Summer 2024

Exploring How Rural Schools and Communities Influence the Academic Journeys of College Students in STEM Majors

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Cover Page Footnote

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An incongruence exists between the growing job opportunities in rural areas and the educational opportunities provided to rural students, especially in science, technology, engineering, and mathematics (STEM) fields. Positive change is possible, however. As one means to tackle this complex issue, this study sought to understand the perceptions and experiences of students who graduated from rural high schools and pursued STEM majors in college as exemplars of rural students who pursued postsecondary education in STEM disciplines. This phenomenological study explored how college students in STEM majors perceived their rural schools and communities as influencing their academic journeys. Rather than focusing only on deficits and inequities associated with rurality, this study employed the rural cultural wealth (RCW) framework to highlight the agency and capital rural students employed within their journeys. Qualitative data analysis revealed that participants' comments about their rural schools and communities were diverse. The findings also aligned and extended current literature and the RCW framework. These insights into these STEM students' rural backgrounds and academic journeys were then used to create recommendations for future P–20 educational research, practices, and policies.

According to the Economic Research Service of the U.S. Department of Agriculture (USDA), over the last two decades jobs in rural areas have gone through substantial changes, with a shift toward more positions that require high-skill and college-educated workers (Davis et al., 2022). However, educational inequities persist based on the locale classifications of the high schools that students attend (National Student Clearinghouse Research Center [NSCRC], 2022). Compared to their suburban counterparts, rural students are less likely to enroll in postsecondary education immediately after high school, persist from their first to second year of college, and complete their college degrees within six years of high school graduation (NSCRC, 2022). Research also suggests that additional gaps exist in science, technology, engineering, and mathematics (STEM) education preparation by locale, with rural schools less likely to offer students advanced coursework and extracurricular programs in STEM and having lower STEM teaching capacity than suburban schools (Saw & Agger, 2021; Showalter et al., 2017). These gaps are likely related to why rural students enroll and complete STEM postsecondary degree programs at rates lower than their suburban peers (NSCRC, 2022; Saw & Agger, 2021).

These data indicate an incongruence between the growing job opportunities in rural areas and the educational opportunities (especially in STEM) provided to rural students. However, the "structural circumstances facing rural education are amenable to change" (Crumb et al., 2023, p. 128). Thus, one way to address this divergence is to understand the perceptions and experiences of students who graduated from rural high schools and pursued STEM majors in college as exemplars of rural students who persevered in postsecondary education within STEM disciplines. This qualitative study explored how college students in STEM majors perceived their rural schools and communities as influencing their academic journeys. Rather than focusing only on deficits and inequities associated with rurality, this study employed the rural cultural wealth (RCW) framework to highlight the agency and capital rural students employed within their journeys (Crumb et al., 2023). These insights into these STEM students' rural backgrounds and academic journeys were then used to create recommendations for future P–20 educational research, practices, and policies.

Literature Review

Although awareness of rural America has increased since the 2016 U.S. presidential election, policymakers and scholars still often overlook it (Showalter et al., 2019). Rural education research

historically has been laden with deficit perspectives, blaming rural people and places for their problems rather than emphasizing their assets (Crumb et al., 2023). We have constructed this literature review to assist readers in understanding our study by defining rurality, discussing rural students' educational attainment, and examining the influencing factors of rural students' academic journeys and academic journeys specifically in STEM.

Defining the "Rural" in Rural Students

A lack of definitional boundaries has led to a lack of clarity within rural education literature (Thier et al., 2021). For instance, Thier et al. (2021) found that only 30% of rural education studies defined rurality, with rural-focused journals characterizing rurality twice as often as non-rural-focused journals. However, we intentionally employed the National Center for Education Statistics locale codes (NCES, 2022) for this study. For us to be transparent with the types of rural areas represented here, participants for this study graduated from high schools in rural or town locales. We define *rural areas* in our study as both rural and town locales because both these locale types are outside urbanized areas (NCES, 2022). Additionally, this delineation is consistent with other research, like the NSCRC (2022).

The difference between these locale types is that rural locales are situated within rural territories (places with populations less than 2,500), while town locales are located within urban clusters (places with populations more than 2,500 and less than 50,000; NCES, 2022). Both rural and town locale types are further characterized into three subtypes (fringe, distant, and remote) based upon proximity to urbanized areas (for both rural and town locales) and urban clusters (for rural locales only; NCES, 2022). See Table 1 (online only https://scholarsjunction. msstate.edu/ruraleducator/vol45/iss3/) for expanded descriptions of these subtypes.

Educational Attainment of Rural Students

Educational attainment patterns exist based on where students live within the NCES locale codes. These patterns are often less favorable for rural students compared to suburban students. For instance, the NSCRC (2022) reported that 62% of suburban students from the high school class of 2021 immediately enrolled in a higher education institution compared to 56% of rural students. Additionally, the percentage of suburban high school students from the

class of 2019 who persisted from their first year to their second year in college was higher than that of rural students (85% vs. 80%). Gaps also existed in completion by locality. For the high school class of 2015, 49% of students from suburban schools and 41% of students from rural schools completed a college degree within six years of high school graduation (NSCRC, 2022). These data suggest that rural students are less likely than their suburban counterparts to enroll immediately in college, persist, and complete their college degrees.

Beyond national statistics that paint a broad picture of rural students' educational attainment, it is also critical to consider the diversity within and between rural communities. For example, Showalter et al. (2019) stated, "While some rural schools and places thrive, others continue to face nothing less than an emergency in the education and well-being of children" (p. 1). Educational attainment is also heavily influenced by sociocultural factors like race and ethnicity, gender, and age. For instance, White students from rural areas are more likely to graduate high school, attend college, and graduate from college than Students of Color from rural areas (USDA, 2017). Rural women are more likely to complete associate and bachelor's degrees than rural men, and people within younger age cohorts in rural areas are completing higher levels of education than older age cohorts (USDA, 2017).

