



Impacting Student Outcomes via STEM Pathways

**Roscoe Collegiate ISD Early College/T-STEM
Academy Lessons Learned**

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EXECUTIVE SUMMARY

Roscoe Collegiate Independent School District (RCISD) is an exemplary model of rural school transformation. Located in West Texas, the town of Roscoe has a population of under 1,500. The district enrolls approximately 596 students in grades PreK-12. In 2009, its high school transitioned from a traditional public school into an ECHS to offer its students greater opportunities post-graduation. With low enrollment numbers and difficulty retaining teachers, school leaders knew that change was necessary. In partnership with Educate Texas, a public-private initiative of Communities Foundation of Texas, they saw the opportunity to pivot towards relevant STEM education in fields with shortages of qualified workers.

Calls for education reform to prepare students for an increasingly competitive global labor market are on the rise. In response to critical workforce shortages, educators, professionals, and the general public alike are calling for school choices that arm students with the tools they need to tackle 21st century challenges. As the demand for highly skilled workers grows across Texas and the U.S., schools are called upon to deliver innovative instruction focused on science, technology, engineering, and math (STEM).

The Early College High School (ECHS) is one emerging public school model. It equips students to earn an associate degree by the time they graduate from high school, giving them a head start in higher education, both academically and financially. Early College students are ten times more likely to complete a four-year degree than a similar student with no college hours at high school graduation.ⁱ Research also shows that ECHS students are projected to earn \$250,000 more over their lifetime than Texas high school students generally.ⁱⁱ

Early College High Schools, designated as such by TEA, provide a combination of high school and college curricula, allowing students to earn up to two years of college credit (60 hours) at no cost. ECHS make postsecondary education more accessible for first generation and minority students who traditionally face greater barriers to entry (e.g., financial, academic, and social). To accommodate the accelerated timeline, ECHS provide students with additional college-readiness support to help them achieve success in college and beyond.

Propelled by the drive to have one of the best small rural schools in the state, Roscoe embarked on the path to establishing one of only eleven blended ECHS and T-STEM Academies in Texas. Its leadership reframed challenges as opportunities to find a solution – an attitude that has carried through to students, teachers, and the community. Roscoe’s ECHS has expanded local workforce development and revitalized the community, with more people moving to Roscoe simply so their children can enroll in the school. Roscoe Collegiateⁱⁱⁱ is making higher education more feasible for its students, particularly those from economically disadvantaged backgrounds.

Under the leadership of Dr. Kim Alexander and his team of educators, Roscoe Collegiate set a goal that 90 percent of its students would graduate from high school with their associate degree by 2015. From one student earning an associate degree in the first year to 92 percent of its graduating class doing so in 2016, Roscoe Collegiate not only met – but exceeded – its ambitious goals. The school has set its sights on a new target for 2020 that 100 percent of students will earn both an associate degree and their high school diploma. Jacob Tiemann, the Director of the Early College/T-STEM Academy, articulated what drives the educators at Roscoe: “You have to live it. You have to put what is best for students first every day, even when it is not convenient for the adults in the room.”

Texas Science, Technology, Engineering, and Mathematics (T-STEM) Academies focus on improving instruction and academic performance in the fields of science and mathematics at secondary schools. Schools are designated as T-STEM Academies by the Texas Education Agency, and serve as models for innovative STEM instruction through a project-based learning approach. Their goal is to help prepare students for postsecondary degrees and future careers in STEM fields, while simultaneously supporting long-term workforce development. T-STEM Academies form public and private partnerships to provide students with applied learning and professional development opportunities.

Recognizing the importance of giving its students a leg up in the competitive labor market, Roscoe Collegiate pursued and achieved designation as a T-STEM Academy in the 2012-2013 school year. It aims to bring real-world relevance to students and empower them to pursue careers in up-and-coming STEM fields. Roscoe Collegiate has instituted an innovative curriculum that utilizes technology, evidence-based practices, and group collaboration to enhance student learning in STEM subject areas. To advance the objectives of its STEM instructional program and project-based learning approach, the district founded engineering and agricultural research centers.

Several factors made it possible for Roscoe Collegiate to develop an innovative and robust instructional program

with 21st century relevance to its students:

- ❖ **Vision-driven and student-focused leadership** – One of the most important factors in transforming into a new school model is the people involved. Roscoe Collegiate assembled a team that worked with creativity, flexibility, and persistence to successfully launch an ECHS with a STEM focus. Leaders who are dedicated to transforming education and expanding student horizons can make all the difference in whether the model succeeds or fails.
- ❖ **Culture of rigor and innovative STEM instruction** – To move beyond the mentality that college is not for everyone, Roscoe Collegiate promoted a culture of rigor that empowers students to follow their aspirations. The school created a

project-based learning approach to deliver context-specific STEM instruction, and instituted college- and workforce-readiness programs to further support students.

