ICC and the pathway to college.

Staff also noted the improved relationships with students, as shared by a teacher, "RECN has forced us to hear from our students about strengths and weaknesses." And another teacher added, "So much tighter relationships with students for sure. There are stronger connections speaking to them about what [their] plans are."

Five interviewees talked about the increase in staff's buy-in into the Early College and how it took two to three years to develop their buy-in. As one of them shared, "This was a huge initiative that we felt was important to our school as a leadership team, but it took time for the rest of the staff to get on board." One principal mentioned that, as a result of these positive changes in the school culture, more teachers want to work in their school, "I mean, teachers want to be a part of that. I think that makes it a whole different ballgame as far as your recruiting."

Effects of RECN on the broader community. Interviewees described two impacts on the broader community. First, interviewees described how they developed relationships and a

sense of community with peers in other RECN schools, which helped them to improve their school practices. Being part of the CELL's Early College community also helped some schools secure grants for their other projects, including the development of a P-Tech model (now called P-CAP) within their schools. Beyond that, according to the CELL staff, some schools started to mentor other aspiring early colleges outside of the RECN project. As one partner principal shared, "We've had 30 different schools in our building this year [visiting], coming to look at our P-Tech, coming to look at our Early College." Second, many schools utilized RECN funds and the designation as an endorsed Early College to market themselves in their local community and attract more students. One person noted that this helped improve the community's perception of the quality of their academic programming.

VII.3: Lessons Learned for Sustainability and Scaling

This section summarizes the lessons learned over the five years of the project, primarily based on interviews with project staff, participants, observations, and other data collected by the evaluation team.

VII.3.1: The Value of RECN Supports

Endorsement. One of the project objectives was to accelerate the development of all 15 Early College programs in Indiana such that their programs were of high enough quality to achievement endorsement by the end of the project; the project exceeded the goal of 10 schools earning endorsement. Endorsement status was a goal for all project schools, providing a focus, priority, and motivation for improving their Early College programs. Participation in RECN and mini-networks provided support and accountability, which together helped participating schools to prioritize and move the work forward. Thus, participating in a network with a shared goal is recommended for schools building their Early College programs.

Schools were motivated to achieve the endorsement status for multiple reasons:

- Endorsement status provided an affirmation of the quality of the school's early college program to the community and the school staff.
- The process of pursuing endorsement helped the schools improve their programs and opportunities for students.
- In Indiana, families have the option to choose the school their children attend. As a result of achieving the endorsement status, schools became more competitive with other local schools and increased opportunities to market Early College within the wider community.

The Power of Networks. SLT teams within the project were members of mini-networks nested within a RECN project network. As implemented, an interwoven system of networks proved to be effective in supporting the goal of expanding the number of high-quality Early Colleges in Indiana and sustaining and developing their work. All participants appreciated what and how they were learning through this system. Without these supports, schools would either not reach their goal of endorsement, or it would take them longer and require more effort.

The Structure of the Networks. The flexible structure of the networks and mini-networks helped resolve some logistical challenges associated with in-person meetings and fostered closer relationships among smaller groups of schools. The project network meetings provided a big-picture view. They helped participants develop a vision for the Early College initiative while also offering expertise and resources from a wider range of participants, CELL, and outside experts. The yearly Early College Summit, which gathered over 400 Indiana educators within and outside the Early College networks, provided an additional value of learning from colleagues in different schools.

Mini-network meetings (e.g., Quads), on the other hand, were more "hands-on," allowing participants to copy specific practices and focus on implementation details. The project uncovered several lessons about how to structure these networks. First, to maximize learning in the mini-network, schools should remain in the same network for at least two years, allowing them to build relationships and visit all four network schools. However, there is also merit in switching things up, as remaining in the mini-network for over three years may limit participants' learning, as they continue to hear the same ideas from the same schools.

Second, mini-networks were perceived as more effective when member schools are similar in size, student demographics, and stage of Early College development, which makes them more likely to encounter similar issues. The geographic closeness plays a lesser role, although it is important for reducing travel time.

Most Useful Network Activities. The following activities were identified as the most useful agenda items during both project and mini-network meetings, as well as activities outside of the meetings.

- <u>Listening to current and former students</u> describe how the Early College affected their lives was one of the most valuable and motivational experiences. Schools are encouraged to include students' testimonials both for the recruitment of the new cohorts of students into their Early College and for getting the new Early College staff on board for the program.
- <u>The role-alike group meetings</u> were the most appreciated part of the network meetings, especially when teachers had the opportunity to meet with colleagues in the same subject area. Meetings with the same subject teachers in other schools were especially important for rural schools because of the lack of teachers of the same subject in their own schools.
- <u>Scheduled time for school leadership teams</u> during network meetings was useful for self-evaluation and planning.
- <u>Visiting other schools</u> was often characterized as either very useful or one of the most beneficial parts of the mini-network meetings. Seeing others, especially mentor schools, implementing strategies is powerful in inspiring participants to try these strategies in their own schools.

- Addressing the Problems of Practice was one of the most valuable aspects of mini-network meetings, where SLT members could brainstorm, provide, and receive hands-on solutions to the current issues schools were facing.
- Technical Assistance and responsiveness from the CELL staff were highly appreciated and included (1) CELL staff visiting schools and describing and explaining the Early College model, as well as providing advice and accountability for the program implementation; (2) CELL's advocacy work for the Early Colleges with the state and keeping participants informed on the policy developments in the state; and (3) resources on the CELL website.

