Rural Readiness: Identifying Rural Adolescent Patterns of Postsecondary Preparation and Motivation Using Latent Class and Profile Analysis

Peter N. Knox
University of Vermont

Citation: Knox, P. N. (2026). Rural readiness: Identifying rural adolescent patterns of postsecondary preparation and motivation using latent class and profile analysis. *Journal of Research in Rural Education*, *42*(3), 1–20. https://doi.org/10.4148/jrre.20756

Self-efficacy, academic motivation, and readiness for postsecondary pathways play a critical role in shaping adolescent aspirations and attainment. School climate, culture, and students' lived experiences further influence these outcomes, but how these factors collectively operate within rural school contexts remains underexamined. Moreover, rural schools often lack practical tools for identifying which students benefit from existing supports and which require more targeted interventions. To address this gap, the present study employed a latent profile analysis using a large sample of rural adolescents (N = 8,541). Results revealed four distinct student profiles (low, limited, moderate, and high academic motivation and college and career readiness), each characterized by unique patterns of school experience factors and demographic characteristics. Findings demonstrate meaningful differences in how rural students experience schooling and prepare for postsecondary pathways. An actionable implication is that rural school and district leaders can use readiness profiles to design differentiated supports—such as targeted mentoring; social-emotional learning opportunities; and aligned, flexible college and career pathways through work-based and project-based learning opportunities—to ensure that resources are matched to student needs and relevant interests rather than applied uniformly. These findings offer a data-informed framework for advancing equitable postsecondary preparation in rural schools.

Recent political shifts and national dialogue have led to an increase in attention to rural students' postsecondary opportunities and access (Means, 2018; Tieken, 2016), yet most state and federal education policies continue to limit or ignore the rural student perspective (McNamee & Ganss, 2023). Generally referred to as *college and career readiness*, this focus on adolescent preparation for future employment continues to be embedded in state and federal education legislation, including the Every Student Succeeds Act of 2015 (ESSA; Malin et al., 2017). Career readiness is defined as having a level of skill, training, or nonacademic factors (i.e., soft skills) required to be a successful member of the labor force (Camara, 2013). College readiness is defined as the academic preparation and understanding required to be successful in postsecondary education, typically measured by grade point average and standardized test scores (An & Taylor, 2015). Research has shown alignment between the skills and training needed for immediate employment and those needed for postsecondary education, and that students benefit from equal and appropriate preparation for both paths (An & Taylor, 2015; Conley, 2012; Mattern et al., 2014).

Students' readiness and success beyond high school graduation are impacted by the experiences and quality of academic or vocational preparation that students receive in middle and high school (Allensworth & Clark, 2020; Hooker & Brand, 2010; Radcliffe & Bos, 2013), yet the nature and the number of preparation opportunities provided to students differ based on a school's context (Allensworth & Clark, 2020; Avery & Sipple, 2016). Within rural communities, opportunities often are impacted by several factors, including heightened levels of poverty (Koricich et al., 2018; McDonough et al., 2010), fewer opportunities for skilled labor, and subsequent outmigration or "brain drain" (Flora & Flora, 2007). Further, despite a vast array of

All correspondence should be directed to Peter N. Knox, Department of Education, College of Education & Social Services, University of Vermont, 533 Waterman Building, 85 South Prospect Street, Burlington, VT 05405 (peter.knox@uvm.edu).

JRRE is associated with the Rural Education Center at Kansas State University.

community types in the United States, education research, literature, and policy often default to a general rural-urban dichotomy and an inherent urbanormative research lens (Fulkerson & Thomas, 2019), limiting rural identities, voices, and perspectives (Cain, 2020; Lavalley, 2018). As such, rural education advocates and researchers have continued to call for more nuanced and focused studies of rural education systems to successfully prepare rural students for life after high school graduation (Ardoin & McNamee, 2020; Azano & Biddle, 2019; Schafft, 2016; Thomas et al., 2011).