Influencing Factors of Rural Students' Academic Journeys

The literature includes a plethora of factors that influence rural students' academic journeys. Prior research has highlighted that students in rural areas face obstacles that negatively impact education and postsecondary plans, such as a lack of resources, inadequate teaching, lower socioeconomic status, extended school commutes, and parental unemployment (Bright, 2018; Gibbons et al., 2020; Lavalley, 2018). While some students describe the size of their rural areas as an advantage, some find it a hindrance because with the smaller size came a lack of resources (e.g., computers and textbooks; Morton et al., 2018). Students' region of residence and perception of the education needed for career goals also influence educational aspirations (Schmitt-Wilson et al., 2018). Perceived employment opportunities additionally impact students' educational choices (Morton et al., 2018). Decisions to pursue opportunities in postsecondary education

outside their rural home area differ between women and men, and they are influenced by families and communities, rural identity, and perceptions of job opportunities (Agger et al., 2018). Female students enroll in postsecondary institutions at a higher rate than their male counterparts, who have higher perceptions of job opportunities within their rural communities (Agger et al., 2018). Further, financing college is a concern for students and can be a deterrent to pursuing postsecondary education (Ardoin, 2018; Cain, 2021; Morton et al., 2018), along with the concern of managing the social aspects of college (e.g., maintaining focus within the social environment; Morton et al., 2018). Students' perceptions of their ability to meet the standards of collegiate academic rigor also influence their perceptions of college access and success (Hlinka, 2017; Morton et al., 2018).

While systemic barriers can blind rural students to the opportunities that await them and lead them to believe opportunities for postsecondary education are not within reach or attainable, several vital factors can positively influence students' academic journeys, allowing them to envision the opportunities and success that await them. For instance, several research studies highlight the importance of students' perceptions of expectations, support, resources, and access. Available opportunities, families, communities, school officials, and friends have varying impacts on students' postsecondary aspirations and pursuits (Agger et al., 2018; Crumb & Chambers, 2022; Means, 2019; Mitchall & Jaeger, 2018; Morton et al., 2018; Nelson, 2016). Personal motivation especially is an influential factor in postsecondary education pursuits (Hahn & Price, 2008; Mitchall & Jaeger, 2018). Families also can impact such motivation by providing norms and setting expectations for students (Agger et al., 2018; Morton et al., 2018) or limiting students' potential via a lack of support, expectations, or an emphasis on familial obligations (Mitchall & Jaeger, 2018).

Teachers, school counselors, advisors, and friends are additional sources of social capital needed to pursue college aspirations, but the usefulness of these agents varies for students (Means, 2019; Morton et al., 2018). Teachers may focus on the grades needed to graduate, while school counselors respond to questions on the application process, college advisors guide them in accessing the necessary resources to pursue college, and friends provide encouragement and motivation to fuel college aspirations (Morton et al., 2018). Within a

study of Black, gifted, underachieving participants, social capital connections to people within the school and the community (e.g., prominent community business people, teachers, and coworkers) influenced college-going students (Sewell & Goings, 2020). However, it is essential to note that the lack of support and belief in students' potential was an initial obstacle to their postsecondary pursuits (Sewell & Goings, 2020).

Influencing Factors of Rural Students' Academic Journeys in STEM

Particularly regarding STEM education, the National Science Board stated, "Enabling all Americans to receive high-quality STEM education and to pursue any S&E [science and engineering] field of study or career are critical components of sustaining and growing the U.S. STEM labor force" (Burke et al., 2022, p. 3). However, disparities persist in K–12 STEM education, student performance, and the affordability of higher education, challenging STEM education in the US (Burke et al., 2022). Differences in STEM education access and quality based on students' race or ethnicity, socioeconomic status, geographic region, and/or school locale persist (Burke et al., 2022; Crain & Webber, 2021; Saw & Agger, 2021).

Focusing on the last point of school locales, prior research has shown that students who attend rural schools often have less access to advanced STEM coursework (e.g., advanced biology, chemistry, physics, and Advanced Placement [AP] courses), STEM extracurricular activities (e.g., clubs, science fairs, competitions), informal STEM educational opportunities (e.g., museums and summer camps), and STEM role models (e.g., teachers, industry leaders) compared to their peers at more urbanized schools (Crain & Webber, 2021; Fisher et al., 2021; Lavalley, 2018; Saw & Agger, 2021; Showalter et al., 2017). Teachers in rural schools also are more likely to have less rigorous educational backgrounds and less access to high-quality and relevant professional development, including math and science training opportunities, than suburban teachers, limiting their STEM teaching capacity (Lavalley, 2018; Saw & Agger, 2021).

While nationally there is a focus on increasing diversity in STEM (National Science Foundation & National Center for Science and Engineering Statistics, 2019), equitable opportunities to pursue STEM careers are not afforded to all students,

particularly gender and racial minority students (Cabell et al., 2021; Crain & Webber, 2021; Saw & Agger, 2021). Limited access to quality education and advanced courses to prepare students for the academic rigor of college can impact postsecondary pursuits. For students who encounter systemic barriers to postsecondary education, increasing student interest in college prior to attempting to increase their interest in science, technology, engineering, math, and medical science (STEMM) is crucial (Gibbons et al., 2020). Programs that fail to follow this sequence will likely be unsuccessful. Furthermore, when considering factors that increase diversity in collegiate STEM programs, one study found that family involvement, financial support, and students' perceptions of opportunities influenced students' decision to enroll in a STEM-based program (Jones & Cleaver, 2020) and another study found several assets (e.g., meaningful others and campus resources) and barriers (e.g., lack of STEM representation and online learning during COVID-19) that affected the college experiences of rural Students of Color in STEM fields (Cain et al., 2024).

Inequities in access to STEM education are critical because they are likely negatively affecting the number of rural students with STEM career aspirations and who go on to STEM postsecondary degrees (Crain & Webber, 2021; Saw & Agger, 2021). Although rural and suburban students have similar rates of interest in STEM careers upon entering high school (11.6% compared to 11.7%, respectively), by the end of the 11th grade, there is a statistically significant difference in their STEM career aspirations (8.9% for rural students vs. 10.5% of suburban students; Saw & Agger, 2021). Rural students also enroll in STEM postsecondary degree programs at lower rates compared to their suburban counterparts (Saw & Agger, 2021), and fewer rural students (12%) complete STEM postsecondary degrees compared to their suburban (17%) and urban (14%) peers (NSCRC, 2022).

However, reasons for optimism exist regarding rural STEM education and rural students' STEM pathways. Educational leaders in rural areas see the value in STEM education, and many expect the opportunities in STEM disciplines, like computer science, to increase at their schools in the future (Gallup & Google, 2020). Afterschool programs, teacher professional development, and university partnerships also offer promising practices for rural STEM education (Bowen et al., 2021; Ihrig et al., 2018; Kavanagh et al., 2022; Lakin et al., 2021).

