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Audrey Herbst

A country's productivity and economic competitiveness rely upon education, specifically postsecondary training which is fundamental to students' upward mobility in a thriving and progressive economic culture (Haunshek & Woessmann, 2012; Bailey et al., 2015). In order to maintain the economic stability of the United States for future generations to come, job qualifications will require that at least 71% of careers in the 21st century be accompanied by a vocational certificate or licensure, associate's degree, or bachelor's degree by the year 2020 (Lindsay et al., 2016). Despite several years of state and national efforts, the United States is not producing enough adults with the prescribed postsecondary credentials to meet the national workforce requirements (Bidwell, 2015). "Knowledge and skills remain paramount for the prosperity of our nation's economy, but as we move further into the 21st century, some form of postsecondary learning and credential attainment is necessary to hold a good job, contribute as a citizen, raise a family, and contribute in meaningful ways to communities" (Bailey et al., 2015). Career and Technical Education (CTE) must become a national priority in secondary and postsecondary education to ensure the United States will continue to compete on a global scale in the 21st century and beyond.

Introduction

Global competition paired with technological advances have created a transformation in the requirements for a skilled workforce. Students must develop and learn "the appropriate skills for the job if the United States is to remain competitive, attract the right type of industry, and engage the right type of talent in a knowledge-based and innovative economy" (Carnevale et al., 2013) further note "the United States has been under-producing workers with postsecondary education since the 1980s," (p. 21). Integration of technical skills with academic skills found within Career and Technical Education (CTE) pathways will help to ensure students begin a seamless matriculation into postsecondary programs that will yield the potential to secure high-wage and high-demand careers.

Research Questions

Two questions guided the researcher in this case study:

(a) What innovations are rural high schools in Kansas utilizing to facilitate Career and Technical Education (CTE)?
(b) What challenges do rural secondary schools in Kansas experience as students are preparing for postsecondary credential attainment, and how do they overcome them?

Purpose of the Study

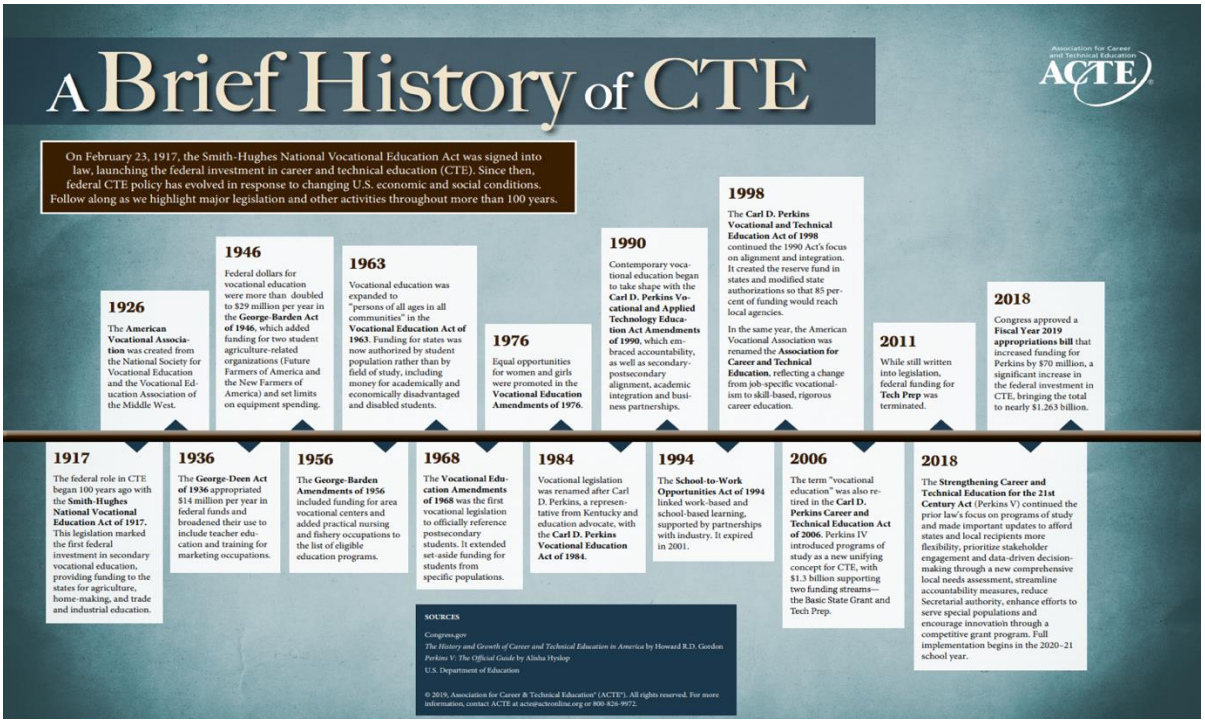
The purpose of this study was to provide purposeful insight into what approaches rural secondary schools in Kansas utilize to prepare their students for postsecondary programs aimed at skill

development for a 21st century workforce. This study embraced the, "reality that the precise path forward is unlikely to be identical for any two schools," (Rouleau, 2018, p.1).