The Benefits of Networks for Participants. Through the interviews and a survey, SLT members highlighted multiple benefits they received from participating in the various networks. The success of the networks often depends on their perceived value to the members. The perceived benefits were grouped into three categories, which are described below.

- Implementation of Early College: Participants reported that the networks provided benefits around developing and articulating a vision and mission for the Early College program, learning and receiving resources from experts, reflecting on and planning for the program's implementation, and being held accountable for it.
- Collaboration with Other Schools: Participants also noted benefits around being part of a community, building relationships, and collaborating with, learning from, and providing and receiving support from colleagues within or across organizations.
- Empowerment: Finally, participants reported that networks helped them feel part of something significant, increased their motivation to work on the program, developed leadership skills, and felt valued for sharing expertise and being recognized for their achievements.

The Role of the Intermediary Organization. CELL played a crucial role in leading and managing networking activities, providing unique expertise built on its experience overseeing and assisting schools in the development of their Early College programs. CELL provided goals, support, and training for mentors, refined the Core Principles Rubric and other resources, and held schools accountable through meetings and the endorsement process. Without CELL's support, schools likely would not maintain the same level of interaction and learning. The support from CELL and the network is also essential for the long-term sustainability and development of the programs, especially during school leadership turnover, by facilitating and accelerating buy-in from new staff members.

The Role of Mentor Schools. Mentor schools played a critical role in helping their partner schools understand what an endorsed Early College looked like and in helping to solve challenges as they built their programs. However, the benefits of having mentor schools in the program were not limited to the partner schools. Participants from all mentor schools agreed that mentorship requires extra time and effort, but also appreciated the opportunity to serve as

mentors and the benefits that came with it. Mentor schools learned from their partner schools and from the entire process of being a mentor. Other benefits of mentorship included reflection on their own program and incentives, accountability for maintaining their programs, and recognition of the progress they made.

Mentor schools help to anchor the program in the evolving realities of public education, which an intermediary organization may struggle to provide consistently in a dynamic context. With regard to mentor selection and training, participants and CELL staff shared that mentor schools should have a well-functioning SLT team with a principal possessing certain qualities such as (1) being a conscientious, responsive, and proactive leader with good communication and listening skills; (2) taking their role seriously; and (3) maintaining a culture of equality with mentee schools and being collaborative and willing to share knowledge and resources. Mentor school SLTs need initial training and resources in the form of a written manual and in-person sessions with experienced mentors and CELL. Mentor SLTs could also benefit from their own PLC, where they could share and solve problems of practice within their schools.

Sustaining the Networks. Almost all participants expressed a desire to continue their participation in the Early College Network, placing high value on the various benefits the network offers. However, sustaining the network presents challenges for both facilitators and participants. The main challenge is financial, as CELL requires funding to maintain the networks and support its staff, while schools need funding for travel and substitute teachers. School staff also face the challenge of finding time for network meetings.

VII.3.2: Implementation of Early College in Schools

We also identified several lessons learned regarding the implementation of Early College in schools.

School Leadership Teams (SLT). As noted in Section III.2.1, School Leadership Teams, comprising administrators, counselors, teachers, district representatives, and higher education representatives, met regularly at each site to guide Early College programming. Forming an SLT team to work on the implementation of the Early College provided a number of benefits:

- Harnessing the power of a group to problem-solve, tackle challenges, and manage day-to-day issues collectively;
- Providing regular time dedicated to Early College during the SLT meetings and having a structure for planning and accountability for actions, which leads to schools making rapid progress in implementation;
- Establishing champions for the program in departments throughout the school;
- Helping retain collective knowledge of the program in cases of turnover;
- Fostering school-wide buy-in, and
- Ensuring the perspective of teachers is represented in planning.

Communication, Awareness, Buy-in, and Marketing to Families and Communities. Developing a common vision for the Early College among school staff takes approximately 2-3 years of consistent effort and is essential to ensure the program's sustainability.

Core Principles Rubric, Self-assessment, and Action Plans as Implementation Tools. *The* Core Principles Rubric is valuable as a primary guiding tool both before and during the endorsement process. It provides a standard and direction for improvement for each core principle. Self-assessments and checks on the implementation of the action plans provide priority and accountability for the actions related to the Early College implementation.

Implementation of the Core Principles. The eight Core Principles are designed to support three main Early College goals: (1) providing students with access to a pathway leading to a credential (ICC), (2) expanding access to the ICC pathway to the targeted students, and (3) preparing students for the transition to college in all aspects of college readiness. The most urgent focus at the beginning of Early College program development was on providing students with access to the entire ICC pathway, specifically on staffing, to ensure that the schools had enough qualified teachers in order to offer the ICC.

Leadership and Staffing. Credentialing and retention of teachers qualified to teach dual credit courses remained the primary challenges for schools implementing Early College programs throughout the project, and were part of concerns about its sustainability. Free opportunities for coursework (such as STEM Teach and Teach Dual Credit) and incentives for teaching dual credit were essential for attracting more teachers to get credentialed. It is important for programs to have a counselor dedicated to the Early College program and a College Connection Coach (a liaison employed by the partner college) who works with students in the school regularly (ideally at least weekly).