- ❖ **Networking and partnership building efforts** – The leaders who drove Roscoe Collegiate’s transformation understood that they could not work in a silo to achieve their objectives. Given their rural location, they recognized the value in learning from other Early College initiatives, both within Texas and nationally. Beyond that, they assembled a strong advisory board capable of making industry connections relevant to students. With the support of system partners and higher education institutions, they made the Early College model a reality for their rural community.
- ❖ **Across-the-board collaboration and teacher support** – To enrich student learning opportunities and sustain the model, Roscoe Collegiate fosters a highly collaborative environment for all members of the school. It offers rich professional development and supports staff and teachers in delivering a high-quality education to their students.

This report presents a case study of Roscoe Collegiate ISD to serve as a model of school transformation for other schools, districts, educators, and administrators. It describes the components of Roscoe Collegiate’s Early College and T-STEM Academy initiatives, followed by successful practices and lessons learned throughout the district’s transformation.

PROGRAM COMPONENTS

Schools that undergo the transformation into an ECHS and/or STEM Academy build individualized student support into their models to help students meet the higher expectations and rigor demanded of them. Roscoe Collegiate created a P-20^{IV} System Model for Student Success, the components of which give students the tools they need to succeed.

Project-Based Learning Approach.

Roscoe Collegiate places a heavy focus on student research and project-based learning. All students in grades 3-11 lead 4H-based research projects, from data collection and analysis all the way through developing and delivering visual and oral presentations. 4H science and technology projects resonate with the agricultural focus of the area. Examples of 4H projects students have completed include examining the ideal temperature for egg incubation and exploring the phenomenon of aphid overwintering, a pertinent agricultural issue that Roscoe and surrounding areas face. In their senior year, students take it one step further by completing a year-long capstone research project with career relevance. In addition to building practical STEM knowledge, this allows students to explore scholarship opportunities that lessen the financial burden of continued education.

"The goal of the Roscoe Collegiate P-20 System Model for Student Success is to develop a collaborative, sustainable and replicable model for breaking the generational poverty cycle through higher education (EARLY COLLEGE), while supplying critical agricultural STEM workforce shortage areas that will be critical to meeting the daunting challenge of feeding and clothing 9 billion people on the planet by 2050 (STEM ACADEMY)." – Roscoe Collegiate ISD Mission Statement

Common Instructional Framework. Roscoe Collegiate implements the Common Instructional Framework to deliver 21st century skills and instruction that are consistent across classrooms. The Common Instructional Framework is a nationally-recognized set of teaching and learning strategies designed specifically for Early Colleges.^v RCISD carries this framework out from Pre-K to 12th grade in order to give students commonality in education from classroom to classroom and grade level to grade level. Under this framework, six strategies drive instructional practices:

1. **Collaborative Group Work:** working together with other students for deeper engagement.
2. **Writing to Learn:** developing critical thinking skills and the ability to present ideas clearly through writing.
3. **Scaffolding:** drawing upon prior concepts to better understand new information.
4. **Questioning:** developing intellectual curiosity and encouraging open dialogue by posing questions.
5. **Classroom Talk:** fostering discourse in the classroom by sharing ideas.

6. **Literacy Groups:** taking on various roles within a group to engage in problem-solving and advance understanding of a text.

Teachers at Roscoe Collegiate receive training on the Common Instructional Framework. This enables them to deliver lessons that maximize student engagement and build students' transferable skills. Instructional coaches conduct classroom walk-throughs and work with teachers one-on-one to build teacher capacity and provide guidance on effective teaching practices.

AVID Program. The Advancement via Individual Determination (AVID) program aims to close the achievement gap and prepare traditionally underrepresented students for success in higher education. AVID teaches students the skills and behaviors conducive to academic success, including strong study habits, time management, organizational skills, and academic strategies in specific content areas. At Roscoe Collegiate, all students in grades 6-12 participate in AVID. Teachers and students alike testify to the impact the program has on supporting and maintaining the school's college-going culture. Students master skills that make both college and high school courses easier to navigate, and often find that the program gives them an advantage in opportunities they pursue after leaving Roscoe. According to one student, "The AVID program helps students understand what they are getting into and how to prepare for college. It is a really unique and well-designed program."