Review of the Literature

CTE "It's More than Vocational Training". Career and Technical Education (CTE), formerly known as "Vocational Education," has origins that date back to the 20th century and may even be traced back to ancient times. (Gordon, 2003). Traditionally, vocational education was primarily established to prepare more students for careers with practical skills for the nation's farms, homes, and factories. "CTE is transforming vocational education consisting of low-level coursework and job training, replacing it with academic rigor, integrated, and sequential learning that aligns with and leads into postsecondary credential attainment" (American Institutes for Research, 2013, p. 2).

Throughout history the federal government has maintained a strong support for the relevancy career and technical education has provided to enhance our national economy through citizenry and job preparedness.



Comprehensive List of CTE Acts. The Association for Career and Technical Education (ACTE, 2018) asserts that,

> On the federal and state levels, 2018 was a significant year for CTE. On July 31, 2018, the President signed the Strengthening Career and Technical Education for the 21st Century Act (Perkins V) into law, which reauthorized the Carl D. Perkins Career and Technical Education Act of 2006 (Perkins IV). The reauthorization of Perkins signaled a federal commitment to and a recognition of the promise and value of high-quality CTE. (p.1).

Each state is responsible for and must devise a plan that complies with the federal CTE mandates to receive support from the federal government. The state of Kansas enacted "Excel in CTE" (formerly known as Senate Bill 155, [SB155]) in 2012. The Kansas State Department of Education (KSDE) provides useful information regarding "Excel in CTE" (SB 155) which provides free college tuition to high school students who enroll in coursework that would lead to careers in high-demand occupations in Kansas (KSDE, 2020). Senate Bill 155, or the Governor's CTE Bill (now referred to as "Excel in CTE") was passed into law on July 1, 2012 and reauthorized as "Excel in CTE" in 2018. The main purpose of the bill is to stimulate growth in Career & Technical Education at both the secondary and post-secondary level in Kansas. The Kansas workforce will increasingly demand a more highly technical and highly skilled worker and Excel in CTE (Senate Bill 155) is aimed at meeting those future demands. There are several parts to "Senate Bill 155" (Excel in CTE). The four financial aspects are:

- Tuition reimbursement for high school students enrolled in college-level CTE courses
- Incentivizing high school students graduating with an industry-recognized certification that lead directly to high-demand occupations in Kansas through a certification incentive program
- Transportation reimbursement to school districts transporting high school students off-campus to complete college-level CTE coursework
- CTE Marketing campaign to promote the positive impact of CTE on education and the workforce

The Association for Career and Technical Education [ACTE] (2018) also confirms that the state of Kansas appropriates $2.80 million from the State General Fund to provide students enrolled in grades 9-12 the ACT and the three ACT WorkKeys assessments required to earn a national career readiness certificate. ACTE (2018) reports that Kansas's FY 2019 budget:

- Adds $55,000 for CTE incentive payments
- Adds $650,000 for CTE transportation
- Adds $695,000 for technical education incentive payments to school districts
- Provides $7.30 million (for a total of $27.55 million) for FY 2018 and $8.30 million (for a total of $28.85 million) for FY 2019 to cover tuition for the Excel in Career and Technical Education Program, which aims to help more learners enter high-wage, high-demand careers by providing funding for industry recognized credentials and allowing secondary students to access CTE dual enrollment opportunities (p. 15).

Excel in Career Technical Education Initiative (SB-155)

October 2019

In 2012, a plan was launched to enhance career technical education in Kansas and better prepare high school students for college and careers. Under the Excel in Career Technical Education Initiative, Kansas high school students qualify for state-funded college tuition in approved technical courses offered by Kansas technical and community colleges. Postsecondary career technical education has experienced significant growth in the number of students participating in Excel in CTE courses since the program's inception.

PARTICIPATION

	AY 2011	AY 2012	AY 2013	AY 2014	AY 2015	AY 2016	AY 2017	AY 2018	AY 2019
Headcount	3,475	3,870	6,101	8,440	10,275	10,023	10,600	11,690	13,675
College Credit	28,000	28,161	44,087	62,195	76,756	79,488	85,150	92,092	105,084
Credentials	--	548	711	1,419	1,682	1,224	1,459	1,420	1,803