Within secondary school settings, school counselors, in particular, can be a vital resource to support students' postsecondary planning. As school counselors attend to the academic and social-emotional development and career readiness of all students (ASCA, 2019), they can provide resources, guidance, and interventions for students interested in STEM fields beyond secondary education (Perry, 2023). This support can be in the form of individual or group counseling to set career goals and plans, ensuring students take the proper courses to align with their career aspirations. School curriculum can also be supplemented with clubs, interest groups, or interventions like the Possibilities in Postsecondary Education and Science (PiPES) program (Gibbons et al., 2020), designed to increase postsecondary education and STEMM awareness.

Furthermore, due to rural communities' unique geographical locations and industries, STEM education can be especially relevant through place-based education (Harris & Hodges, 2018; Lakin et al., 2021; Saw & Agger, 2021; Zimmerman & Weible, 2017). For instance, Zimmerman and Weible (2017) reported that the place-based education of a watershed unit allowed students from a rural, poverty-impacted school to engage in science practices and acquire scientific knowledge. Likewise, Lakin et al. (2021) found place-based, youth-driven STEM programs successful in developing STEM talent in rural students. These types of offerings are critical because internal or external factors can spark STEM interest in rural youth, and this interest can then be maintained for rural students who wish to pursue postsecondary education and careers in STEM (Cain et al., 2022). Collectively, this literature suggests that although rural schools and students may face barriers related to STEM education, evidence provides hope for the future.

Theoretical Framework

This study perhaps took an atypical journey toward a theoretical framework. After data collection, we began to discuss how to frame this work from an asset-based perspective of rural schools and communities while highlighting inequities in experience. One of us had received an advance copy of "Rural Cultural Wealth: Dismantling Deficit Ideologies of Rurality" (Crumb et al., 2023), which, after reading, we agreed upon as a potential frame. As we engaged with the data, we saw our data support, challenge, and extend the framework—an

important piece of the new theory development. Therefore, to better understand participants' feelings about their educational experiences and avoid deficit perspectives of rural communities, we applied the RCW framework (Crumb et al., 2023). RCW draws heavily from Yosso's (2005) community cultural wealth (CCW) theory while adding the specific lens of rural experience. Yosso's (2005) CCW theory includes six forms of capital: aspirational capital, familial capital, social capital, linguistic capital, resistant capital, and navigational capital.

Drawing on Yosso (2005), Crumb et al. (2023) "advance a rural cultural wealth framework aimed to interrupt the social reproduction of educational inequities that impact rural students, with special attention to students further minoritized by poverty, race/ethnicity…, among other structural challenges posed by dominant cultures" (p. 128). This framework considers rural students' macro- and micro-level concerns regarding equitable education. In conceptualizing what this framework looks like, Crumb et al. (2023) also draw on Lareau, another interpreter of Bourdieu's theory of cultural capital, particularly Lareau's work around access and gatekeeping (Lareau & Weininger, 2003), which considers speech, location, clothing, and other markers of background, and what is labeled rural identity.

Crumb et al.'s (2023) framework is comprised of four elements.

1. Rural resourcefulness: "the capacity of rural students and residents to overcome socio-contextual adversities that threaten their livelihood and well-being through taking actions to mitigate limitations" (p. 129).
2. Rural ingenuity: "the inventiveness of rural residents, a collective attribute based on the rural community ecology and human and social capital" (p. 129).
3. Rural familism: "characterized by a feeling of belonging among family members and integrating individual activities and achievements toward a collective goal: consideration of land, money and other assets as shared property for mutual aid. In this respect, rural familism is a social organizer within kin networks" (p. 130).
4. Rural community unity: "the composite assets held by rural populations, resulting in unifying and organizing behaviors. These interconnections foster civic engagement and positively impact the ability of rural

communities to effectively organize and collaborate, especially in times of crisis or high need" (p. 130).

In adopting this framework, we aim to take an asset-oriented approach toward rural students, schools, and communities that acknowledges the histories of racism and classism in the US while also considering the plurality of the meaning of rurality. However, being so recent, this framework needs to be tested empirically to understand what it means in actuality. As Crumb et al. (2023) noted, these four constructs are neither new nor fixed and static. We took on this framework to help understand our data and find areas where we might need to expand or challenge these constructs.

Methods

This study was part of a larger phenomenological project exploring rural college students' academic journeys within STEM. The current investigation focused on how college students who graduated from rural high schools perceived their rural backgrounds, specifically their schools and communities, as influencing their academic journeys. Due to the importance of participation of rural people in STEM education and STEM jobs, all the participants in this study were STEM majors and graduates of high schools in rural areas. The central research question for this study was: How do college students in STEM majors perceive their rural schools and communities influencing their academic journeys?

Setting and Participants

The setting of this study was a public R2 doctoral university located in the southeastern US. Nearly 26,000 students are enrolled in approximately 140 degree programs across its three campuses. This institution also is a rural-serving institution, according to the Alliance for Research on Regional Colleges (ARRC) metrics (Koricich et al., 2021).

Purposeful sampling was employed to align the participant selection criteria with the overall aim of this research project (Creswell & Creswell, 2018). The target population was current undergraduate students who were in STEM majors and who were from rural areas prior to attending college. Students self-identified that their degree program was within a STEM discipline, but students' rural backgrounds were defined by having graduated from a high school in a rural or town locale (NCES, 2022). These criteria were all chosen to align with our research project's

objectives of exploring rural college students' academic journeys.

The participants were recruited through various means, including messages within the university's career services electronic newsletter, tabling at a STEM career fair, and paper flyers distributed throughout the institution's largest campus. Prospective participants were provided with a QR code that hyperlinked to a brief Qualtrics survey, collecting students' contact information and confirming they met the inclusion criteria. Sixty-one students completed the demographics survey, 27 met the inclusion criteria, and 11 followed through to the project's data collection phase.

Select demographic information for each participant is included in Table 2 (online only https://scholarsjunction.msstate.edu/ruraleducator/vol45/iss3/). Participants were in a variety of STEM majors, but biology was most common. Five participants graduated from high schools in rural distant locales, five graduated from high schools in rural fringe locales, and one participant graduated from a high school in a town distant locale. The participants also ranged from first-year students to senior students. Four participants identified as White, four as Hispanic, two as African American, and one as biracial. Lastly, for sex, nine of the participants identified as female, and two participants identified as male.