Harvard Instructional Rounds. To support quality teaching and learning, Roscoe Collegiate also implements the Harvard Instructional Rounds model, which is used in Early Colleges across Texas. The rounds involve both internal and external assessments of student engagement. In addition to assessing student learning strategies, the model also bolsters teacher improvement efforts. As part of the internal rounds, Roscoe teachers observe each other's classrooms to evaluate how well they convey information to students. External rounds introduce different perspectives from community members, higher education partners, and personnel from other districts. The goal of these formative assessments is to understand teaching and learning patterns in order to improve them. As such, they contribute to ongoing student and teacher growth.

Research Centers. Along with its Engineering Research Center, Roscoe Collegiate recently opened a \$3.5 million Agricultural Research Center housing the Collegiate Edu-Vet program. The community voted to approve funding for the centers. The research centers provide students with practical, hands-on learning and the ability to explore future careers paths in engineering and biosciences. For example, Roscoe Collegiate hosts a robotics program and partners with an international aerospace company to train students in commercial drone flight. The Texas A&M AgriLife Extension also brings resources to the school, including material and personnel resources for student science projects. Along with a strong focus on giving minority youth learning opportunities in science, it brings

staff with years of experience and specialists on a range of topics (e.g., entomology, pathology, etc.).

Roscoe Collegiate pairs the components of its P-20 System Model with technology and a collaborative environment to build a well-rounded set of 21st century skills. It incorporates technology in the classroom with a 1:1 student-laptop ratio, giving all students access to the internet at their fingertips. This is notable as federal policy has recognized the difficulty of obtaining broadband internet access in some rural areas due to lack of the correct infrastructure.^{vi}

The transition to an ECHS/T-STEM Academy has also led to more open and consistent communication. Collaboration has become the norm, apparent in interactions between students, teachers, the administration, the school board, and the community. With its tight-knit community, Roscoe involves residents of the town and draws upon their support to advance the ECHS vision. As one parent and board member stated, “The community is behind the school wholeheartedly now. Since we have gotten into the Early College, you can tell that school pride in the community has taken a big shot in the arm. Community support is back and it’s better than it’s ever been.”

PROGRAM IMPACT

“They have what many think is the right vision for public education and higher education. They have those high expectations of students, and those expectations are contagious. So, the students begin to have high expectations of themselves. Roscoe has been able to narrow the gap between aspirations and expectations, not by lowering aspirations but by raising expectations.” – Dr. Gary Briers, Texas A&M University

IMPACT SNAPSHOT

In **2010**,
less than **10%** of RCISD's graduates
obtained an Associate's degree

In **2016**,
this number has increased
to **92%**

Early College students
are **10x** more likely to
complete a 4-year degree
than a student with
no college hours



District enrollment has
DOUBLED since 2008,
now serving 596 students

92% of Roscoe Collegiate's graduating
class received their associate degree in 2016



Early College students are projected to earn

\$250,000

more over their lifetime compared to other
Texas high school students.

“What I see from a student perspective is hard work and work ethic. Those who develop that – there are just no limits to their potential outcomes.” – Jacob Tiemann, ECHS/T-STEM Director

By facilitating the entry of historically underrepresented students into higher education, Roscoe Collegiate is part of a growing national movement to expand access to education. Through its ECHS and STEM offerings, Roscoe Collegiate aims to close the achievement gap and break the poverty cycle. It serves a high proportion of low socioeconomic children and youth; 52 percent of district students are economically disadvantaged.

Many personal stories from those involved with Roscoe reveal that the ECHS has equipped its students with the tools to meet 21st century challenges. The college-going culture places high expectations on students, making them believe in their own capabilities and introducing them to future career paths. The school abounds with stories of student success, particularly from first-generation students. Roscoe Collegiate not only sets the expectation that students will graduate with a two-year college degree, but implements the practices and supports to make it a reality.

Jose Rangel, Class of 2013, went on to complete his undergraduate education in three years and is now enrolled in a doctoral program in physical therapy. He interned under Dr. Nick Anthony, the school's onsite chiropractor and business partner who provides sports medicine in the community and operates a clinic several days a week for the community. This sparked Jose's interest in pursuing a career in physical therapy. Jose credits the experience with introducing him to the field of health sciences and teaching him skills and terminology that he draws upon to this day. According to one of his teachers at Roscoe Collegiate, "He just never let anything stop him. Low socioeconomic – he didn't know that. He just made a goal, set his mind to it, worked really hard, and he's achieving it right now as we speak."

"Not everybody is told that they are good enough to go to college, that they can do it if they want to. And the school doesn't just talk the talk, it walks the walk." – Jose Rangel, Former Student

Austin Carrasco graduated from Roscoe Collegiate with his associate degree in 2011 and went on to complete both his undergraduate and graduate education in criminal justice. His participation in the AVID program provided him with the organizational, behavioral, and public speaking skills to excel in higher education.