Source: KBOR KHEDS AY Collection 2010-2019; KSDE Credential Production

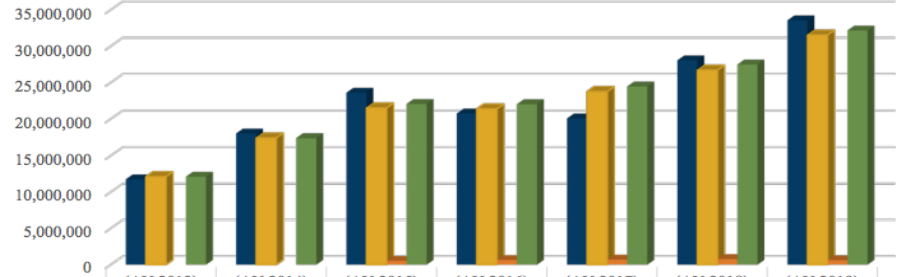
RESULTS

- Approximately 30% of participants complete a college-level certificate/degree in high school
- Nearly two-thirds of Excel in CTE students enroll in college and go on to earn more credits/degrees than traditional CTE students
- Excel in CTE credits lead to higher employment and higher wages of approximately $3,500 per year
- Excel in CTE give high school students a "head start" on college
- Excel in CTE provides talent for Kansas businesses

Source: Donna K. Ginther, Director, Center for Science, Technology & Economic Policy at the Institute for Policy & Social Research (2016)

STATE FUNDING

State funding for student tuition has not always been adequate to cover costs as enrollments grew. Colleges are prohibited from charging tuition to the high school students, so they absorb that cost from other sources.



	(AY 2013)	(AY 2014)	(AY 2015)	(AY 2016)	(AY 2017)	(AY 2018)	(AY 2019)
Appropriation	11,750,000	18,000,000	23,600,000	20,750,000	20,075,000	28,050,000	33,550,000
Excel in CTE	12,108,040	17,377,666	21,507,768	21,375,319	23,760,289	26,706,691	31,526,315
AO: Kansas			546,064	647,305	699,397	772,790	621,191
Total Costs	12,108,040	17,377,666	22,053,832	22,022,624	24,459,686	27,479,481	32,147,506

Total Costs does not include reductions to institutions due to allotment, proration, or performance agreements.

kansasregents.org

21st Century Rural Schools. Rural schools play a major role in preparing a workforce to meet the national demands for the 21st century. Rural schools are included in the literature review due to a sole focus on rural secondary schools in Kansas. More than half of the school districts in our nation are located in rural areas, and one-third of public schools in our nation are considered rural (Ayers, 2011; Johnson et al., 2014; Morehead, 2015). More than 10 million students are enrolled in rural schools, and account for more than 21 percent of K-12 students in the United States (Johnson et al., 2014; Fowles et al.,2014).

Demographic traits of rural schools are also shifting to represent larger numbers of students, "historically not served effectively (i.e. the students for whom performance is described in terms

of achievement gaps)" (Johnson et al., 2014, p. 28). Rural communities are also transforming culturally, economically, and socially as "technological advances and globalization promise more transformation for the industries and trades that have traditionally defined rural places, bringing challenge, but also giving rise to new economies and opportunities" (Tieken & San Antonio, 2016, p. 131). These seismic shifts in the dynamics of rural communities today will affect children whom will be responsible for securing a viable future for their communities (Johnson, 2013).

Rural school districts do face unique challenges when rising to the challenge to integrate academics with career and technical education. The Association for Career and Technical Education [ACTE] (2015) identifies one such challenge as "serving small populations that are geographically dispersed, making it difficult for school districts and community colleges to offer robust education programs" (p. 1). Over the past century, school consolidation in rural areas continues to threaten rural schools' viability by increasing distances for student commutes and opportunities for stakeholder involvement, including extracurricular involvement, when surrounding local schools are closed (Schafft & Harmon, 2011).

In rural schools, it is often difficult to find teachers who hold the necessary credentials to teach CTE coursework (ACTE, 2015). Furthermore, rural schools face the difficulty of retaining (or recruiting) teachers and administrators, and often the poorest rural schools tend to have a larger number of inexperienced educators (Fowler, Butler, Cowen, Streams, & Toma, 2014; Schafft & Harmon, 2011; Schafft, 2016). "There is little reason to believe that local governments in remote, economically depressed areas will be more successful in attracting highly credentialed, well-trained individuals from outside those regions" (Fowles et al., 2014, p. 517). Retaining teachers is also a challenge as high turnover rates in rural schools among administrators and teaching staff are attributed to an increase of high-need student populations, aging infrastructure, and limited resources (Schafft & Harmon, 2011). Distant commutes also limit the appeal of employment within rural areas (Lowe, 2006; Fowles et al.,2014).

Methodology

In this qualitative instrumental case study, the researcher's interest is to understand the methodologies and implications for integrating CTE with an in-depth, focused, thick-rich description of more than one particular case. "In instrumental case study research, the focus of the study is more likely to be known in advance and designed around established theory or methods" (Mills, Durepos, & Wiebe, E 2010, p. 2).

Sampling Strategy. This study includes data collected from six participants, two from each site associated with of three cases (school districts). The study included, but was not limited to, administrators in selected studies or other educational practitioners knowledgeable about CTE implementation in Kansas as it contributes to increasing postsecondary credential rates among Kansas graduates in rural Kansas schools (Mertens & Wilson, 2012).