Targeted student population. The descriptions of the targeted population varied among the schools. Schools frequently described students in the target population as those who were not the highest achieving but were capable of completing college-level work with some help from their teachers. Students in the target population may not necessarily be proactive in applying to the Early College. To serve these students effectively, school staff must use data to identify and actively recruit them into the Early College, and then provide the necessary support to ensure their success.

Perceived Impacts. Early College helps create or strengthen career and college goals, providing support for students to prioritize their learning, focus on their goals, and increase motivation, engagement, and effort. Working towards the same goal of developing the Early College program brought staff together, provided a common vision for the school, fostered a more collaborative culture, and made staff proud of the school's achievements and their role in it.

Sustainability. Many teachers don't have resources or sufficient incentives to pay for the courses they need to get credentialed. Securing funding to support and retain credentialed teachers is the key to sustainability. District or corporation commitment to Early College and

providing the necessary financial support to continue the program are essential for the sustainability.

Appendix A: GPRA Indicators[19]

A.1 Serve Rural, High-Need Indiana Students through the Early College Model

Index	Objective	Measure	Raw Number	Ratio
1	Serve rural, high-need Indiana students through the Early College (EC) model.	The RECN schools will serve 3,900 rural high-need students over the course of the program.	**10,183**	

- *Summary.* As noted in the Year 4 report, during the 2022-23 school year, there were 19,811 students in the 20 program schools. Data from the 2023-24 school year showed an additional 3,280 students enrolled in ninth grade, bringing the total number of students served to 23,091. Updated data from 2023-24 indicated that 44.1% of students received free or reduced-price lunch (the same rate as 2022-23). Combining these data yields **an estimate of the number of economically disadvantaged students served at 10,183**. Other populations of students considered high-need, including English learners and first-generation college students who may not be economically disadvantaged, are participating in the program, so this figure is a low-end estimate.

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[19]As noted in the Year 1 report, in October 2020, CELL and the evaluation team identified several suggested modifications for the GPRA indicators based on 1) changes in the conceptualization of who is an Early College student, 2) changes in state policy, and 3) adaptations required due to COVID-19. The indicators and the associated progress summaries in this report (and in future reports) align to the modified indicators used for reporting in Year 1.

Index	Objective	Measure	Raw Number	Ratio
2 (Modified)	Increase EC student enrollment in and completion of Dual credit (DC) courses.	At least 3,900 students in RECN schools successfully pass at least four dual credit courses.	*4,014*	

- *Summary.* The evaluation team analyzed restricted-use data from IDOE to compute the number of students successfully passing at least four dual credit courses. Table A-2.1 summarizes the counts by tier of schools. Through the end of the 2022-23 school year, 4,014 students had records of having passed four or more college courses across the RECN cohorts. This indicator is met with the available data; however, there are two reasons why this is a low-end estimate. First, the state does not record multiple records for some courses taken in the same subject area in the same year due to the way courses are coded. For example, a student passing two different dual credit advanced math courses during the same school year may only be recorded in the state data once if the course coding is not unique. Second, our data do not include students who passed the 4+ course threshold in the 2023-24 school year, so the project-end total will be higher when including these students in the counts.

Table A-2.1. Number of students completing 4+ dual credit courses by school year.

	Year Starting RECN	2019-20 Grade 12 / Final Year[a]	2020-21 Grade 12 / Final Year	2021-22 Grade 12 / Final Year	2022-23 Grade 12 / Final Year	2022-23 Grades 10-11 [b]
Mentor Schools	Fall 2019	280	279	297	271	174
Tier 1 Partner Schools	Fall 2019	286	262	262	279	174
Tier 2 Partner Schools	Fall 2020	--[c]	309	282	297	162
Tier 3 Partner Schools	Fall 2021	--	--	175	112	113

[a]For 2019-20, 2020-21, and 2021-22, students are counted if they are in Grade 12 or if it is the final year they appear in the data (i.e., a student may have passed 4+ dual credit courses in Grade 11 and not appear in the following year as a Grade 12 student).

[b]The last year of available restricted-use data is 2022-23. The counts in this column represent students who passed 4+ dual credit courses *and* were enrolled in Grades 10 and 11.

[c]Students were not included in dual credit counts for schools in years before they started in the RECN program.

A.3 Increase Student Acceptance to Postsecondary Institutions

Index	Objective	Measure	Raw Number	Ratio
3.1	Increase acceptance of EC students to postsecondary institutions.	1,950 graduates in RECN schools with EC programs earn an associate degree, technical certificate, and/or Statewide Transfer General Education Core (STGEC).	*1,830*	
3.2	Increase acceptance of EC students to postsecondary institutions.	3,120 graduates in RECN schools are accepted to postsecondary institutions.	*3,998*	

- *Summary.* For indicator 3.1, schools reported that 795 students in the Classes of 2021 and 2022 earned credentials (ICC, associate degree, technical certifications. For the Class of 2023, schools reported 472 additional credentials earned. For the Class of 2024, students earned 431 ICCs, 75 associate degrees, and 57 technical certificates. **In total, 1,830 graduates have earned credentials thus far, as reported by the schools. However, these figures do not include technical certificates from all schools.**
  For indicator 3.2, the most recent publicly available data related to these indicators are from the high school Class of 2021. As noted in the Year 3 report, 1,407 of 2,955 graduates in the Class of 2020 from the current RECN schools enrolled in an Indiana public postsecondary institution after high school. Data for the Class of 2021 indicated an additional 1,360 of 2,806 graduates enrolled in an Indiana public postsecondary institution after high school. Newly updated data for the Class of 2022 indicated 1,231 of 2,858 graduates enrolled in an Indiana public postsecondary institution. **Combining the measures for these two cohorts yields 3,998 graduates who enrolled in (and were therefore accepted at) postsecondary institutions.** Thus, this goal is met.