Another minority student who graduated from Roscoe Collegiate with her associate degree was the youngest of ten siblings, none of whom had attended college. Roscoe empowered her to seek opportunities that she otherwise would not have pursued based on her family background. She went on to complete her undergraduate degree and is now making a difference in the lives of students as a teacher.

“Here they are the normal high school students, complaining about the notes they are having to take, about all the homework they have, about how tired they are. And then they come back after that first or second semester at the university level and they are just excited about how far ahead of the other students their age that they are. And they actually are being able to use the tools that we provide them with.” – Cynthia Black, Teacher/Instructional Coach

Parents of Roscoe Collegiate students also attest to the model’s success. The Early College initiative decreases the financial burden of higher education, making a four-year degree a more feasible option for their children. Many parents witnessed a change in the school’s culture after it became an ECHS, and later a T-STEM Academy. They noted a boost in school morale and increased enthusiasm across the community.

LESSONS LEARNED & IMPLEMENTATION GUIDANCE

With a strong vision, a sense of social responsibility, and effective procedures, the district has been able to develop a school model that contributes to breaking the generational poverty cycle in rural Roscoe. Educators, administrators, schools, and districts can learn from the strategies and processes Roscoe Collegiate ISD employs to create STEM pathways that dramatically improve student outcomes.

VISION-DRIVEN AND STUDENT-FOCUSED LEADERSHIP

Assemble strong leaders who are willing to spearhead efforts to improve student outcomes with creativity and persistence. Strong leaders often serve as the main catalyst driving successful school transformations, whether an ECHS, STEM Academy, or both. Leaders who are committed to making the model work will dedicate the time, effort, and resources necessary for innovative school design.

Armed with a strong vision of how their P-20 System Model could benefit students and transform the local education landscape, Roscoe Collegiate's leadership laid the groundwork for the district's transition with three years of planning and research. They created a sound plan for district innovation, secured funding sources and partnerships with higher education, businesses, and community organizations, and connected with others who have pursued similar goals. Dr. Kim Alexander, Superintendent of the district, approached the transition with the attitude that no problem was too big to tackle. This attitude has carried through the administration and overall school culture, allowing students at Roscoe Collegiate to achieve beyond what many thought possible. The leadership team's expertise, persistence, and knowledge of the community made it possible for Roscoe to become the first rural T-STEM ECHS in Texas.

"Everybody here at Roscoe Collegiate is committed to making it happen. It starts with the students, the parents, the teachers, the administration, and, of course, the board. Everybody has been supportive and made it [the ECHS/T-STEM Academy] a success." – Edward Morales, Principal

"I work with 16 high schools around the state, and Roscoe has gone gangbusters ahead of all the others in not leaving and saying no. Kim Alexander [Superintendent] really tackles any task – if it's going to be good for our kids, then we are going to figure out how to do it. That attitude has sailed through the entire model." – Nelda Howton, Educate Texas STEM Leadership Coach

Maintain the overarching objectives of the ECHS and STEM Academy as the driving force for your work. School leaders and administrators constantly make decisions that

impact both day-to-day operations and the overall trajectory of the school. Decision makers should prioritize improving student outcomes, and evaluate decisions based on how they will bring the school closer to achieving its objectives.

When leaders, administrators, and teachers are driven by the desire to break the poverty cycle and increase student opportunity, as demonstrated by Dr. Kim Alexander and his team of educators in Roscoe, they make choices that lead to a successful and sustainable school model. Schools like Roscoe Collegiate are forging the path to transform education. Members of the school carry this purpose with them as a motivator to change teaching and learning for the better. In the face of resistance to a new, unfamiliar concept from the community in the early stages of the transition, Roscoe leadership kept the focus on improving students' lives and letting the results speak for themselves. They carried out their well-researched plan with fidelity, recognizing that results would not be immediate but persistence was key.

“Implementing change requires sticking to it long enough that no one remembers what you were doing beforehand and having that grit to persevere. It is a worthy goal to change education for our kids.”
– Jacob Tiemann,
ECHS/T-STEM Director

Build flexibility into your approach. Embarking on a new path brings with it the unexpected, and Roscoe Collegiate leaders took a flexible approach to successfully overcome challenges along the way. The ability to adapt to changing circumstances is imperative in transforming a traditional public school into an ECHS or STEM Academy. By building flexibility into their approach, Roscoe leaders could easily switch gears when specific components of their model were not working. They remained open to adjusting their plan in the interest of creating an innovative school design that maximized student learning opportunities.