Purposive-chain sampling in this study reflects the researcher's deliberate choice of participants due to the criteria each participant possesses (Etikan et al., 2016). The researcher selected only cases deemed as Mercury, Gemini I, or Gemini II schools. Each participant was coded as

Participant "1" (P1) and Participant "2" (P2) as identified in the table below. The school identifier is case A, B, or C and the role each participant represents within each case was not coded to ensure confidentiality. A snapshot of participant positions and redesign category are found in Table 1.

Table 1 Participants' Positions and Selection Criteria

Participant Identifier	School Identifier	Role	Redesign Category
P1	A	Principal	G1
P2	A	Teacher Leader	G1
P1	B	Assistant Principal	GI
P2	B	Teacher Leader	G1
P1	C	Superintendent	M
P2	C	Principal	M

Criteria. Intentionality of the researcher was intended to gain a rich understanding of educational perspectives regarding postsecondary preparation in sites with rural commonalities in Kansas. Each case was purposely selected to meet the following criteria (a) must be identified by the Kansas State Department of Education as a Mercury school (one of seven school districts who launched redesign of schools in Kansas in 2016, "M") or a Gemini I school (one of twenty-one school districts who launched redesign of schools in Kansas in 2017, "GI") with a focus on increasing postsecondary credential attainment rates; (b) must be identified as a rural school; (c) must be classified as a 1A or 2A school as set forth by the Kansas State High School Activities Association (KSHSAA) with no more than 156 students enrolled in high school; (d) and a willingness to participate in the study.

Rurality and School Classification. Rural secondary schools in Kansas were selected based on the definition of a rural school from the National Center for Education Statistics ([NCES], 2007). "Urban areas with a population of 50,000 or more are designated as urbanized areas, and those with a population less than 50,000 but greater than 2,500 are designated as urban clusters" (NCES, 2007). For the purposes of this study, each rural case was selected based upon distance from an urban area and urban cluster. Each case selected represented a distance of 40 miles or greater from an urban area, or greater than 10 miles from an urban cluster. A snapshot of school site selection criteria is found in Table 2.

Research Design. The data include a primary emphasis on interview data with rural school educators and were supplemented by observations, artifacts for interpretation, and construction of meaning as themes emerge from the analysis of the data. The interview questions were arranged for open-ended responses lending to narrative data acquisition while encouraging participants to elaborate their responses in full detail.

Table 2 School Site Selection Criteria

School District Identifier	Rural School Classification (Y=Yes)	Miles from Urban area in Kansas	Miles from Urban Cluster in Kansas	Mercury(M) Gemini I (GI)	Student Population	School Classification
Site A	**Y**	**49.9**	**26.4**	**G1**	**153**	**2A**
Site B	**Y**	**209.2**	**23.8**	**GI**	**71**	**1A**
Site C	**Y**	**79.4**	**10**	**M**	**132**	**2A**

Data Process. The analysis of data in this study incorporated inductive data analysis to construct meaning of participants' perspectives as they relate to preparing students for postsecondary educational attainment by identifying patterns or themes (Creswell, 2017). Themes constructed in the research evolved from coding within the realm of data collected in the form of interview transcripts and artifacts.

Trustworthiness and Credibility. Increased trustworthiness of the study was achieved in this study by incorporating effective, well-established qualitative practices in the form of thick-rich description of the data, member checking, peer review, and incorporation of multiple data sources (triangulation) of data. Corroboration of the findings from this study was intended to be achieved by "the participation of informants within several organizations so as to reduce the effect on the study of particular local factors peculiar to one institution" (Shenton, 2004, p. 66). Peer review debriefing sessions were also integrated within the study. A snapshot of the peer reviewers' positions and levels of experience are found in Table 3.

Table 3 Peer Reviewers Position and Levels of Experience

	Current Position	Current Highest Level of Education	# of Years served in Public Education	# of Years in Educational Leadership
Reviewer A	Superintendent	Doctoral Degree	34	8
Reviewer B	Retired Superintendent	Doctoral Degree	38	25

School A Findings

School A Description. School A is a junior senior high school inclusive of grades 6-12 with 287 students and is designated as a Gemini I school by the Kansas State Department of Education. School A represents the largest of three schools participating in this study with a high school enrollment of 153 high school students in grades 9-12 and is classified as a 2A school. It is considered a rural school employing 27 certified teachers and is represented by three communities in close proximity with one another. It is located 49.9 miles from the nearest urban area and 26.4 miles from the nearest urban cluster, so it is considered a rural school district.