Previous scholarship indicates that elements such as school finances, extracurricular opportunities, and preparation programs can impact adolescent aspirations and goals (McGee, 2021; Wang & Degol, 2015). School climate and culture, mental and behavioral health, relationships with peers and trusted adults, and connections to the broader community can also impact adolescent aspirations and preparation (Cornell et al., 2016; H. Johnson & Wiener, 2017; Knox, 2023). In their meta-analysis of school-based social and emotional learning practices, Durlak and colleagues (2011) identified a strong association between school climate and culture and student success. They found that schools that prioritized nonacademic social programs and policies saw significant increases in adolescent prosocial behaviors, positive attitudes toward school, and academic performance (Durlak et al., 2011). It has also been argued that facets of social capital may be more prevalent in rural communities and educational contexts (Sørensen, 2016), with strong social connections and support structures potentially acting as benefits to rural academic aspirations and achievement levels (Byun, Meece, & Irvin, 2012).

There is growing evidence that various school experience factors play a significant role in rural adolescents' academic motivation (AM) and college and career readiness (CCR). Factors such as peer relationships, internalizing behavior, and externalizing behavior are influential determinants that follow distinct developmental pathways, shaping adolescents' engagement, decision making, and readiness for postsecondary opportunities (Knox, 2024). These determinants operate in tandem to influence AM and CCR, though their impact may vary across students based on individual characteristics and contextual conditions.

Within large, seemingly homogeneous populations, it can be challenging to determine which students are adequately benefiting from these supports and which students may require additional attention to promote equitable postsecondary readiness (Bowers & Sprott, 2010; Waasdorp & Bradshaw, 2011). To address this challenge, the current study used a latent class and profile analysis with covariates (Asparouhov & Muthén, 2014) to identify distinct subgroups of rural adolescents. Importantly, in this approach, predictors such as peer relationships, internalizing, and externalizing behaviors were not treated as components of AM or CCR. Instead, they served as explanatory covariates that predicted the likelihood that adolescents would belong to particular latent profiles of AM and CCR. This approach allowed the study to examine theoretically meaningful patterns of postsecondary motivation and readiness while respecting the conceptual logic of social cognitive career theory (SCCT) and the cultural-ecological model of school climate (CEMSC), which positioned these factors as antecedents rather than elements of AM and CCR. Guided by this framing, the study addressed the following research questions.

1. How do theoretically relevant predictors (peer relationships, internalizing behavior, and externalizing behavior) shape the likelihood of rural adolescents exhibiting distinct profiles of academic motivation and college and career readiness?
2. What are the distinguishing characteristics of these latent classes and profiles of rural adolescents?

This information can help school leaders identify and develop targeted policies, programs, and interventions to equitably support rural students in their preparation for college and career pathways.

Relevant Literature

Rural Community Factors and Postsecondary Attainment

Regardless of whether a student has interest in higher education or more immediate entry into the workforce, the type and context of support received in school influence their preparation for either path (Aldridge & McChesney, 2018; Koth et al., 2008; Reynolds et al., 2017). The rates at which rural students enroll in and continue through higher education and 21st-century/advanced technical programs are well documented and continue to lag behind those of their nonrural counterparts, especially those from suburban areas (Cain & Class, 2023; Lavalley, 2018; Means, 2018; Tieken, 2016). Moreover, what college and career readiness looks like for rural students differs from that of their nonrural peers and is heavily shaped by distinct rural economic, cultural, and environmental factors (J. Johnson et al., 2014).

Previous research on rural postsecondary access, aspirations, and attainment shows that structural and historical factors often influence adolescents' postsecondary paths. For example, lower employment rates and financial security, caused by significant economic changes, have long-lasting and substantial impacts on rural communities