“I would strongly urge people, even if they don’t think they can afford it, the end result is well worth the effort. What these kids can achieve is worth the effort.” – Steve Anthony, School Board President

CULTURE OF RIGOR AND INNOVATIVE STEM INSTRUCTION

Develop a culture of high expectations and rigor, and move beyond the mentality that college is not for everyone. Roscoe Collegiate raised the expectations for its students as an ECHS, insisting that it was not only possible, but crucial, for students to earn college credit by the time they left the school.

Graduating from high school and simultaneously earning an associate degree in four years demands rigor. To instill a culture of rigor at the school, Roscoe Collegiate has made college attainable for students who otherwise may not have considered postsecondary education (e.g., first-generation students from low-income families). Roscoe Collegiate makes college attainable for its students by requiring every student to enroll in college courses and earn the associate degree, while simultaneously receiving added support via college-readiness programs such as AVID. The district empowers students to achieve high academic standards, and provides them the tools for doing so through a host of college- and career-readiness programs.

The goal that at least 90 percent of its students will graduate with an associate degree instills in students and in the wider school community the mentality that they can succeed in higher education. Roscoe Collegiate's consistent curriculum offered through the Common Instructional Framework and its career-readiness programs have helped more students complete the associate degree each year. From administrators to teachers, members of the district consistently place high expectations on students. This makes pursuing postsecondary education a natural, realistic pathway. Their attitudes, supported by strong academics and other student-learning opportunities, have made the current level of student achievement possible.

“Components of the P-20 System help the students prepare for college-level work. They make the entire school a college-going culture school. There are college banners all through the school, and every instructor outside the classroom has the name of the college where they got their degree. It’s the entire culture of the school that helps prepare them and support them when they are in those college classes.”
– Roy Bartels, Western Texas College

Deliver a project-based learning approach to students, beginning in elementary school. Roscoe cultivates high expectations for its students beginning in elementary school. RCISD has seen elementary school enrollment expand significantly over the past eight years as a result, with some families moving to the town because they are attracted to the school system. Teachers and administrators begin talking about the importance of college with elementary students, and engage students with project-based learning at an early age. Starting in grade 3 and continuing through grade 12, students work on group or individual STEM research projects each year where they collect and present data via a poster to a panel of judges, either internally or outside of the school. This gives students practical hands-on research experience and practice with public speaking, skills they carry through college and beyond. Elementary students learn to work collaboratively and gain valuable skills and knowledge that allow them to explore their interests in STEM. By the time they are seniors, students are demonstrating an understanding of the scientific research process and are comfortable receiving feedback from teachers, college professors, and community members alike.

Create a STEM program that reflects local workforce needs. Schools should not attempt to mirror other STEM Academies, but should instead develop their own vision tailored to the unique needs of the local economy. Because Roscoe is the windmill capital of the world, the district partnered with a drone company to certify students in commercial drone flights for windmill inspection. Because agriculture is one of the area’s primary industries, the district also partnered with the Texas A&M AgriLife Extension to allow students to collect agricultural data and conduct research and experiments in the biosciences. The school also saw the opportunity to train students in the veterinary sciences due to the critical shortage of food animal veterinarians in Texas and the U.S. Roscoe Collegiate built a veterinary research center to train students as veterinary technicians who can help meet critical workforce needs.

In contrast, schools located where petroleum or medicine are the main industries may focus on teaching different skill sets and procuring industry-specific partners. STEM programs will be designed differently based on local and regional priorities. Schools should conduct a thorough community needs assessment and identify areas of potential workforce growth in determining their STEM focus. Developing this understanding will help the school equip students with the skills necessary to successfully enter college and the workforce.

“The biggest challenge we face is providing relevance to the students because without relevance, we can’t be very rigorous. And if we can’t be very rigorous, we’re not going to prepare them for anything.” – Jacob Tiemann, ECHS/T-STEM Director

If creating both an ECHS and STEM Academy, find a balance between workforce readiness and college readiness. As the first rural school in Texas to become both an ECHS and T-STEM Academy, Roscoe Collegiate focused on the balance between preparing its students for college and preparing them for the workforce. To achieve a successful balance, the district has placed an emphasis on building 21st century skills through:

- ❖ College-readiness programs such as AVID
- ❖ STEM instruction and research projects
- ❖ Training, certificates, and apprenticeships in STEM career areas

Relevant STEM education promotes college readiness. Roscoe Collegiate’s workforce training supports the ECHS model by offering students valuable science, engineering, and mathematics skills that they can use in their postsecondary careers. Conversely, the organizational and communication skills students develop through their college readiness programs serve them well in any future career, even if students go directly into the workforce post-graduation.^{vii} Rather than focusing only on training students for the workforce or preparing them for college, Roscoe Collegiate has found a middle ground that maximizes student learning and advancement potential.

Develop systems to collect data and track students through college and beyond to assess program impact.