Opportunities for Career & Technical Education. School A is progressive in nature when it pertains to providing exploration for career and technical education with twenty pathways available to pursue through this school. Table 4 below indicates the pathways associated at this school:

Table 4 KSDE approved Career & Technical Education Pathways at School A

Consumer Services	Early Childhood Development	Family & Community Services	Teaching / Training	Government & Public Administration
Health Science	Production	Cartography	Biomedical	Engineering
Agricultural Science	Agricultural Plant Systems	Agricultural Structural Power	Audio-Visual Communications	Audio-Visual Arts
Business Entrepreneurship & Management	Business Finance	Restaurant Management	Program & Software	Web & Digital

School A values their twenty CTE pathways and vows to continue implementation with the support of the community and use of technology. This school benefits from its contribution to a comprehensive virtual network of curricular options through a virtual interlocal partnership established between four school districts in geographical contiguity. This network of virtual coursework offers curricular choice to students and adults in the region when a specific class is not offered on campus. This network is free of charge and offers free laptops for use when students have applied and are admitted to the program. Though this school is located in a rural area, the leadership creatively ensures the benefits of postsecondary training with on campus and virtual resources through the application of technology.

School A boasts a small private college in town so “there tends to be a higher value of education in our community and CTE is just kind of a natural fit” (PA1). Included in the twenty pathways, School A offers a teaching and training pathway as an initiative to grow their own teachers. “My son’s teacher this year has come back as a graduate. Education was a passion of hers and we were fortunate enough to get her back” (PA1). Job shadowing associated with CTE pathways is

also facilitated at school A to provide real-world experiences for students. Students are allowed to travel to a county community college to receive specific skill training in welding for the first couple hours of the day. “CTE enhances personalized learning, project-based learning, career exploration, and it can save kids a lot of money through career exploration” (PA2). It was mentioned that even though there are three participating postsecondary institutions offering coursework in CTE at School A, there is not a lot of collaboration that occurs between postsecondary and secondary institutions (PA1).

Real-World Experiences. School A reflects an intentionality toward providing real-world learning experiences for students. According to both participants at School A, students have the opportunity to be engaged in the community with internships. “We provide internships in our preschool classrooms, our daycare centers, our banks, welding ships, and most are at the hospital” (PA1). In addition to internships, School A is beginning discussions about alternative credits. Alternative credits would provide students with project-based learning experiences that integrate standards across the curriculum while providing relevant learning experiences. The sense of urgency and intentionality to provide real-world learning experiences were summed up as, “Well, they need to be able to sit here and do this worksheet because they are not going to get this task done. – At no point in time does that task need to be done. But that, THAT (work experiences) does need to get done” (PA1).

Rural School Dynamics. School A participants shared many aspects about the dynamics of teaching and learning in a rural school. Most of the patterns are challenges, but strong support from the community is invaluable. Often rural schools are the heart of the community with a strong sense of pride. Both participants in School A shared about the supportive community with the school district representing three different communities. School A has a supportive board of education, support from patrons, and from local industry. In addition, School A boasts a community foundation providing grants and support as needed.

There are, however, challenges that both participants mentioned. Due to a small staff, School A participants note that the roles they fill are many. Both participants stated that they “wear several hats.” There is no technical college in town offering CTE so many students would need to travel forcing many to enroll in online coursework. It is often difficult to attract highly qualified teachers, let alone CTE teachers, to rural areas unless they have roots in the area. Salaries in rural areas often do not compete with urban counterparts. This shortage of staff has caused School A to think outside the box and partner with five surrounding rural communities to offer an online network to provide CTE coursework online. Finding business and industry partners to send students for application level work experiences is often a challenge, but School A has a hospital in district. Hospitals often represent many different types of career exploration from health careers, to hospitality, to administration, to accounting, and culinary to name a few. Both participants also referenced the challenges with a small student body and how that may impact loss of instructional time and data reports to the state of Kansas. Additionally, small class sizes can impact data reported to the state. For example, in a class of twenty students, one student can impact data reported to the KSDE as much as five percentage points so rural school data can be misleading when looking at overall data reported to the state (PA1).

Summary of School A. The community support for CTE and real-world learning experiences is strong as a result of opportunistic communication efforts. School A is committed to maintaining a high postsecondary credential attainment (postsecondary success) rate by providing several career pathways (including teaching and training) and numerous internship and civic engagement experiences to increase real-world experiences. School A recognizes that student experiences promote deeper learning and acquisition of necessary skills required for success in school and in life.

School B Findings

Description of School B. School B is a junior senior high school designated as a Gemini I school by the Kansas State Department of Education and inclusive of grades 6-12. The entire school district's enrollment is 110 students with 15 certified teachers on staff. School B represents the smallest enrollment of the three cases selected for the study with 71 students enrolled in grades (9-12) and is classified as a 1A school. School B serves as the only secondary public school in the entire county.

What's Best for Kids? The first thing a visitor may notice during a visit to School B is that it seems there is a great sense of school pride and warm atmosphere. Upon moving into the entrance of the building a large sign displays, "What's Best for Kids?" This focus is reiterated when visiting with school officials that the success of each student is important in this school in whatever form that success may look like during secondary educational experiences and the quality of life after graduation.