(Schafft, 2016). These economic shifts also have affected the project- and work-based learning experiences and opportunities that rural schools can offer, such as college coursework and engagement with modern industries, which in turn shape postsecondary goals and decisions (Agger et al., 2018; J. Johnson et al., 2014; Wells et al., 2019). Socioeconomic status (SES) is frequently used as a key indicator of adolescents' overall well-being (Chaudry & Wimer, 2016) and has been shown to significantly influence their physical health, social-emotional development, and academic success (Comeau & Boyle, 2018). In rural areas, lower SES levels are maintained by limited job opportunities, declining populations, and subsequent reductions in school revenue and financial stability (Carr & Kefalas, 2009; Fulkerson & Thomas, 2019; Thomas, 2003). These factors affect a school's ability to hire and retain qualified teachers, provide unique academic and extracurricular opportunities, and shape adolescents' perceptions of postsecondary options and their goal-setting processes (Byun, Meece, & Irvin, 2012; Oyen & Schweinle, 2021; Tieken & Auldridge-Reveles, 2019).

The impact of SES on postsecondary pathways is intensified by changing cultural and occupational environments common in rural communities. High poverty rates and few job opportunities arise from major shifts in industries that often serve as the backbone and defining feature of these areas (Corbett, 2021). Traditionally, industry-related jobs and opportunities (e.g., mining, logging, textiles, family farming) provided steady, livable wages and reduced the need for additional education or pursuit of opportunities outside rural areas (Fulkerson & Thomas, 2019). These economic traits influence educational perceptions and limit the development of a college-going culture (Byun, Irvin, & Meece, 2012), shaped by the number of adults with postsecondary education experiences that rural youth may see as examples or as standards for their own expectations (Astin & Oseguera, 2012). As a result, the percentage of rural teens who are motivated and aspire to various postsecondary paths has generally been lower than that of their urban or suburban peers (Byun et al., 2017).

Recent research also has begun to look more closely at the shifting nature of rural postsecondary attainment and the concept of college and career readiness, illuminating a growing imbalance between the two paths (Budge et al., 2021). Malin and colleagues (2017) observed that recent federal education legislation and corresponding shifts in state policy have prioritized higher education enrollment over career and technical education (CTE) programs, despite federal policy language, including the Every Student Succeeds Act (ESSA) of 2015, explicitly emphasizing the need to strengthen CTE preparation. This contradiction in state and federal policy language is germane to the conversation around rural adolescent postsecondary attainment in that it demonstrates the ongoing dichotomy that exists in current K–12 education between college-bound and career-bound students. This trend runs concurrent to the larger contextual and community factors that, in rural communities, have historically been more aligned with opportunities in career and technical roles instead of higher education (Azano & Biddle, 2019; Budge et al., 2021).

School Climate and Culture

School climate is a broad term often used to group the social and emotional characteristics and interactions that exist within a school setting, as well as the cultural capital and relationships that it promotes (Reynolds et al., 2017). Cohen and colleagues (2009) supported this view and broadly referred to school climate as the nature and caliber of life within a school, that "reflects norms, goals, values, interpersonal relationships, teaching and learning practices, and organizational structures" (p. 182). The impact of school climate on several student outcomes has been well documented, influencing student internalized behavior (i.e., self-esteem, anxiety, depression) (Aldridge & McChesney, 2018; Wang & Degol, 2015); externalized behavior (i.e., bullying, substance abuse, absenteeism) (LaRusso et al., 2008; Gregory et al., 2011; Simons et al., 2010); and academic motivation and performance (Brand et al., 2008; Maxwell et al., 2017). Overall, the varied and numerous components that make up school climate and culture play key roles in adolescent development and their subsequent preparation and readiness for postsecondary paths.

As noted, a primary component of school climate and culture is the level of social connection and cohesion that exists. In other words, the number and nature of relationships fostered within a school impact its ability to create a positive and productive school climate (Cohen et al., 2009; Tschannen-Moran et al., 2006). In their review of school climate research, Thapa et al. (2013) supported this idea and outlined several critical areas of focus needed to develop a supportive school climate. One of these areas is social support and healthy, prosocial relationships between students, peers, and teachers (Gregory et al., 2012; Thapa et al., 2013). More recently, the idea of school climate and its various components has also been viewed through the lens of school connectedness, safety, and security (Hoffman et al., 2017). Kutsyuruba et al. (2015) described how school safety is a social construct, a significant outcome of a school climate and culture, and influenced by the nature of the relationships that exist between students, peers, and teachers. Safe, secure learning environments are associated with feelings of connectedness and positive academic outcomes and are often measured in relation to student social orientation and experiences (Cornell & Mayer, 2010; Hoffman et al., 2017; Kutsyuruba et al.,

2015). Consequently, the relationships that exist within a school are linked to feelings of safety and security, social-emotional and educational success, and ultimately impact postsecondary trajectories.