A.4 Increase On-Time Graduation Rate

Index	Objective	Measure	Raw Number	Ratio
4	Increase on-time graduation rates for EC students.	92% of students in RECN schools graduate on time.	**93.9%**	

- *Summary.* The baseline graduation rate for the Class of 2019 in the RECN schools was 91.4%. The baseline graduation rate across the RECN schools is high; the goal is to increase the rate while enhancing rigor and opportunities for students. The updated graduation rate for the Class of 2020, which was the first spring of the pandemic, was 89.8%. The Class of 2021 had a graduation rate of 90.0% (2,790 of 3,131 students). The Class of 2022 also had a graduation rate of 90.0% (2,817 of 3,100 students). The graduation rates by school ranged from 82.2% to 98.0%. **Graduation rates increased for**

the Class of 2023, with an overall rate of 93.9% (2,822 of 3,005 students). The graduation rates by school ranged from 82.4% to 100.0%. **Additionally, 17 of the 20 RECN schools had graduation rates above 90%.**

- The graduation rate for the Class of 2023 of 93.9% exceeded the target of 92%, so this goal was met.

A.5 Increase the Number of Dual Credit Credentialed Teachers

Index	Objective	Measure	Raw Number	Ratio
5	Increase the number of EC teachers credentialed to teach DC courses.	At least 35 teachers needing to complete graduate coursework for credentialing achieve that by the project end.	**37**	

- *Summary.* CELL continued to work with schools to monitor the current needs for instructors with the credentials to teach dual credit courses. Schools are encouraged to allocate 40% of their RECN budget to finance current teachers' graduate work and salary incentives. Additionally, CELL provided information about and encouragement for free programs and courses for earning graduate credits, such as STEM Teach and Teach Dual Credit Indiana. **The Year 5 staff survey (administered in March-April 2024) indicated that, across the RECN schools, 127 teachers had the credentials to teach dual credit courses, 34 teachers were currently enrolled in graduate coursework, and 22 were planning to enroll in graduate coursework within the next year. This figure represents an increase from 90 teachers indicating they had the graduate credentials to teach dual credit courses in the Year 2 survey, an increase of 37 teachers.**
- The total of 37 teachers earning credentials exceeded the target of 35 teachers, so this goal was met.

A.6 Increase Student Participation in Work-Based Learning

Index	Objective	Measure	Raw Number	Ratio
6	Increase EC student participation in Work-Based Learning (WBL).	3,705 students in RECN program schools participate in at least 3 WBL activities by the end of their senior year.	**4,500**	

- *Summary.* RECN schools were asked to report the number of students participating in various work-based learning activities during Year 4. They responded to items requesting the number of students participating in at least one WBL activity in each category. The results are summarized in Table A-6.1. As noted, at least 7,679 students

completed career-focused lessons, 6,894 completed a career explorer or similar assessment, and 5,929 students participated in a career day or fair. **Based on these figures, we estimate that at least 4,500 students completed three or more WBL activities, exceeding the target of 3,705 students.** In addition, students also participated in resume preparation or mock interviews, field trips to local businesses and industries, and job shadowing or internships.

Table A-6.1 – School-Reported Work-Based Learning Activities

Event	Schools with Activity	Total Students Participating
Career-Focused Lessons	18	7,679
Career Explorer (or Similar) Assessments	17	6,894
Career Day or Fair	18	5,929
Resume Prep or Mock Interviews	19	4,168
Field Trips to Local Business & Industry	19	2,637
Job Shadowing or Internship	19	1,241

A.7 Increase the Number of Work Ethics Certificates Earned by Students

Index	Objective	Measure	Raw Number	Ratio
7	~~Increase number of Work Ethics Certificates (WEC) earned by EC students.~~	~~50% of EC students will earn WEC.~~	~~1,950~~	~~50%~~

- *Summary.* The Governor's Work Ethics Certificate was a program that had significant traction as a career readiness credential when the grant proposal was written in March 2019. As noted in the Year 1 report, the state has moved away from this requirement as local employers have not seen the certificate as a valid employment credential. Some schools are still offering the credential; however, in consultation with our project officer, we removed this indicator from our GPRA measures in Year 2. According to self-reported data from the schools, seven of the 15 current RECN schools offer the Governor's Work Ethic Certificate. **However, due to migration away from the credential at the state level, these schools may not continue to offer the credential in future years. Thus, GPRA Indicator A.7 was removed with approval from the project officer.**

A.8 Continuous Improvement of Early College Rubric Ratings

Index	Objective	Measure	Raw Number	Ratio
8	Each project school continually improves its EC rubric ratings.	15 of 15 RECN Tier 1-3 schools improve their Year 2 rating on the 8 EC Core Principles rubric by project end.	**15**	

- *Summary.* All schools in Tiers 1 and 2 completed a self-assessment on the EC Core Principles during the 2020-21 school year. Schools repeated a self-assessment at the end of the 2021-22 school year, and Tier 3 schools engaged in their initial self-assessment. These serve as the baseline years for measuring this GPRA indicator. The average rubric ratings at baseline and Year 4 are summarized in Table A-8.1. As noted in the table, the average ratings across the network have increased from the baseline year.
- Additionally, we compared the mean rubric rating for all indicators across schools in Year 2 and Year 4. **All 15 schools improved in their overall ratings from Year 2 to Year 4, with total increases ranging from 0.2 to 2.3 rubric scale points.** After schools were endorsed, they did not continue with annual self-assessments in Year 5.