Career & Technical Education. Despite challenges presented with rurality, this school is rising to the challenge to ensure students have opportunities for career exploration and curricular choices associated with career and technical education. Virtual and on-campus coursework is offered on campus to facilitate career and technical education (CTE) pathways. CTE offerings are enhanced through partnerships established with a neighboring school district and sharing of staff. When coursework is not available on campus, a partnership with an education service center located in the region provides online career coursework associated with "Excel in CTE" (otherwise referred to as SB 155). According to one participant in the study, "We don't transport anybody for dual-credit. It's just too far" (PB1). Notwithstanding of challenges presented by rurality, this school still offers nine CTE pathways for career exploration. Table 5 below indicates the pathways associated at this school:

Table 5 KSDE approved Career & Technical Education Pathways at School B

Audio-Visual Communications	Biochemistry	Business Finance	Construction	Family, Community, & Consumer Services
Manufacturing	Mobile Equipment Maintenance	Teaching/Training	Web & Digital Communications	

The main pattern emerging from CTE at school B is the opportunity for student interests to drive some of the opportunities for career exploration and skill acquisition. School B is located in an area where agriculture is the main industry, so kids advocated for an Agriculture pathway with the Future Farmers of America (FFA) program recently being established as a career and technical student organization (CTSO). Both participants at School B mentioned the relevance of learning that comes with pathway participation as many students enroll in pathway coursework when they have an interest in specific careers associated with the pathway. Both participants at this school recognized the need for career pathways to develop skills connected to student career interests, however, both participants noted they are still learning about CTE. Another participant mentioned the difficulty that comes with finding qualified candidates to teach CTE coursework in a rural area.

Rural Schools. School B participants shared many aspects about the dynamics of teaching and learning in a rural school. A heavy emphasis was placed upon the scarce resources that are available to rural schools. School B has formed a partnership with a neighboring school district located sixteen miles away and shares three teachers. This means that School B gets an Agriculture teacher, a Physics teacher, and a Family and Consumer Science teacher for two to three hours a day. “We have the teacher we share for about 2 and a half hours each day and squeeze every minute we can” (PB1). The participants at School B mention the challenges associated with having a small teaching staff. School B is no exception when it comes to staff wearing many different hats. Both participants at this site mention that with a small staff, you still have to complete the same tasks. There is just less help. With many roles comes a heavier workload. Often, one teacher represents a whole department. “If a teacher is weak in a certain aspect of content, there is no other person to lean on for support” (PB2). Though content support may be limited, technology has made collaboration more accessible. “We created Google Communities through our league where people can get on and share. If you don’t have those supportive connections in your content, sometimes there’s nobody that can help you. You are just isolated” (PB2). Though neither participant shared about the teaching/training career pathway, School B has established it. Rural schools often “grow their own” teachers, and this could benefit School B as teaching positions are needed filled in the future. Both participants also mentioned that often teachers are hired that are working through alternative licensure programs for teaching. Though this does not indicate those individuals are incapable of good teaching, it does indicate there is a teacher candidate shortage for rural areas. In fact, School B employs a part-time counselor and has formed a partnership with a behavioral and health service center in a town twenty-four miles away.

CTE is also impacted at School B with limited industry in the area. It is often difficult to find industry representatives in the area to serve on advisory committees for the career pathways. “It is difficult to find an industry representative in the realm of biochemistry when that industry is not available in our location” (PB2).

Though there are challenges with the dynamics of rural schools, both participants mentioned the benefit of a smaller enrollment. “You know the students. In a small district you can take that data and have personal conversations. “What happened this year? What are your plans” (PB1)?

Tracking postsecondary credential attainment is more manageable with a smaller number of kids who you know personally.

Both participants at School B site their location as a limitation specifically regarding career exploration and collaboration. “We don’t transport anybody for dual-credit. It’s just too far” (PB1).

Summary of School B. At School B it is no longer the traditional mindset of graduating students who have earned enough credits. School B has been creative in providing online college coursework, though both participants stated there is little dialogue that happens between them and the postsecondary institution forty-five miles away that supports the online coursework. School B has integrated college and career preparation initiatives, such as, work-study, college and career exploration off-campus. Again, the purpose for transforming the learning environment at School B rang out loud and clear with both participants revisiting the stance of “What’s Best for Kids?”

School C Findings

Description of School C. School C is located in a school district that spans 269 square miles and is inclusive of two communities 17.5 miles apart. This school is a junior/senior high school representing grades 7-12 and is designated as a Mercury redesign school by the Kansas State Department of Education. It is situated in north central Kansas 79.4 miles from the nearest urban area and 10 miles to the nearest urban cluster. Enrollment at this school is 132 students in grades 9-12 with 19 certified teachers on staff classifying it as a 2A school (KSHSAA, 2018).

Career and Technical Education. Many opportunities to explore potential careers with career and technical education are present at School C. One participant noted the proximity to the nearest urban cluster as an advantage when implementing CTE options for students.

> We haven’t completely overcome challenges with CTE implementation. In this town, not necessarily the other town associated with the district, it’s a little bit easier because it’s only 10 miles from the nearest urban community. We have made connections with the Chamber of Commerce. We just need to enhance those connections to get kids down in those businesses (PC1).