Data Collection

To gather these participants' perceptions, data was collected through two online interviews (Appendix A, online only https://scholarsjunction. msstate.edu/ruraleducator/vol45/iss3/) guided by in-depth phenomenological interviewing (Seidman, 2013). In the first interview, conversations centered around participants' rural backgrounds, educational experiences, and STEM interests. The second interview guided participants to make meaning of these topics through reflections on past and future projections. Interviews were conducted over Zoom, were 40 to 70 minutes long, and were led by one of two faculty members. For attending both interview sessions, participants earned a $25 Amazon gift card. All interviews were audio recorded and transcribed verbatim using an external transcription service.

Data Analysis

Our data analysis process reflected a phronetic iterative approach in which our analysis alternated between considering existing theory (i.e., the RCW model) and our research question, as well as emergent qualitative data (Tracy, 2020). To analyze the data, we read through the transcripts and developed an inductive codebook consisting of nine overarching codes with 26 subcodes based on emergent patterns, or repeated ideas in the data, coding about 30% of the data. Sample codes from this initial process are in Appendix B (online only https://scholarsjunction.msstate.edu/ruraleducator/vol45/iss3/). Through a recursive process, the first three authors further developed a second codebook based on patterns that emerged from the first round of coding, using methods of constant comparison (Strauss & Corbin, 1990) by collapsing themes from the initial coding to capture broader themes.

This second codebook consisted of eight overarching codes with 23 subcodes. Appendix B details sample subcodes, focusing on aspects of rural schools and communities. The first three authors then analyzed all data using the second codebook. A trained graduate research assistant (the fourth author) then tested for intercoder reliability using Miles and Huberman's (1994) formula, in which reliability = number of agreements/number of agreements + disagreements, and we established a level of reliability acceptable to all researchers. Next, the first, second, and third authors coded all the data based on this second codebook. Data from interviews were additionally triangulated with the documents, notes, and audio, as well as across three investigators, to increase the validity of the findings (Creswell, 2013). Having reduced data to patterns found via coding, we read through the data and coding to address research aims. We created data displays (Miles et al., 2013) to illustrate the themes and organize and summarize the data. By displaying the data, we could move toward findings that addressed the research aims. After analyzing the second coding round and data displays, we focused on themes that fell under the school and community categories.

Researchers' Positionalities

Our constructivist orientation leads us to believe researchers' worldviews cannot be eliminated from research and the knowledge generated by research (Brodsky et al., 2016; Lincoln et al., 2011). Our research team was motivated to write this article due to our interest in supporting academic success of students, especially those from rural areas. Knowing that schools and communities play critical roles in the

lives of rural students, we were interested in looking at these connections through an anti-deficit lens to support a more nuanced understanding of this topic.

Beyond the authors as a group, we brought our individual positionalities and areas of expertise to this study. The first author is a White, able-bodied, cisgender woman who grew up in a working to middle-class family and had the privilege as a first-generation college student to attend a private undergraduate institution. She graduated from a rural, remote high school in central New York state, igniting her interest in studying the experiences of rural students. The second author, the grandchild of Balkan immigrants, has primarily lived in urban areas in both the U.S. South and Midwest and attended public city schools. She is a White, middle-class, cisgender female researcher and educator focusing on multicultural and equity studies in education. This research has allowed the second author to learn more about how rural identity fits into multicultural and equity studies in education. The third author is a product of rural K–12 public education. She is a Black, middle-class woman who is also an educator and mental health provider. The third author's research focuses on the academic achievement of minoritized and underserved populations. For her, this project highlights the conditions of rural schooling and the joys of overcoming such, fostering advocacy to ensure the success of all students. The fourth author is an African American woman who grew up in Atlanta, GA. Her parents grew up in rural communities, which is where her interest in this topic originated. She received her undergraduate degree in interdisciplinary studies and is obtaining her master's degree in higher education administration.

Findings

In our study, we wanted to explore how rural college students in STEM majors perceived their rural schools and communities as influencing their academic journeys. These findings shed light on the RCW framework, highlighting the participants' resourcefulness and ingenuity despite some adversities, as well as the support and encouragement students received within their schools and communities. We believe that our analysis both supports and complicates RCW, as we found multiple instances of the data supporting RCW constructs in conjunction with examples that challenge RCW concepts. For example, while findings highlight aspects of rural ingenuity and resourcefulness at both

the community and school levels, at different points, findings complicated the concept of rural community unity. However, we hope this complication adds to the theory by demonstrating both the benefits and drawbacks of growing up within a tight-knit group.

School

Participants' responses to questions about their schooling experience had some common themes and rich points, but their remarks also included diverse experiences that reflect the variety of rural schooling experiences. The following sections are organized into common themes around rural schools and highlight differences regarding students' feelings of preparation for future academic endeavors, particularly preparation for STEM courses in college.

Perceptions of Rural Teachers and Their Influence

All participants discussed the teachers they had had in school. A common theme was that an educator, particularly a STEM educator, stood out as a motivator. For example, AJ described a chemistry teacher as a STEM "role model." Josh commented that his math and science teachers had a significant favorable influence on his educational aspirations:

> Yeah, I had really good teachers for all, especially my calculus, chemistry, and I guess even my economics class. They're teachers that encouraged the students to learn. They did a good job with that. I attribute a lot of who I am today because of them making me aspire to learn.

While several participants mentioned that they found their teachers challenging, most noted that they were encouraging (though challenging and encouraging were not mutually exclusive). Sierra elaborated on the significance of having that kind of support, describing how she believed a strong teacher was someone who "was very strict in a good way, making sure that everything's up to what she considered to be, at least, college level, using terminology that we needed to use, making us look at research databases, stuff like that."

To better understand these students and the context for our findings, it is essential to note that almost all students were in the AP/honors track by high school and had been identified early to be in this track. Most of the teachers they identified as those who helped prepare them for college or as role models in STEM were AP or honors teachers.

Annabelle explained how she perceived the quality of educators at her school, saying:

> There were some good teachers, some teachers who were just there to get us out, but there were still good people there. More of the AP teachers and the Honors teachers were the ones who actually—I took those classes, so I felt more—I felt like I learned more in those classes, I guess just 'cause maybe they pushed us a little more, but there were some teachers who really—it didn't matter if you turned in your things or not. They would pass you just because they wanted to get the students out of—it just felt like they were just tryin' to get you to graduate regardless. I think that it, like I said, it depends on who you had as a teacher. Me personally, I feel a little bit more prepared than those who maybe didn't have those honors AP courses.

Looking at school curricula and AP/honors programs in the next section, we continue to explore this theme, as two of the most common factors that contributed to participants feeling prepared for college were the outside work they put in and when their AP/Honors teachers treated the class like a college course, instead of what Kasey referred to as "providing them all the answers."