Table A-8.1 – Change in Self-Assessment Ratings from Baseline to Year 4 – Tiers 1-3

Core Principle	Rubric Indicator	Tier 1-3 Baseline Mean	Tier 1-3 Year 4 Mean	Tier 1-3 Change from Baseline
Targeted Student Population	Recruitment Plan	3.4	4.4	1.0
	Application & Selection	3.5	4.4	0.9
Curriculum/Plan of Study	Pathway	4.4	4.7	0.3
	Dual Credit Offerings	4.4	4.9	0.5
	Placement & Supports	4.2	4.3	0.1
College-Going Culture	College-Going Culture	3.3	4.2	0.9
	College Visits	3.0	4.1	1.1
Rigorous Instruction	Rigor in Instruction	3.9	4.4	0.5
Supports for Student Success	Continuum of Supports	3.3	4.0	0.7
	Parent Outreach	3.1	4.0	0.9
Collaboration & Partnerships	Higher Education Partnerships	4.2	4.7	0.5
	Business & Community Partnerships	2.8	3.9	1.1
Leadership & Staffing	Staffing Plan	3.4	4.4	1.0
	Professional Development	2.9	3.6	0.7
	School Leadership Team	4.3	4.5	0.1
Data Collection, Analysis, & Use	Formative Data for Prgm Monitoring & Adj.	3.0	3.9	0.8
	Summative Data to Evaluate Prgm Eff.	2.6	3.6	1.0

A.9 Accelerated Implementation of the Eight Core Principles

Index	Objective	Measure	Raw Number	Ratio
9	Project schools accelerate implementation of the 8 Core Principles.	Tier 3 schools will apply RECN lessons learned to accelerate the rate of EC implementation and endorsement as compared to Tier 1-2 schools.	1	

- *Summary.* CELL and the current RECN schools are documenting lessons learned and sharing Early College program improvement strategies through all-school and quad network meetings. **As noted throughout the evaluation reports, Tier 3 schools applied lessons learned from the first two years of RECN. By the end of Year 4, four of five Tier**

3 schools achieved endorsement, and the fifth school achieved endorsement in Year 5.
Lessons learned from RECN have also been applied to the development of the *Urban College Acceleration Network* and elements of the *Pathways to Career and Postsecondary* programs. The incorporation of lessons learned from RECN into other postsecondary readiness projects at CELL shows how the program has accelerated scaling Early College to more Indiana high schools.

A.10 Schools Achieving Early College Endorsement

Index	Objective	Measure	Raw Number	Ratio
10 (Modified)	Project schools achieve endorsement at an accelerated rate.	At least 10 of the 15 Tier 1-3 schools earn EC endorsement by project end.	**15**	

- *Summary.* Five RECN schools achieved endorsement during the 2020-21 school year. Two additional schools earned Early College endorsement in the 2021-22 school year. Six more schools achieved endorsement by the end of Year 4. **The remaining two schools were endorsed in Year 5, bringing the total number of schools to 15.** Thus, this performance measure has been met.

Appendix B: Additional Tables

Table B-1. Dual Credit Course Pathways by Subject Area

LEA	School	City & State	Grade Levels Served[a]	Number of Students Served[b]	Years Served[c]
Delaware Community School Corp	DELTA HIGH SCHOOL	Muncie, IN	9-12	1700	2019-20 to 2023-24
Greensburg Community Schools	GREENSBURG COMMUNITY HIGH SCHOOL	Greensburg, IN	9-12	1416	2019-20 to 2023-24
Vincennes Community School Corp	LINCOLN HIGH SCHOOL	Vincennes, IN	9-12	1542	2019-20 to 2023-24
Perry Central Com Schools Corp	PERRY CENTRAL JR-SR HIGH SCHOOL	Leopold, IN	9-12	748	2019-20 to 2023-24
Wabash City Schools	WABASH HIGH SCHOOL	Wabash, IN	9-12	940	2019-20 to 2023-24
North Lawrence Com Schools	BEDFORD-NORTH LAWRENCE HIGH SCHOOL	Bedford, IN	9-12	2900	2019-20 to 2023-24
Jay School Corporation	JAY COUNTY JR/SR HIGH SCHOOL	Portland, IN	9-12	1778	2019-20 to 2023-24
Logansport Community Sch Corp	LOGANSPORT COMMUNITY HIGH SCHOOL	Logansport, IN	9-12	2554	2019-20 to 2023-24
North Central Parke Comm Schl Corp	PARKE HERITAGE HIGH SCHOOL	Rockville, IN	9-12	682	2019-20 to 2023-24
Randolph Central School Corp	WINCHESTER COMMUNITY HIGH SCHOOL	Winchester, IN	9-12	843	2019-20 to 2023-24
Franklin County Community Sch Corp	FRANKLIN COUNTY HIGH	Brookville, IN	9-12	1255	2020-21 to 2023-24
Southern Hancock Co Com Sch Corp	NEW PALESTINE HIGH SCHOOL	New Palestine, IN	9-12	2104	2020-21 to 2023-24
Middlebury Community Schools	NORTHRIDGE HIGH SCHOOL	Middlebury, IN	9-12	2483	2020-21 to 2023-24
Paoli Community School Corp	PAOLI JR & SR HIGH SCHOOL	Paoli, IN	9-12	688	2020-21 to 2023-24
Rising Sun-Ohio Co Com	RISING SUN HIGH SCHOOL	Rising Sun, IN	9-12	441	2020-21 to 2023-24
Frontier School Corporation	FRONTIER JR-SR HIGH SCHOOL	Chalmers, IN	9-12	294	2021-22 to 2023-24
MSD Warren County	SEEGER MEMORIAL JR-SR HIGH SCHOOL	West Lebanon, IN	9-12	618	2021-22 to 2023-24
Sheridan Community Schools	SHERIDAN HIGH SCHOOL	Sheridan, IN	9-12	496	2021-22 to 2023-24
Shoals Community School Corp	SHOALS COMMUNITY HIGH SCHOOL	Shoals, IN	9-12	317	2021-22 to 2023-24
Southwest Dubois Co Sch Corp	SOUTHRIDGE HIGH SCHOOL	Huntingburg, IN	9-12	815	2021-22 to 2023-24