Building a baseline for tracking students will help a school make judgments about program success and inform future improvements. Roscoe Collegiate uses data tracking systems, such as Mileposts by Silverback Learning and National Student Clearinghouse data, along with self-reported survey data from former students who continue in higher education and/or enter the workforce. The district plans to build these systems out to understand which components of the model are working well and which areas require further attention or improvement to address student needs.

“Once you have seen a lot of the data, it gets to a point where it is almost criminal not to do things that you see are working elsewhere.” – Steve Anthony, School Board President

NETWORKING AND PARTNERSHIP-BUILDING EFFORTS

Develop a strong advisory board that can make connections to the community and industry partners with relevance to students.

As the adage goes, ‘it’s not what you know, it’s who you know.’ Schools – especially small, rural schools – may underestimate the importance of building an advisory board composed of experienced professionals who can make introductions that lead to new partnerships and initiatives. Roscoe Collegiate attributes part of its success to assembling an effective advisory board that championed the district’s efforts. Advisory board members connected Roscoe Collegiate with businesses and organizations interested in contributing to its STEM pathways, forging partnerships that may not have materialized otherwise. A well-connected advisory board can expand student opportunities beyond the geographic limits of a school or town.

Visit other schools/districts to build a network for sharing best practices and lessons learned.

Visiting successful models is a crucial step in establishing your own ECHS or STEM Academy. Onsite visits reveal how an ECHS/STEM Academy functions in everyday practice, and discussions with administrators and teachers can provide constructive insights. Schools may be interested to learn how others make components of the model work for them, what elements lead to success, and challenges encountered along the way. From discovering how another school seeks out new partners to how it balances college- and career-readiness programs, visits provide an ideal venue for sharing ideas. Making these connections at the outset builds a network that schools and districts can later call upon for guidance and knowledge exchange. Preparing for the ECHS, Roscoe leaders visited other innovative districts in Texas to learn how they managed success, from the technical day-to-day aspects of running the model to the broader goal of transforming education.

Now a recognized model of rural school transformation, Roscoe Collegiate itself hosts visitors from across Texas and the U.S. Roscoe Collegiate either hosted or presented to

other schools a total of 56 times during the 2015-16 school year. The district attests to these visits as one of the most effective ways to share best practices. Roscoe leaders stress that they learn from these exchanges, too. The district continues to visit other schools with cutting-edge practices as they all work to change education in America.

Partner with a higher education institution that is willing and able to provide the necessary support to help students achieve success. Schools should seek to foster a mutually beneficial relationship with one or more higher education institutions, whether a two-year community college or four-year university. These institutions play a critical role in supporting the ECHS. They offer college courses to its students and may place professors on the school's campus to facilitate one-on-one interactions. Roscoe Collegiate students earn their associate degree through two-year and four-year higher education partners, including Western Texas College, Texas State Technical College, and Angelo State University. Beyond enrolling students in college courses, the higher education partners also support initiatives such as Edu-Vet and Edu-Drone by certifying students who successfully complete the training.

“Roscoe realized early on that having a higher ed partner that was willing and able to do what needed to be done to help students succeed was unique.”

– Roy Bartels, Western Texas College

While most community colleges in Texas have a relationship with some high school, their primary focus is often on enrolling post-high school students. In contrast, Western Texas College realizes the importance of offering services to students who are still in high school. This partnership helps the school by allowing its students to learn from college professors and gain understanding of the rigor demanded in college, and it helps the higher education partner by increasing enrollment numbers and degrees awarded. Roscoe Collegiate hosts professors from Western Texas College on its campus to enhance the student learning experience. One Roscoe Collegiate student emphasized the value of having on-site college professors, noting that he could sit down with his physics professor and walk through the steps to solving a physics problem. In this way, the partnership directly contributes to the district's individualized student focus.

For a successful partnership, the administration of a school embarking on the Early College path must understand the type of support they need, and the higher education institution must understand the level of commitment required. Speaking to other schools, districts, and institutions that forge these relationships will help new Early College leaders and partners understand the expectations and requirements of a higher education partnership.

Partner with businesses, local and beyond. Forming relevant business partnerships gives students the opportunity to apply specific workforce skills as they build content knowledge in STEM fields. When business partners establish apprenticeships at the

school, students gain real-world experience they might not otherwise get. In some cases, students receive financial compensation that may go towards higher education. Partnerships help local industry identify exceptional students to take on, while also helping students decide whether they want to embark on a career path within that industry.

Local Partners – In creating a STEM program that reflects local workforce needs, schools should build partnerships with local businesses that can train students and simultaneously benefit from introducing student cohorts to a certain industry or career field. For example, Roscoe Collegiate partners with Collegiate Chiropractic and Wellness Center, a local practice. The chiropractor operates from the school for part of the week and offers student internships. By shadowing him, students receive clinical experience and can explore their interests in pursuing a medical degree or career in the health sciences.