The connection between school and community factors and student outcomes has been well documented within urban and suburban areas (Lavalley, 2018), and because of the links established between a positive climate, social-emotional development, and academic achievement, the issue should be explored for all community contexts. Few studies have been conducted in rural schools that focused on nuanced elements of climate and culture that impact academic achievement and college and career readiness. Further, Petrin and colleagues (2014) found that among rural adolescents, educators and adult community members may shape perspectives of postsecondary options by fostering the idea that success and attainment are only possible outside a rural community and that in order to achieve success, they must leave. As such, the purpose of the current study was to explore rural school climate and culture factors to better understand how they might manifest and among whom.

Theoretical Framework

The current study was jointly framed by social cognitive career theory (SCCT; Lent et al., 1994) and LaSalle and colleagues' (2015) cultural-ecological model of school climate (CEMSC). Both frameworks provide a lens through which the varied circumstances of rural adolescents can be examined, particularly regarding factors that facilitate or impede their motivation, readiness, and agency in postsecondary attainment (S. D. Brown & Lent, 2019). Grounded in social cognitive theory (Bandura, 1986), SCCT extends Bandura's framework to include individual, contextual, and behavioral factors that shape educational and career pathways. Personal characteristics (e.g., sex/gender, race/ethnicity) are identified as significant antecedents that influence interests, choices, and performance, while contextual factors (e.g., school environment, community resources) and behavioral or affective factors (e.g., peer relationships, anxiety, aggression, self-efficacy, outcome expectations, goal setting) shape the probabilities of different educational trajectories (Lent et al., 1994). Within rural contexts, SCCT provides a useful lens for understanding how these determinants operate to influence postsecondary readiness. Importantly, SCCT frames factors such as peer relationships, internalizing behavior, and externalizing behavior as predictors of AM and CCR rather than as components of these constructs, supporting analyses that explore variation in adolescent experiences while maintaining theoretical consistency.

CEMSC (LaSalle et al., 2015) complements SCCT by emphasizing that adolescents' experiences are shaped by their interactions within unique school climates. Even within the same school context, adolescents' perceptions, behaviors, and aspirations may vary widely depending on personal characteristics, access to resources, and social ties (Bronfenbrenner & Morris, 2006; LaSalle et al., 2015). In combination with SCCT, CEMSC highlights how school environments intersect with individual characteristics to shape microsystem relationships—such as peer interactions—that subsequently influence postsecondary outcomes (Koth et al., 2008; Mitchell et al., 2010).

By integrating SCCT and CEMSC, the current study positioned peer relationships, internalizing behavior, and externalizing behavior as antecedent determinants rather than components, of AM and CCR, allowing for the identification of latent profiles of postsecondary motivation and readiness among rural adolescents. This approach respected both the theoretical foundations of the frameworks and the methodological rigor of latent profile analysis with covariates, where predictors inform class membership without altering the measurement of the latent constructs themselves.

The Current Study

Research conducted in other disciplines has identified latent class and profile analysis (LCA/LPA) as a useful method for measuring and understanding unobservable, multidimensional constructs such as social connection or organizational inclusivity (Brimhall & Saastamoinen, 2020; Owen & Videras, 2009). To understand the impact of influential factors such as adolescent peer relationships and how they manifest in learning environments, the current study employed latent class and profile analysis to provide a more detailed perspective of rural adolescent school experience factors. Despite pervasive narratives of uniformity and what may appear to be monolithic cultural and community aspects (Afifi et al., 2021), rural contexts are diverse in many ways, often unseen at the surface level. Therefore, in this study, I aimed to (a) identify latent profiles of academic motivation and college and career readiness among a large sample of rural adolescent students and (b) examine whether the profiles were associated with distinct personal and demographic characteristics of rural adolescents.