[a] Although some RECN schools served grades 7 to 12, only students in grades 9 to 12 were served by RECN.

[b] We calculated the number of students served by taking the school enrollment in Grades 9-12 from the first program year. We then added new Grade 9 students to each school's total for each new school year.

Table B-2. Dual Credit Course Pathways by Subject Area

Pathway	Subject Area	Subject Header
Indiana College Core (ICC)	ELA	10, 11
	Social Studies	15
	World Languages	20, 21
	Math	25
	Science	30
	Arts	40, 41, 42
Career and Technical Education (CTE)	Business	45
	Advanced Manufacturing	47
	PLTW Pre-Engineering	48
	Agriculture	50, 71
	Food Science	51
	Health Sciences	52
	Education & Human Dev	53, 54
	Photography & Graphic Design	55
	Engineering	56
	Machining	57
	Law & Public Safety	58
	Marketing	59
	Manufacturing	72

Table B-3. Baseline Equivalence: Cumulative Days Absent with Two Years of Treatment

Measure	Control Group			Treatment Group			Treatment – Control Difference	Standardized Difference
	Sample Size	Mean	Standard Deviation	Sample Size	Mean	Standard Deviation		
Male	413	37.3%		367	44.4%		7.1%	0.18
White	413	84.5%		367	83.9%		-0.6%	-0.03
Underrepresented Minority	413	15.0%		367	15.5%		0.5%	0.02
Economically Disadvantaged	413	39.5%		367	38.5%		-1.0%	-0.03
English Learners	413	3.2%		367	2.3%		-0.9%	-0.20
Students with Disabilities	413	6.5%		367	7.0%		0.5%	0.05
8th Grade Days Absent	413	6.30	8.02	367	5.86	8.27	-0.44	-0.05

*For dichotomous variables, the standard deviation is not reported. The standardized difference is calculated using Cox's Index.

Table B-4. Baseline Equivalence: Grade 10 PSAT with Two Years of Treatment

Measure	Control Group			Treatment Group			Treatment – Control Difference	Standardized Difference
	Sample Size	Mean	Standard Deviation	Sample Size	Mean	Standard Deviation		
Male	89	38.2%		73	33.1%		-5.1%	-0.13
White	89	95.5%		73	89.6%		-5.9%	-0.55
Underrepresented Minority	89	4.5%		73	10.4%		5.9%	0.55
Economically Disadvantaged	89	49.4%		73	37.0%		-12.4%	-0.30
English Learners	89	1.1%		73	0.5%		-0.6%	-0.46
Students with Disabilities	89	7.9%		73	5.2%		-2.6%	-0.26
8th Grade ELA Z Score	89	0.28	0.84	73	0.43	0.72	0.15	0.19
8th Grade Math Z Score	89	0.25	0.82	73	0.41	0.76	0.16	0.20

*For dichotomous variables, the standard deviation is not reported. The standardized difference is calculated using Cox's Index.

Table B-5. Baseline Equivalence: Successful College-Level Course Completion with Two Years of Treatment

Measure	Control Group			Treatment Group			Treatment – Control Difference	Standardized Difference
	Sample Size	Mean	Standard Deviation	Sample Size	Mean	Standard Deviation		
Male	451	37.5%		382	44.3%		6.8%	0.17
White	451	84.7%		382	85.0%		0.3%	0.01
Underrepresented Minority	451	14.6%		382	14.5%		-0.1%	-0.01
Economically Disadvantaged	451	39.7%		382	38.4%		-1.3%	-0.03
English Learners	451	3.1%		382	2.2%		-0.9%	-0.22
Students with Disabilities	451	6.7%		382	7.9%		1.2%	0.11
8th Grade ELA Z Score	449	0.39	0.85	382	0.41	0.78	0.02	0.02
8th Grade Math Z Score	449	0.51	0.88	382	0.52	0.85	0.02	0.02

*For dichotomous variables, the standard deviation is not reported. The standardized difference is calculated using Cox's Index.