Curriculum and Feelings of Preparation for College

All participants discussed the curriculum at their high schools, though opinions varied on how well they felt it prepared them for college, particularly college STEM courses. Some participants felt prepared for college, while others felt unprepared because they were not taught the study skills necessary to succeed in college-level courses. Josh, Kasey, Lyrik, Olivia, and Sierra discussed the study skills they developed in high school, with several mentioning the help of outside resources. Multiple participants noted that they did not need to study in high school, as Kasey explained: "We really didn't have to struggle to learn. I wish we had struggled to learn more 'cause I know that would help me out tremendously, and I'd have to have already developed those studying skills."

Table 3 (online only https://scholarsjunction. msstate.edu/ruraleducator/vol45/iss3/) illustrates different ways participants did or did not feel prepared for college based on their perceptions of their high school curriculum or courses available to them. Lyrik felt that her high school offered enough rigorous courses to prepare her for college, while Olivia was bored by AP courses and found them too easy. It is beyond the scope of this research to determine the actual quality and availability of courses vs. participants' perceptions.

AP/honors enrollment impacted how students perceived their education and how well it prepared them for college; the participants often compared these courses to non-AP/honors courses. As noted above, a critical factor in participants' perceptions of feeling prepared for college or future aspirations was a teacher who inspired, encouraged, or challenged them. Almost all the teachers they described as filling one of these roles were AP or honors teachers. As Lyrik noted, she did not believe she would have been as prepared for college if she had taken "normal" classes in high school. She stated:

> I was always the student who took AP and honors. To be quite honest with you, though I like regular classes, 'cause I did take a couple of regular classes and they were not—I think if I had I taken strictly all regular classes and then tried to come to college, I would have struggled a lot. I'm not gonna lie, a lot of my AP classes— I came in with information that I don't think I would have had otherwise.

The number of AP or honors courses offered varied across participants' schools. Lyrik explained that other schools or districts had AP courses that were unavailable in her district. Annabelle noted that her school only had a few, stating, "In total, I think we had three AP classes. There are some that my friends here now talk about that I didn't even know existed, 'cause we only had three." Some participants suggested that while some AP courses were available at their schools, they often were not perceived as comparable to the scope offered in urban school settings (this view aligns with current research; see Mann et al., 2017). Olivia believed that being a rural school might have been a disadvantage in terms of the number of AP classes offered, particularly in STEM, comparing her experience to urban schools:

> [My] classmates were like, "Oh yeah, I took AP physics in high school" 'cause they went to Atlanta and Atlanta schools have AP everything, and I'm like, "I never saw a physics class." I don't think I saw more than F=ma in my entire four years in high school. It wasn't a thing. It wasn't taught. I don't know if that's because it was so long ago or what, but I feel like I am at a competitive disadvantage for not having been exposed sooner, if that makes sense.

While the number of AP classes offered and the perceived quality of the AP courses varied, more than half the participants reported positively on their AP or honors courses preparing them for college. Like Lyrik and Olivia, additional participants viewed non-AP courses as not adequately preparing students for college and having inferior teachers, which seems especially important given how crucial teachers were throughout the data.

Several participants explained that their communities were so small that students were identified for the AP/honors track from a young age. Several participants, like Olivia, even noted that they believed the community knew who would leave the area or stay based on this identification. Multiple participants explained how they were very young when they were identified for gifted or honors programming. Lyrik explained that she was tested in kindergarten: "The kids that were in [a county-based gifted education program], and then honors, and then AP, and accelerated math, we all just knew each other. There were kids I knew in kindergarten." Olivia took a somewhat cynical view of the identification of those who would be in gifted or honors programs, saying:

> The school itself is—every school wants to make a show of, "Every kid's important, and everybody needs to go to college, and especially if you were in the"—at the time. I have no clue what it is now—"the college preparatory track. We're preparing you to be a successful college student." … They were going through the motions of making it, but because—it sucks it's a small town. They knew by your last name whether you were gonna go to school or not. They knew from your family what you were going to do. Being that nerdy bookworm, you always were privy to conversations the cool teachers didn't necessarily want other kids to hear.

Josh also had some negative feelings about gifted or honors identification, stating:

> They shoved a lot of the, I guess, the smarter kids into the gifted program, which just stuck you out there. It separated you from the main group, and it set you up to be this prodigy, kind of…, Where it just sets you up to be—you have to be better than everyone else, or something like that.

These responses bring up essential discussions in the realm of rural education. While differences in the perceived quality and number of AP/honors courses across participants varied, demonstrating diversity within "rural education," the majority of participants were not only in AP or honors courses, and several described similar experiences of being identified early and that those who were not identified might not have had the kind of teachers who would inspire, challenge, or encourage them toward college and to some extent, future STEM learning and endeavors. This finding is tied to the concept of rural community unity and narratives of rural advantage/disadvantage. Crumb et al. (2023) referred to the "interconnectivity of rural networks" as a rural "advantage" (p. 132), yet these findings demonstrate how complex this kind of interconnectivity can be, perhaps disadvantaging those perceived as "non-gifted" at a young age. Throughout the findings, we found examples of rural community unity that support both rural advantage and rural disadvantage narratives, suggesting a duality in this concept and these narratives.

Diverse Rural School Districts

In addition to teachers, curriculum, and AP/honors, eight participants commented on the size of their school and school district. Most participants reported "small graduating classes," though the definition of small varied, with graduating classes ranging from 34 students to over 300 students, again illustrating the variety of experiences in rural education. Multiple participants also spoke of the organizations that supported them in school, such as ROTC. Participants like Mackenna spoke of how they perceived their school or district vs. other schools or districts in the area:

> I wanna say that our county was very lucky in the sense that we had a lot more funding than surrounding counties, especially coming from a smaller county. We had a lot more opportunities than the surrounding high schools from other counties. That itself really helped because they were able to—because I remember a lot of people from my high school hometown are in STEM majors. I know it's rare for a lotta people from one school to be in it.

Mackenna also noted, "My school's very good in that sense that it offered many pathways that you could explore different career paths," highlighting the perception of local opportunities and resources for future academic development or postsecondary education. While John acknowledged he did not know how his school compared to others, he described a relatively well funded chemistry lab that

was "really similar to what we had here at [the university]," opportunities for dual-enrollment courses, and exposure to different career paths..