Statewide & International Partners – To open even more possibilities to its students, Roscoe Collegiate pursues partnerships beyond its small town. It partners with the Texas A&M AgriLife Extension, INOVA Veterinary Practice Management, 3DRobotics/DroneEDU, and Under Armour. The district also partners with Strat Aero International, a UK-based firm with an office in Houston, showing that lack of geographic proximity does not have to be a barrier to productive collaboration. In keeping with its focus on expanding student horizons, Roscoe Collegiate continues to look beyond its immediate area for interested partners. Developing more partnerships so that more students can access workforce enrichment activities is currently a high priority.

Create opportunities where they do not already exist. Roscoe's rural location limits its proximity to meaningful STEM collaborations. Consequently, the district had to be creative to develop fruitful business partnerships. Dr. Kim Alexander, Superintendent, decided that he would not let Roscoe's rural location prevent students from living up to their enormous potential. He, along with the rest of the administration, adopted the attitude that they would create their own opportunities. Due to a lack of alternatives, Roscoe Collegiate built its own engineering and agricultural research centers to give students applied learning opportunities. This forward-thinking attitude not only trains students in a rigorous, hands-on learning environment but also contributes to overall sustainability of the STEM model.

ACROSS-THE-BOARD COLLABORATION AND TEACHER SUPPORT

Foster a collaborative professional environment. When a school makes cross-functional collaboration a priority across its administrative and teaching staff, it can effectively identify and address student needs. Creating these synergies allows teachers to work with each other more efficiently, asking for help when needed and sharing new ideas across the team. It also empowers them to communicate candidly with the

administration, which in turn helps the administration understand day-to-day nuances and plan for continuous school improvement.

Roscoe Collegiate's leadership understood the importance of building a high level of collaboration into their P-20 System Model. The district has a dedicated Planning, Training, and Collaboration (PTC) meeting every week for administrators, staff members, and teachers of all grade levels. The meetings allow district personnel to support each other face-to-face by aligning on major activities, problem-solving, reviewing data, creating assessments, and tackling other campus tasks that benefit from a group approach. To provide additional venues for collaboration, the elementary and high schools also have separate faculty and organizational meetings. This collaborative professional environment trickles down to students, who can model their own collaborative efforts on the adults around them.

"They just expect students to be successful and provide them with the tools to ensure that they are successful. The community, the school board, the superintendent, the administrators, the parents, and the students say they can do this, and in turn they do it." – Dr. Gary Briers, Texas A&M University

Offer professional development opportunities and support continued teacher learning. Beyond encouraging excellence amongst students, it is also important for ECHS and STEM Academies to support teacher growth. Districts that challenge teachers to learn new skills and teaching strategies often see this translate into a more engaged learning environment and stronger outcomes for students.

Conferences & Trainings – Professional development activities hone teachers' talents and expose them to new methods of instruction via outside trainings and conferences. Roscoe Collegiate pays for teacher trainings to support continued adult learning. The district encourages, and even requires, teachers to attend conferences throughout the year. Roscoe Collegiate takes it one step further by emphasizing that those who do attend should develop a plan to implement learnings from the conference soon after.

Instructional Coaching & Developmental Tools – Roscoe Collegiate has an exceptional instructional coaching staff dedicated to helping teachers deliver the best education possible to their students. By visiting classrooms and working with teachers directly, instructional coaches can assess training needs and inform school leadership of any weaknesses that appear across the board. They perform classroom walkthroughs, and then debrief teachers on their observations and advice for implementing the Common Instructional Framework. The district also employs Harvard Instructional Rounds as an effective developmental tool. The internal rounds create open lines of communication across classrooms and let teachers see how students respond to differentiated instruction so they can adjust their own instructional methods. The external rounds with community members,

higher education partners, and teachers and administrators from other districts bring different voices to the assessment process for more nuance.

Retain qualified teachers and staff who are committed to student success.

Beyond supporting its staff through comprehensive professional development, Roscoe Collegiate shows schoolwide appreciation for teacher success to foster a teacher-friendly environment. Recognizing teachers' accomplishments and the critical role teachers play in an ECHS/T-STEM Academy helps to keep them motivated and invested in student outcomes. The district also compensates teachers above base pay to retain talented teachers. Offering financial incentives and rewards prevents schools from losing their best teachers to other districts.