Table B-6. Baseline Equivalence: Cumulative Days Absent with One Year of Treatment

Measure	Control Group			Treatment Group			Treatment – Control Difference	Standardized Difference
	Sample Size	Mean	Standard Deviation	Sample Size	Mean	Standard Deviation		
Male	660	39.8%		544	43.8%		3.9%	0.10
White	660	84.4%		544	86.8%		2.4%	0.12
Underrepresented Minority	660	14.8%		544	12.6%		-2.3%	-0.12
Economically Disadvantaged	660	37.1%		544	37.3%		0.1%	0.00
English Learners	660	2.9%		544	1.9%		-1.0%	-0.26
Students with Disabilities	660	8.0%		544	8.7%		0.7%	0.05
8th Grade Days Absent	660	5.89	7.35	544	5.88	8.35	-0.01	-0.00

*For dichotomous variables, the standard deviation is not reported. The standardized difference is calculated using Cox's Index.

Table B-7. Baseline Equivalence: Successful College Course Completion with One Year of Treatment

Measure	Control Group			Treatment Group			Treatment – Control Difference	Standardized Difference
	Sample Size	Mean	Standard Deviation	Sample Size	Mean	Standard Deviation		
Male	694	40.2%		562	43.5%		3.3%	0.08
White	694	84.7%		562	87.4%		2.7%	0.13
Underrepresented Minority	694	14.6%		562	12.1%		-2.5%	-0.13
Economically Disadvantaged	694	37.8%		562	37.8%		0.0%	0.00
English Learners	694	2.7%		562	1.8%		-1.0%	-0.27
Students with Disabilities	694	8.4%		562	9.3%		0.9%	0.07
8th Grade ELA Z Score	694	0.40	0.83	562	0.45	0.79	0.05	0.06
8th Grade Math Z Score	694	0.46	0.88	562	0.50	0.84	0.04	0.05

*For dichotomous variables, the standard deviation is not reported. The standardized difference is calculated using Cox's Index.

Table B-8. Baseline Equivalence for CSITS Study, Last Pre-Treatment Year Values

Variable	Baseline Comparison Mean (N=60 Schools)	Baseline Model-Adjusted Treatment Mean (N=15 Schools)	Effect Size for Baseline Equivalence (in SD units)
% of Students Taking Dual Credit Courses	35.1%	34.8%	0.02
% of Graduates Earning the Core 40 Diploma	45.7%	45.3%	0.04
% Economically Disadvantaged	39.9%	39.5%	0.04
% White	88.4%	88.8%	0.04
SAT Composite Z-Score (Normed to Statewide Testing)	-0.136	-0.124	0.06
ISTEP Math (Grade 10 Standardized Test) Z-Score (Normed to Statewide Testing)	-0.083	-0.099	0.07
ISTEP ELA (Grade 10 Standardized Test) Z-Score (Normed to Statewide Testing)	-0.094	-0.113	0.08
% Hispanic	7.0%	7.8%	0.09
PSAT Composite Z-Score (Normed to Statewide Testing)	-0.056	-0.082	0.10
Mean Days Absent	8.14	8.73	0.16
% Taking an AP Exam	12.2%	10.7%	0.17
Mean Dual Credit Courses Taken per Student	0.687	0.740	0.18
% of Graduates Earning an Honors Diploma	41.4%	43.2%	0.19
School Enrollment (Grades 9-12)	620	700	0.20
% English Learner	1.8%	2.6%	0.23

Table B-9. Representativeness Calculations for PSAT Scores

School Year (Spring)	Comparison Attrition[a]	Treatment Attrition[a]	Differential Attrition	Overall Attrition
2015	23%	9%	14%	21%
2016	25%	35%	10%	27%
2017	22%	17%	5%	21%
2018	96%	99%	3%	97%
2019	46%	44%	2%	46%
2020	20%	21%	1%	20%
2021	29%	30%	2%	29%
2022	21%	23%	2%	22%
2023	100%	100%	0%	100%

[a]For representativeness, "attrition" refers to the proportion of students in the attendance file who did not have a testing record.

Table B-10. Representativeness Calculations for SAT Scores

School Year (Spring)	Comparison Attrition[a]	Treatment Attrition[a]	Differential Attrition	Overall Attrition
2015	44%	43%	1%	44%
2016	49%	46%	3%	48%
2017	44%	42%	2%	44%
2018	7%	3%	4%	7%
2019	28%	25%	3%	27%
2020	57%	51%	6%	55%
2021	44%	36%	8%	42%
2022	16%	15%	1%	16%
2023	100%	100%	0%	100%

[a]For representativeness, "attrition" refers to the proportion of students in the attendance file who did not have a testing record.

Table B-11. QED Impact Analysis of Days Absent

Coefficient	Description	Coefficient	Std Error	DF	t-value	p-value
(Intercept)	Comparison school mean days absent in the baseline year for schools starting in 2019-20	9.70	0.46	588	21.26	0.00
Time	Mean change per year	0.17	0.08	588	2.06	0.04
TSch	Treatment school difference from comparison schools in the baseline year for schools starting in 2019-20	-0.28	0.77	71	-0.36	0.72
Pyr	Partial treatment year impact (only applicable for the group of schools starting RECN in 2019-20)	-2.33	0.60	588	-3.89	0.00
Tyr1	Difference in the first treatment year	1.70	0.42	588	4.00	0.00
Tyr2	Difference in the second treatment year	2.49	0.47	588	5.32	0.00
Tyr3	Difference in the third treatment year	2.77	0.59	588	4.72	0.00
Tier 2 Schools	Difference for schools starting in 2020-21	-1.54	0.54	71	-2.87	0.01
Tier 3 Schools	Difference for schools starting in 2021-22	-0.82	0.53	71	-1.54	0.13
Time:TSch	Time trend within the treatment schools	-0.19	0.18	588	-1.04	0.30
TSch:Pyr	Partial treatment year program impact	-0.43	1.34	588	-0.32	0.75
TSch:Tyr1	First treatment year program impact	-0.58	0.94	588	-0.61	0.54
TSch:Tyr2	Second treatment year program impact	0.83	1.04	588	0.80	0.42
TSch:Tyr3	Third treatment year program impact	-0.24	1.30	588	-0.19	0.85