In contrast, Cucuya talked about her school's crumbling buildings, stating: "So the facilities were old. I think [a new school is] being built right now, so they're tearing [the old one] down. We got the old stuff, but I can't complain. I had the teachers, which was the most important." She also explained how she wished there were more resources to help prepare for college, saying, "I know some schools have a counselor that you can meet and talk about what are your plans and everything. I didn't really know much about [that]." Olivia also noted how she believed her school district was poorly funded and that this impacted the teachers and classes. Olivia did not blame the teachers, citing both the "pass the test" mentality of No Child Left Behind and the lack of generational wealth in the area.

In addition to varying levels of wealth, participants noted how race impacted their schooling experience, with several noting that their elementary was "not very diverse" and also that they were one of the few Students of Color in their elementary experience. Lyrik noted that the high school tended to be more diverse because the elementary schools fed into one high school, "as opposed to isolated elementary schools sprinkled around. There was definitely more diversity and other people moved to the area, so there was definitely more diversity in one side of the high school, but it still wasn't." Participant feelings of limited diversity in school also tended to spill over and reflect themes around the greater community.

Community

While not as pronounced as the other areas of influence, several participants discussed the greater rural community as influential in their academic journeys. Community mindset and expectations; desires to leave and stay; and availability of wealth emerged as themes within this area.

Community Mindsets and Expectations

Some students spoke of how community mindsets and expectations guided their decision to pursue their undergraduate degrees. Community standings and feelings of pressure resonated within these accounts.

Amber and AJ discussed how their connections to their families in their rural hometowns impacted

their experiences. Amber reported that since her family was newer to their rural community, they were labeled "not from [location]" with a matching acronym, NFL. She commented that most of her friends and her family's friends were NFL people, too, rather than people with longer-standing ties to the community. Related to community standings, AJ also shared:

> Everybody knew where my house was. Everybody knew that it was in a historical district. This has basically a history of people down the street that do something with their lives in this small little town, basically.… With that came a lot of pressure in terms of me to show a good face for my family name. I lived only with one of my sisters … and she actually went to college, but she dropped out. That put even more pressure on me, in a small town where everybody knows our family, to succeed. I just always had the pressure on me to study hard and was honestly constricted.

For some students, mixed messages were received about academic expectations based on who the students (and their families) were, usually based on race or social class. For instance, for AJ, it was not only where her family lived but also that they were a Black family in a predominantly White community that "got a lot of attention" from the townspeople.

Beyond the influence of the community on the individual, participants' comments indicated that they were aware of societal mindsets about their communities. While in college, some participants felt added pressure to prove that being from a rural community did not equate to a lack of knowledge or success. For example, Cucuya stated, "I tried really, really hard to get straight A's my freshman year, so I could prove something like, 'I'm from rural [state], but we learned the material also.'"

Desire to Leave and Stay

Along with the expectations of others, the students formed their own expectations fueled by their perceptions of their rural communities and future goals. AJ, Annabelle, and Josh shared a desire to leave their community to create an opportunity for growth for themselves. Annabelle mentioned, "Living in a small town, you don't always wanna stay in a small town, and I didn't really wanna stay in my hometown. I wanted to leave, so that's what really brought me here [to the university]." Similarly, AJ "was kind of tired of being in a rural environment

for so long" and "wanted to see something different, but at the same time, not too far away from home." AJ also appreciated new knowledge within her new environment: "I feel like from being in a rural area, we don't really learn too much about the college experience or even the academic process of that, so it's been all new things. I'm experiencing new things almost every week."

Some students wanted to pursue pathways outside their rural communities to follow opportunities not available within the immediate area. For instance, Josh stated, "Well, the thing about small towns is that there's not many job opportunities there in the first place, and if there are some, it's usually just very low-paying jobs or dead-end jobs, where you just make enough money to live, but you can't really do much else." He continued, "if you'd get a job there, and you stay there, there's very little chance you're getting out; whereas if you come to a bigger college to get bigger opportunities, you can actually explore new places."

While some students desired to leave their hometowns and find a new life elsewhere, others desired to remain close by or to return after college. When discussing her community, Amber stated, "A lot of the people in the community, especially the older people, they're not open to change too much. You'd think a community would want growth and prosperity, but they don't want change." In this regard, Amber discussed how the avoidance of change also impacted her mindset and her desire to return to her hometown after college:

> I never thought about changing my major ever. I feel like maybe my town, they're not used to change. I feel like that characteristic or way of thinking has speckled me a little bit 'cause I don't really like change too much either. I feel like that's influenced me to pick a job close to home and stick with something.

Amber's rationale is complex; noting a community's resistance to change that might deter others from coming to her community makes her want to pick a job close to home and "stick with something." This mindset, which Amber adopts, complicates the RCW concept of "rural community unity," which is essentially "unifying or organizing behaviors" (Crumb et al., 2023, p. 130) in a community. While framed from an asset perspective, Crumb et al. (2023) still caution that rural community unity can further marginalize those already marginalized. In the case of Amber, this unity can also unite community

members in resistance to change that might prevent others from returning to the community after college.

Cucuya also described a desire to stay close to home, but her rationale differed. First, she wanted to work in the hospital and potentially attend medical school near her hometown. Second, she wanted to stay near her parents. Third, she preferred living in a rural area close to nature, saying, "I like seeing nature. I don't like cities. I just like the peace and quiet." Thus, participants' perceptions of their home communities, including the mindsets and expectations, as well as the participants' perceptions of the opportunities available to them in their home communities, impacted their decisions to attend college and their plans to leave or stay in their hometowns after completing college.

Availability of Wealth

Another way study participants spoke about their rural communities was related to the resources, specifically money and wealth, of their communities. Three participants (John, Olivia, and Mackenna) all described how wealth (or a lack thereof) influenced the availability of opportunities and mindsets about college-going in their communities. Olivia and John described a lack of wealth in their rural communities. Olivia shared that because her community was poor, her school was poorly funded, and the focus was on passing classes vs. "encouraging any sort of interest in learning," She continued sharing:

> Then there was also the reality that … it was a poor area, and so there's also a, "Well how much money and how much time do we want to invest, when these kids probably won't have the opportunity to do half of the things they want to do, because the money's just not there in their families?" It takes generational wealth to be able to take an unpaid internship. It's just not there in [my county].

John's account was similar. He shared, "[Y]ou knew that there was a lotta people that weren't just well off. We had government housing and stuff, and I don't know. You could tell that there were people that were disadvantaged actually compared to others." In contrast, Mackenna recognized wealth in her rural community, saying, "We have all the rich people," compared to her surrounding counties. This wealth then positively impacted her schooling and the opportunities available within her hometown.