The focus of this school is to enable students to take initiative in learning toward the desired outcomes they would like to achieve. This school continues to search for ways to help students learn from their experiences and providing opportunities for students to experience, first-hand, what is involved with various careers they may be interested in pursuing. At the time of this study, the following CTE pathways had been approved by KSDE for this school. (See Table 6)

Table 6 KSDE approved Career & Technical Education Pathways at School C

BioChemistry	BioMedical	Business Finance	Comprehensive Agriculture
Health Science	Power Structural & Technical Systems	Visual Arts Pathway	Web & Digital Communications

Both participants understand the importance of CTE and are seeking improvement in terms of certifications and internships. Student acquisition of certifications while in high school increase the likelihood of being gainfully employed. “I’m working to get kids locked into area colleges. I give them an elective and a college elective credit. They leave here at 11am, get in their vehicle, and they’re in welding the rest of the day. Those kids when they walk across the stage in May, they are going to get a degree from me and a welding certificate in their back pocket” (PC2).

A strategy used by School C to help with efficiency and management of the career pathways is to pay a teacher a supplemental stipend to help ensure coursework is mapped and approved by KSDE as well as updates and reports required to maintain the career pathways. It is not a possibility to employ support staff like in larger urban schools. In rural schools you will rarely find anyone employed with a title of CTE Director. Usually this position is carried out by the principal or a teacher that may earn a stipend. School C is willing to work with the board of education to continue providing opportunities and experiences for students and utilize staff and resources to the best of their ability.

As far as overcoming challenges with how rurality may impact CTE, School C participants both expressed they haven’t overcome all challenges yet. However, there is great support for CTE, and improvements are a current work in progress. We are going to continue to work on CTE and internships.

Rural Schools. A main theme emerged identified by participants at School C in regard to characteristics of rural schools is a lack of resources. There were several patterns cited under this theme which include a lack of staff, lack of fiscal capacity, lack of valid curriculum, and a lack of business and industry in close proximity. In many rural schools there is little fiscal capacity to hire a large staff to handle many responsibilities. Instead, a small number of staff members assume multiple roles which burden staff with heavy workloads. Heavy workloads in turn, cause turnover and burnout. Necessary tasks are often carried out in a hodge-podge fashion decreasing efficiency. “The challenges? Well we haven’t overcome them, frankly. We’ve got one staff member up here that really works well on getting kids to where they’re doing job-shadowing stuff, and that’s not even her job” (PC1). “Yeah, we’re going to lose good people because we’re burdening them down” (PC2). One obstacle School C has overcome with limited staff is transitioning from a counselor-centered student advising model to a hybrid advisory model where teachers serve as advisors to small groups of students to increase efficiency with mentoring students and lightening the workload of the counselor. Each teacher is assigned an advisor role with assigned students to mentor.

> “A part-time counselor trying to counsel 200+ kids on their enrollment. That’s what it is. Misinformation gets out there. She didn’t have the time or the connectivity with the kids

> to fix that. Now we do. Now we've only got 12 kids per teacher instead of 200 for one person" (PC2).

Due to staff capacity, a valid curriculum is not present in many small schools. "In schools our size, we don't have curriculum people, we don't have assessment people, you know, we are ALL that. The curriculum generally is the textbook in most small schools" (PD1). Often curriculum is supplemented with online coursework as well with small staff numbers. "We have no guaranteed curriculum. If I hire an Algebra I teacher next year, they are going to teach Algebra in a different way, style, and order than what my Algebra teacher did this year" (PC1).

Summary of School C. School C promotes a learner-focused school environment reflective of shared responsibilities by all stakeholders. Intentionality in regard to academic and non-academic skill development is a priority through meaningful interactions with students in all settings. Career Pathways are offered at this school with intent to improve real-world experience through application courses, however no Teacher/Training pathway is available.

Summary of CTE Integration in Schools A, B, and C

Each school's ability to offer real-world learning experiences in the form of application level coursework or internships was the most referenced. This aligns with providing real-world experiences, or the desire to improve these experiences among all schools.

All schools cited challenges with rurality but are working to reach out into surrounding communities to tap into additional resources. Technology offers virtual capabilities as well. Schools that cited challenges with the most frequency were schools farthest geographically from the nearest urban area or cluster.

All schools reported having very good relationships with postsecondary institutions through integration of dual and CTE college coursework. On the other hand, all participants in this study mentioned there was no collaboration with postsecondary institutions other than an occasional admissions representative visiting the school or through enrollment processes for dual credit or CTE. There was no evidence cited to indicate true collaborative partnerships between secondary and postsecondary institutions have been established.

School B has implemented a formal plan for internships, work-study, or job shadows to validate learning and increase rigor through and application, documentation, and evaluation of and by students. School A and C are the only schools who cite offering student certifications prior to or along with high school graduation. A participant at School C is the only one who mentioned the benefit of blending academia with CTE to enrich cross-curricular, competency-based mastery. No participants mentioned the teaching/training career pathway. A teacher/training pathway could potentially be a beneficial strategy to "grow your own" teachers, especially in rural areas where students may want to remain. This pathway also provides another option to civically engage students within the school district by helping younger students in their internship/application coursework.