“Even though we are so small, we don’t allow students to realize the hindrance of that. We don’t talk about that. We just talk about how we’re going to go out there and change the world.” – Cynthia Black, Teacher/Instructional Coach

LOOKING AHEAD

Early College High School and STEM Academy initiatives are pushing the boundaries of education. Schools like Roscoe Collegiate are giving a voice to students as they take ownership of their education and explore career paths in critical STEM fields. As its story demonstrates, RCISD goes above and beyond to improve outcomes for its students.

Looking ahead, the district will focus on building partnerships and adding more real-world, lab-based student apprenticeships to its repertoire. As it sets higher targets for associate degree completion, it will use data systems to assess program impact and refine the components of its P-20 System Model to serve students more effectively. As part of its goal to seamlessly transition students from PK through postsecondary education and into the workforce, the district is establishing a Montessori school for children ages 3-5. The school will provide Roscoe's youngest elementary students with the resources and instruction to give them an advantage in later years of schooling.

Roscoe Collegiate ISD is a testament to the demonstrated impact and far-reaching implications of innovative school systems that provide relevant STEM pathways for students. Its success hinges on having a clear shared vision, and dedicated people who carry that vision into action and results. The district is committed to addressing workforce needs in Texas alongside others in the public and private sectors. It will continue to invest in critical STEM education to better the lives of its own students and students across the country as it shares the lessons it has learned.

APPENDIX¹

National and State-Level Resources on Early Colleges and STEM Academies:

- [College and District Partnerships Presentation](#)
- [Common Instructional Framework](#)
- [Educate Texas Teaching Channel](#)
- [Financial Aid Implications for Dual Credit Courses](#)
- Harvard Instructional Rounds Model:
 - [External Rounds Checklist](#)
 - [Pre Rounds Template](#) (Internal Instructional Rounds)
 - [Post Rounds Script](#) (Internal Instructional Rounds)
- [Jobs for the Future – Early College Designs](#)
- [TEA Early College High School Blueprint](#)
- [TEA ECHS Countdown to Opening Checklist](#)
- [TEA Developing an ECHS Principal Job Description](#)
- [TEA MOU Guidance for Early College High Schools](#)
- [TEA Required ECHS School Design Elements](#)
- [T-STEM Blueprint](#)
- [T-STEM Design Blueprint One Pager](#)

Helpful Organizations:

- [Alliance for Excellent Education](#)
- [Blue Valley Schools Center for Advanced Professional Studies](#)
- [Educate Texas](#)
- [Global Achievement Gap](#)
- [Harvard Graduate School of Education](#)
- [International Center for Leadership in Education](#)
- [Jobs for the Future](#)
- [Knowledge Works Resource Room](#)
- [Reinventing Education](#)
- [The Leadership & Learning Center](#)
- [Texas Association of School Administrators](#)
- [Texas Bioscience Institute](#)
- [Texas Early College High School](#)
- [Texas Higher Education Coordinating Board](#)

Visit the [Roscoe Collegiate ISD Homepage](#) for the following resources:

- Collegiate Edu-Vet Five Year Education Plan
- Collegiate Edu-Vet Five Year Business Plan

¹ Additional resources in this appendix are hyperlinked to the online location.

- Collegiate Edu-Vet Prospectus
- Collegiate Edu-Vet Teaching Hospital Video
- District Innovation Plan
- Roscoe Collegiate System Summary
- Roscoe P-20 System Model for Student Success Presentation
- Roscoe School History 1904 – 2015 Presentation
- Texas High Performance Schools Consortium Exemplar Movie of RCISD
- THPSC Recommendation to Next Gen Commission Presentation

ⁱ American Institutes for Research, and SRI International. Early College, Early Success: Early College High School Initiative Impact Study, September 2013, <http://www.air.org/resource/early-college-early-success-early-college-high-school-initiative-impact-study-2013>.

ⁱⁱ Educate Texas, “Early College High Schools,” <http://www.edtx.org/college-ready-standards-and-practices/early-college-high-schools>.

ⁱⁱⁱ The term “Roscoe Collegiate” in this report refers primarily to the Early College High School and/or STEM Academy, while RCISD refers to the district as a whole.

^{iv} P-20, as opposed to K-12, is a concept that refers to education from pre-kindergarten or preschool through postsecondary education and workforce participation.

^v Jobs for the Future, “Common Instructional Framework,” <http://www.jff.org/services/early-college-design-services/common-instructional-framework>.

^{vi} The Bush School of Government and Public Service. (2014). Postsecondary Completion in Rural Texas: A Statewide Overview. College Station, TX: Shuyu Chen et al. http://www.edtx.org/uploads/general/bush_school_final_report.pdf.

^{vii} In 2011, 67 percent of students who received their associate degree from Roscoe Collegiate had also completed a bachelor’s program, and 25 percent had completed a master’s program.