Methods

Participants and Procedures

Data for this study were collected via voluntary school implementation of the middle and high school version of the Community and Youth Collaborative Institute School Experience Scales survey (CAYCI-SES; Anderson-Butcher

et al., 2013). The goal of this instrument is to discern student perspectives about their school and support for academic learning, development, and overall well-being. Administered by teachers and administrators in partnering schools, students completed the CAYCI-SES surveys at their school, during school hours, each taking approximately 30 minutes. The original sample was composed of 8,541 students from 37 participating rural middle and high schools in a region of the Midwest United States. Several definitions of rurality have been used in previous research (Thier et al., 2021). This study used the National Center for Education Statistics (NCES, n.d.) definition, in which schools qualify as rural if they are in counties with fewer than 50,000 inhabitants and in which 84% of the land was classified as nonmetropolitan.

The racial composition of the current study sample was predominantly White (85.3%), with the remaining respondents identifying as Black/African American (3.6%), Hispanic/Latinx (0.9%), Asian (0.8%), Multiracial (2.8%), American Indian/Alaskan Native (1.4%), Native Hawaiian/Pacific Islander (0.3%), and Other (2.4%). The study sample was roughly even in gender identification, with approximately half identifying as female (49.7%) and the rest as male (47.5%). Respondents were in grades 6 through 12 and self-reported being between the ages of 11 and 20, with the majority falling between ages 12 and 16 (79.2%). Nearly half the study respondents were identified as low income (46.1%), as determined by their self-reported qualification for free or reduced-price lunch.

Measures

The CAYCI-SES surveys (Anderson-Butcher et al., 2013) are established measures for schools and education professionals to use in their assessment of school climate, culture, and student perceptions. Components of this survey, among others developed by CAYCI, have been included in the U.S. Department of Education's National Center for Safe and Supportive Learning compendia of valid and reliable school climate measures (National Center on Safe and Supportive Learning Environments, n.d.). Further, these instruments continue to be used by education and school mental health professionals across the United States in their efforts to improve school climate and culture and assess family-school-community needs (Anderson-Butcher et al., 2020). Cronbach's coefficient alpha—used to calculate the internal consistency coefficients of continuous variable survey items—is provided below for each of the variables included in the current analysis. Previous research suggests that Cronbach's alpha levels of 0.70 or above indicate a reasonable measure of reliability or internal consistency of an instrument (Abraham & Barker, 2015; Taber, 2018).

Academic Motivation and College/Career Readiness

Of interest in this study were academic motivation and college and career readiness of rural youth. These two variables were included in the final model and served as indicators of school culture, climate, and the influence of social capital among youth. The academic motivation scale consisted of six questions focused on students' feelings and attitudes toward school and academic experiences. An example item from this scale is, "I feel my school experience is preparing me well for adulthood." Responses ranged from 1 = strongly disagree to 5 = strongly agree, and this variable obtained a Cronbach's alpha value of 0.84. The college and career readiness scale is composed of five questions focused on students' level of preparedness beyond high school. An example item from this scale is, "What I learn in school will help me prepare for college." Responses range from 1 = strongly disagree to 5 = strongly agree with Cronbach's alpha value of 0.89.

Peer Relationships

Peer relationships, which often serve as a measure of social capital and a source of information or resources (K. M. Ferguson, 2006), were another variable of interest in the current study. The peer relationships scale assessed the extent to which middle and high school students felt they were supported by and had positive relationships with their peers (Anderson-Butcher et al., 2013). Example items from this six-question scale are, "My friends support and care about me" and "My friends are people who I can trust." Response options ranged from 1 = strongly disagree to 5 = strongly agree. The variable peer relationships obtained a Cronbach's alpha value of 0.87.