Table B-12. QED Impacts for Grade 10 School-Wide PSAT Analysis

Variable	Description	Coefficient	Std Error	DF	t-value	p-value
(Intercept)	Comparison school mean days absent in the baseline year for schools starting in 2019-20	-0.06	0.04	432	-1.54	0.12
Time	Mean change per year	0.01	0.01	432	1.53	0.13
TSch	Treatment school difference from comparison schools in the baseline year for schools starting in 2019-20	0.02	0.07	71	0.30	0.76
Pyr	Partial treatment year impact (only applicable for the group of schools starting RECN in 2019-20)	-0.13	0.06	432	-2.06	0.04
Tyr1	Difference in the first treatment year	-0.07	0.05	432	-1.45	0.15
Tyr2	Difference in the second treatment year	-0.09	0.06	432	-1.55	0.12
Tier 2 Schools	Difference for schools starting in 2020-21	0.19	0.04	71	4.29	0.00
Tier 3 Schools	Difference for schools starting in 2021-22	0.07	0.04	71	1.56	0.12
Time:TSch	Time trend within the treatment schools	0.01	0.02	432	0.60	0.55
TSch:Pyr	Partial treatment year program impact	-0.04	0.14	432	-0.26	0.80
TSch:Tyr1	First treatment year program impact	0.02	0.10	432	0.22	0.83
TSch:Tyr2	Second treatment year program impact	0.02	0.13	432	0.18	0.85

Table B-13. Mean Dual Credit Courses Passed (Both ICC and CTE Pathways)

Variable	Description	Coefficient	Std Error	DF	t-value	p-value
(Intercept)	Comparison school mean dual credit courses passed in baseline year for schools starting in 2019-20	0.63	0.06	557	9.89	0.00
Time	Mean change per year	0.02	0.01	557	3.13	0.00
TSch	Treatment school difference from comparison schools in the baseline year for schools starting in 2019-20	0.05	0.09	71	0.54	0.59
Pyr	Partial treatment year impact (only applicable for the group of schools starting RECN in 2019-20)	-0.04	0.05	557	-0.89	0.37
Tyr1	Difference in the first treatment year	-0.08	0.04	557	-2.30	0.02
Tyr2	Difference in the second treatment year	-0.12	0.04	557	-3.19	0.00
Tyr3	Difference in the third treatment year	-0.08	0.05	557	-1.57	0.12
Tier 2 Schools	Difference for schools starting in 2020-21	0.04	0.08	71	0.54	0.59
Tier 3 Schools	Difference for schools starting in 2021-22	0.07	0.08	71	0.89	0.38
Time:TSch	Time trend within the treatment schools	0.02	0.02	557	0.96	0.34
TSch:Pyr	Partial treatment year program impact	0.01	0.11	557	0.14	0.89
TSch:Tyr1	First treatment year program impact	0.08	0.08	557	1.07	0.29
TSch:Tyr2	Second treatment year program impact	0.08	0.09	557	0.91	0.36
TSch:Tyr3	Third treatment year program impact	0.08	0.11	557	0.71	0.48

Table B-14. Percentage of Students Passing One or More Dual Credit Courses (ICC and CTE Pathways)

Variable	Description	Value	Std Error	DF	t-value	p-value
(Intercept)	Comparison school mean dual credit courses passed in baseline year for schools starting in 2019-20	0.31	0.02	557	13.48	0.00
Time	Mean change per year	0.01	0.00	557	2.97	0.00
TSch	Treatment school difference from comparison schools in the baseline year for schools starting in 2019-20	0.03	0.03	71	0.73	0.47
Pyr	Partial treatment year impact (only applicable for the group of schools starting RECN in 2019-20)	-0.01	0.02	557	-0.35	0.73
Tyr1	Difference in the first treatment year	-0.02	0.01	557	-1.39	0.16
Tyr2	Difference in the second treatment year	-0.03	0.02	557	-2.00	0.05
Tyr3	Difference in the third treatment year	-0.01	0.02	557	-0.77	0.44
Tier 2 Schools	Difference for schools starting in 2020-21	0.03	0.03	71	1.05	0.30
Tier 3 Schools	Difference for schools starting in 2021-22	0.05	0.03	71	1.67	0.10
Time:TSch	Time trend within the treatment schools	0.01	0.01	557	0.73	0.47
TSch:Pyr	Partial treatment year program impact	-0.01	0.04	557	-0.17	0.86
TSch:Tyr1	First treatment year program impact	0.00	0.03	557	0.14	0.89
TSch:Tyr2	Second treatment year program impact	0.02	0.03	557	0.62	0.54
TSch:Tyr3	Third treatment year program impact	0.04	0.04	557	0.88	0.38