Discussion

With the growing need for people in rural areas to possess advanced skills and postsecondary degrees to match industry changes (Davis et al., 2022), and in light of disparities in college access and attainment of rural people, especially in STEM fields (NSCRC, 2022; Saw & Agger, 2021), this study explored how college students in STEM majors perceived their rural schools and communities' influence on their academic journeys. Qualitative data analysis revealed that participants discussed their rural schools and communities in a variety of ways, paralleling the diversity of rural people and experiences, although they coalesced around some specific factors. Relating to their rural schools, the participants described their teachers as role models and people who encouraged them in their academic journeys. They also talked about how their school curricula, especially their AP and honors courses, shaped their college preparation. The participants believed that their schools' sizes, opportunities, and resources affected their academic journeys. In addition, the participants discussed their community's mindset and expectations, their own desires to leave or stay in their hometown, and the availability of wealth in their rural communities as influences in their academic journeys.

These findings support and extend the literature on rural education and rural students. Several studies have discussed rural teachers as key contributors to rural students' educational pathways and aspirations (e.g., Means et al., 2016; Molefe et al., 2017; Schonert et al., 1991). This study demonstrated how STEM, AP, and honors teachers were especially meaningful for these STEM college students' academic journeys. Prior research has shown that taking advanced coursework benefits rural students' postsecondary academic journeys (Byun et al., 2012, 2015) and impacts what courses they take in college (Mann et al., 2017).

Our findings related to community mindset and expectations as well as students' desires to leave or stay are also consistent with extant literature. For instance, Hlinka's (2017) study of students at a rural community college found that students' community's values (along with their families' values) were crucial motivators for students to attend and complete college. Sowl et al.'s (2022) quantitative study looked at the long-term migration of college graduates who attended rural public schools. They found that rural college graduates with adolescent school attachment and those from lower college-educated communities were more likely to return home, while those who left their communities did so due to place characteristics and social identities.

The findings related to participants' rural schools' sizes, opportunities, and resources and the availability of wealth in their communities align with the literature. The availability of wealth in rural communities relates to the poverty in these areas. Poverty and areas of persistent poverty are common in rural communities (Beale, 1996; Rural Health Information Hub, 2023; USDA, 2018; Weber & Miller, 2017). Poverty affects students' academic pathways. For instance, compared to students from low-poverty schools, students from high-poverty schools are less likely to enroll in college, persist from their first to second year of college, and complete their degree within six years (NSCRC, 2022). Byun et al. (2015) found that much of the gap in college attendance patterns between rural and non-rural students was explained by differences in socioeconomic status and high school preparation.

This study found that rural high school graduates who were pursuing STEM majors in college perceived their rural schools and communities as influencing their academic journeys in several critical ways. We will now extend this discussion by overlaying our findings with our theoretical framework, the RCW model (Crumb et al., 2023), to deepen our understanding of our findings.

Rural Cultural Wealth and Outmigration

While the results of this study support the RCW model (Crumb et al., 2023), they also uncovered layers for further consideration. These layers include how the data reflected the dual narratives of rural education and college expectations, the challenges of gifted education in rural schools, and how rural factors intersect with other aspects of identity.

The study data offered multiple examples of rural resourcefulness, such as participants' descriptions of the ways they developed their study skills or found outside resources to support their learning, particularly when they felt they were not receiving that support in school. While participants reported that their experiences of school and support varied, they all engaged in rural resourcefulness as they "attained the resources necessary to thrive, with or without, adequate support from people in professional positions and despite the inaccessibility of ample resources" (Crumb et al., 2023, p. 129).

Participants also illustrated rural familism and community unity in how their families and communities supported them to pursue their college and STEM aspirations. The emergent themes of this study help us further unpack the dual narratives of "rural advantage" and "rural disadvantage" that are common in the literature (Li, 2019). Based on research trends from the 1990s–2010s, these narratives highlight factors in rural student college aspirations and expectations that tie to the concept of the rural brain drain. The discourse around rural brain drain, or the exodus from rural communities to urban and suburban areas, tends to fall in a deficit paradigm (Carr & Kefalas, 2009). From a "brain gain" perspective, Sowl et al. (2022) indicated that the long-term return migration of college graduates from rural areas is related to adolescent school attachment, place characteristics, and social identities (e.g., gender and socioeconomic status). Thus, framing this study with the RCW model allows us to see how schools and communities supported participants and how participants leaned into rural resourcefulness to pursue their aspirations, aligning with the narrative of "rural advantage." However, study themes reflected a mix of the dual narratives of rural advantage vs. disadvantage. Several participants wanted to return to their communities because of family ties or institutions where they aspired to work, while many participants anticipated not returning to their home communities, instead planning to seek more plentiful opportunities in their field elsewhere.

Contrary to prior studies, no one mentioned their school as a primary reason to return to their rural roots. Crumb et al. (2023) suggested that "community returners play a vital role in recruiting and retaining high-quality rural educators, serving as examples that moving away for college does not always lead to permanent rural outmigration" (p. 133), suggesting a long-term interrelationality between rural students and schools that goes beyond the years they spend in K–12 education. In addition, participants did not provide many examples of their schools' engagement in "rural ingenuity" or providing "innovat[ive] programs that situate rural schools as a central locale in which students and their families can have their physical, mental and sociological needs met" (p. 129). In presenting RCW as a framework, Crumb et al. (2023) highlighted the importance of school ingenuity and agency despite sometimes limited resources, which also suggests the need to examine further the long-term relationship between rural schools and students who out-migrate.

Another complicating factor is Amber's description of her community's resistance to change. While it is arguably a form of community unity, the impact of resisting change, as Amber notes, may mean that the community loses out on jobs or resources that may be attractive to those who initially out-migrate. However, this resistance to change is attractive to Amber, as she noted by her desire to move back home after college. Like other findings in this article, Amber's observation suggests that rural community unity is complicated and deserves further investigation. As Crumb et al. (2023) suggested, rural communities often have tensions typical of any community, and community unity does not necessarily extinguish marginalization or resistance to change, even from an asset-based perspective. While participants did not go into detail on the topic of race or racism in their schools, the noted lack of diversity and experiences of "otherness" in many of the schools further demonstrates how rural community unity does not always fight marginalization.