Table 7 Summary of Categories and frequency of mentions for each category for Career and Technical Education (CTE) across each School Site

Patterns	A	B	C
1. Each school has committed to improving experiential learning through application level coursework and/or internships, work-study, or job shadows.	4	17	5
2. Each school supports implementation of and recognizes the benefits of CTE.	10	2	6
3. Each school works to provide opportunities for CTE despite limited resources in rural areas.	1	12	3
4. Each school mentioned the benefit of additional funding for CTE.	2	3	3
5. Each school offers certifications prior to graduation or in conjunction with high school graduation.	2	1	4
6. School C recognizes collaboration between academia and CTE to increase potential for cross-curricular mastery of standards.	0	0	1
7. Teacher/Training pathway is offered in response to a teacher shortage and in attempts to "grow their own" teachers with hard to fill vacancies in rural areas.	Yes	Yes	No

Categories for Rural Schools (RS). The categories that emerged are insightful regarding the challenges, but there are some benefits of rural schools as well. Though there may be challenges with rurality, each school was in the process of considering how to address them. Technology helps with virtual meetings and online classes. There must be a willingness to be flexible with schedules and travel in a small district.

The benefits did not make the code category either as they were sporadic. Participants at school A cited were that rural communities are typically very supportive of the school. Participants at school B stated a smaller student body at rural schools enables strong relationships and tracking of student progress after high school.

Table 8 Summary of Categories for Rural Schools (RS) and frequency of mentions for each category across each School Site

Patterns	A	B	C
1. Each school cited limited resources (staff, curriculum, fiscal) due to geographic location.	5	22	22
2. Each school cited limited access to business and industry to enhance real-world learning offered in the form of work-study, job-shadow, or internship. Limited	7	2	5

representatives are available to serve on advisory committees associated with career pathways.			
3. Each school cited that staff in rural schools must complete the same tasks associated with the job with less support staff. Multiple "hats" are worn by each staff member.	4	8	1
4. Two members at two schools frequently cited the impacts of one teacher per department on school culture and productivity in small rural schools.	0	12	0

Themes Identified from the Intersection of Patterns Across Cases. After multiple examinations of each interview transcript, analytic memos, notes, codes, and categories, themes began to emerge. The final task in the analysis was to re-examine the patterns and categories revealed in first-cycle and second-cycle coding methods. Six themes emerged as shown in Table 9.

Table 9 Themes Emerging from the Intersection of Patterns Across Cases

Themes Emerging from the Intersection of Patterns Across Cases
1. Intentional and deliberate enrichment and development of non-academic competencies that promote college and career readiness must be integrated in schools to promote postsecondary credential attainment.
2. Students must be empowered and granted ownership of their learning to develop student agency and academic tenacity necessary for postsecondary credential attainment.
3. Personalized and relevant real-world experiences are necessary and should reflect student interests to develop skills for seamless matriculation into postsecondary training.
4. Increasing the amount of relevant experiential learning associated with work-study, job-shadow, internship, and civic engagement will promote postsecondary credential attainment with continued improvement and support for CTE pathways.
5. Rural schools often face obstacles with limited resources, isolation of staff, and isolated location; however, the transformation to a holistic student-centered approach will positively impact postsecondary credential attainment.
6. NSC data informs postsecondary credential attainment and is a good tool to measure progress. A student-centered approach to learning will boost postsecondary credential attainment rates.

Discussion

There are challenges with rurality and implementation of career pathways due to limited resources. Still, all cases in this study have implemented career pathways, however, all schools in this study supplement their CTE curriculum with online coursework as it is common for rural schools to have small teaching staffs. School A has even pooled with four other rural school districts in the area so that all five communities can enhance their CTE offerings online. Molefe et al. (2017) conclude in their study that, "the rise in online learning options has reduced logistical impediments to attaining a postsecondary degree, particularly for rural students" (p. 1).

This study found there are challenges associated with attributes of a rural community that are still to be overcome. However, there are still things that can be impacted, and one of them is increasing postsecondary credential attainment rates with innovative school redesign practices. Given the requirements for job qualifications in the 21st century and the fact that many schools remain solely focused on academics, it makes sense that on average as a nation, we are not successful at ensuring students matriculate into or finish programs after high school. The only way to fulfill the workforce requirements is by shifting our focus from a sole intent of high school graduation and focusing on learning experiences to develop all of the following skills in an integrated approach: academic, cognitive, technical, employability, and civic engagement (KSDE, 2019). CTE helps lead to postsecondary credential attainment which leads to success in careers, which in turn, contributes to overall quality of life as an adult. It is our collective duty to ensure our youth are equipped with the academic and non-academic skills to be productive in a 21st century society that is competitive on a global scale. Our economic stability and quality of life depend on it.

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