AP/Honors Identification and Academic Rigor in Rural Schools

Participants also presented the nuanced issue of gifted education and rural familism's role in supporting gifted education in rural schools. Multiple participants expressed how their community knew who would be in the gifted program from when they were young children; several participants even mentioned that the community knew from a young age who was going to college. From participant perspectives, this identification at a young age impacted the opportunities and education available to these young people. While one or two participants noted that they did not consider the AP/honors programs available to them rigorous, many participants found support for their study skills in those programs or a teacher who inspired them to further their STEM education. If study participants (all of whom have pursued STEM majors) were identified for these opportunities early in life, what does this mean for the students not identified as gifted at a young age? Participants often described the resources outside AP/honors courses as lacking and suggested that teachers often "did not care" about rigor and just wanted students to pass. Several participants explained their belief that teachers would pass students to the next grade without great concern

for content knowledge or understanding, exposing another issue that is often referred to as tracking.

In the body of work around multiculturalism and equity in education, which historically has focused more on urban education, tracking is often seen as a source of systemic inequity. One core principle of culturally relevant pedagogy (Ladson-Billings, 1995, 2014) is that academic rigor should be present for every student, not just those identified as gifted. This assertion is not to say that all students need to go into STEM or even need to go to college, as Gen Z and Millennials are finding many meaningful alternatives to college pathways. However, it is troubling that multiple participants identified non-AP/honors courses as lacking rigor, adding new layers to examine and understand with RCW constructs.

Diversity in Rural School and Community Experiences

Despite similar themes within rural school and community experiences, participants also experienced the world differently, often based on their social class, race, ethnicity, and immigration status. In her interview, AJ noted how her family drew much attention as a Black family in a predominantly White rural space. Two participants spoke to the rural immigrant experience. Cucuya, whose parents were undocumented immigrants, discussed the stress and challenges of the uncertainty of their documentation status; Lyrik noted that her mother was an immigrant. This factor can influence many of the themes explored in this article and is worthy of further exploration in itself.

Social class also varied across participants and the types of rural settings and schools they described, returning to Olivia's comment about a lack of generational wealth. As some participants spoke of torn-up textbooks and buildings in disrepair, others described access to state-of-the-art labs or facilities. These differences connect to the ways in which the rural expands to encompass multiple locations and ways of being, and these themes contain nuances that are informed by other elements of identity. As RCW (Crumb et al., 2023) evolves as a model, attention must be paid to how the framework accounts for diverse identities and systems of oppression, like racism, xenophobia, and classism, within rural areas.

Limitations

This study included 11 students at one public institution in the southeastern US. Other students from the same institution, with different backgrounds and experiences, may have answered the interview questions differently. Students at other types of institutions or institutions in other areas of the country may also have unique perspectives. The participants in this study graduated from rural and town locales as defined by the NCES (2022), so their experiences are not representative of all rural settings. The participants also self-identified their majors as STEM fields, and these majors did not include all possibilities. Data were collected during spring and fall 2020, during the COVID-19 pandemic, potentially influencing the participants' answers. In addition, although elements of trustworthiness were integrated into the research process, no study is insulated from the effects of the researchers' own perspectives.

Future Research

As our study focused on 11 participants in one university, future research should seek to engage students at other institution types and in other areas of the US. As previously established, rurality is fluid, and various sociocultural factors contribute to educational attainment. Students in other parts of the country may share different experiences and possess various forms of rural cultural wealth. Those seeking to replicate this study may also want to recruit participants representing additional STEM majors than we have presented here.

The present study included only two participants who identified as first-year students. As we sought to understand college STEM majors' perceptions of how their rural background influenced their academic journey and postsecondary plans, insights from more students who had more recently transitioned from secondary education to college may provide richer, perhaps more novel, understandings. Participants were not explicitly asked about their thoughts on how their STEM education could impact their rural communities. Researchers may want to examine students' perceptions of their educational impact on their home communities, looking at the reciprocal relationship between these entities.

Implications

The present study has practice and policy implications. It may be especially meaningful for rural schools, postsecondary institutions, community leaders, and policymakers as they contemplate how to support rural students pursuing STEM education.

Participants frequently described the positive influence of AP/honors, STEM AP/honors, and the teachers of these classes on their educational journeys, so more should be done to expand these offerings in rural schools. Mann et al. (2017) found that between 2000 and 2015, rural schools lagged behind urban and suburban schools in offering universal access to one or more AP courses. The participants in our study noted they had some AP opportunities but perceived them to be fewer than their urban peers. Rural schools and policymakers, therefore, should continue to advocate for increased access to AP for rural students.

Another key to successful programming and initiatives is collaboration. Initiatives can be implemented in which guest speakers in STEM fields are invited to the school, or students can travel to participate in STEM-centered programs at local colleges and universities. Students also can be paired with STEM professionals via job shadowing or mentoring programs. As mentioned previously, many rural schools may lack financial resources, which may be viewed as obstacles to these suggestions, but some obstacles can be overcome with networking, effort, or a simple ask (Perry, 2023). Many agencies, companies, and higher education institutions (often in more urban areas) have funding and resources to support these programs.

Afterschool programs and teacher professional development through school/community-university partnerships also offer promising practices for rural STEM education (Bowen et al., 2021; Ihrig et al., 2018; Kavanagh et al., 2022; Lakin et al., 2021). Afterschool programs can ignite and sustain students'

interest and learning in STEM. Teacher professional development can also increase teachers' STEM teaching capacities and their mentorship of students in STEM fields. Rural schools and communities can benefit from these collaborative opportunities by increasing their access to resources and opportunities. Colleges and universities can also benefit from these partnerships because, beyond increased recruitment of students from rural areas, rural people have rich and often unique forms of cultural and social capital that they can contribute to postsecondary education settings (Crumb et al., 2023; Marlow-McCowin et al., 2020; McNamee, 2019). Therefore, more schools, communities, colleges, and universities should seek these mutually beneficial partnerships, and policymakers and government agencies should increase funding for such initiatives in the future.

Conclusion

The educational access and attainment of today's rural students impacts the skills and degrees of the rural workforce of the future. Particular attention should be given to students interested in STEM, as research suggests higher barriers within rural STEM education. Our findings confirm and extend the literature on the school and community factors that influence rural students' academic journeys. Connecting these findings to RCW further expanded our understanding of these areas of influence and the model itself. Although further research is still needed, this study represents one step toward tackling this complex and timely rural education issue.

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Suggested Citation:

Cain, E. J., Valauri, A., Perry, J. R., & DeLoach, A. (2024). Exploring how rural schools and communities influence the academic journeys of college students in STEM majors. *The Rural Educator*, *45*(3), 15–33.