Internalizing and Externalizing Behavior

The relationships between youth peer relationships, academic motivation, and college and career readiness were found to be mediated by internalized and externalized adolescent behavior. Internalized behaviors are feelings and emotions that are dealt with internally, rather than by acting them out in the home or school (e.g., anxiety, depression, loneliness, shyness) (Anderson-Butcher et al., 2013). Externalized behaviors, often closely linked to adolescent internalized behavior, are thought of as behaviors or actions directed outward, either toward the external environment or other individuals, such as poor attention, bullying, or impulsivity (Anderson-Butcher et al., 2013). Therefore, these variables also were accounted for in the current study. The 10-item internalizing behavior scale contained response

options from 1 = strongly agree to 5 = strongly disagree, included items such as, "In the past week, I felt worried," and obtained a Cronbach's alpha level of 0.92. The 10-item externalizing behavior scale contained response options from 1 = very often to 5 = never, and included items such as, "Have you ever been bullied at school?" and obtained a Cronbach's alpha level of 0.85.

Data Analysis

A broader goal of the current study was to contribute to more nuanced measures of rural adolescent peer relationships and related school experience variables to inform subsequent rural education policies and programming. Using Mplus Version 8.7 statistical software (Muthén & Muthén, 2017), latent class and latent profile analyses were employed to examine unobserved patterns among rural adolescent participants who may be experiencing peer relationships, internalized and externalized behavior, academic motivation, and college and career readiness to different degrees and with various outcomes. Latent class and latent profile analysis (i.e., mixture modeling) has seen increased use in social science research to identify hidden groups or classes of individuals or cases from within observed data (Schreiber, 2017). Latent class analysis (LCA) specifically uses observed categorical data to create new, multidimensional discrete latent variables which then can be used to identify and disaggregate relatively homogenous groups of participants (Schreiber & Pekarik, 2014). For example, in this study, adolescent demographic characteristics, including age, gender, race, and SES, were used to distinguish the likelihood of inclusion within various profiles. Latent profile analysis (LPA) undergoes the same process but uses observed continuous data. In this study, observed continuous data included adolescent responses to school experience constructs such as peer relationships, internalized and externalized behaviors, academic motivation, and college and career readiness, and these data were used to create varying student profiles.

Early work by Narayan and Cassidy (2001) suggested that measuring complex constructs like the influence of relationships requires an initial step of disaggregation of its various dimensions to better understand how they might develop and evolve to impact outcomes. In this way, the current study followed their advice and looked primarily at the connections and networks of adolescents from rural contexts. Owen and Videras (2009) also demonstrated the applicability of LCA in measuring constructs like social capital and connections. Thus, the current study employed this unique person-centered approach to determine what subgroups may exist within the available data.

A critical step in LPA is determining the number of profiles that best fit available data. Scholars have noted that this process is not straightforward, and multiple criteria that rely on statistical information and theoretical insight often are used (Muthén & Muthén, 2000; Spurk et al., 2020). Ram and Grimm (2009) suggested several indicators, noting that these fit criteria can be applied in any order. Examples include relative fit information criteria (e.g., Bayesian information criterion, BIC; Akaike information criterion, AIC); evaluation of models based upon individual placement within one group or another (e.g., entropy); and comparisons between likelihood ratio tests that distinguish between the ideal model and those with fewer classes or profiles (e.g., Lo–Mendell–Rubin likelihood ratio test [LMR LRT]) (Ram & Grimm, 2009; Schreiber, 2017). Profile size also has been used as a model fit indicator, with scholars suggesting that model profiles should not contain less than 5% of the sample (Shanahan et al., 2013; Weller et al., 2020).

Missing data patterns were explored before data analysis. All model variables demonstrated at least 96% of values present. Logistic regression models for testing missing data patterns were conducted and all variables yielded null results, except for externalizing behavior and gender. For every unit increase in negative externalizing behaviors, there was a 43% decrease in the odds of participant responses to college and career readiness questions (OR = *0.57,* SE = 0.11, z = -2.83*,* p = 0.01, 95% CI = 0.39, 0.84), and respondents who self-identified as male demonstrated a 66% decrease in odds or responding to college and career readiness questions (OR = 0.34, SE = 0.12, z = -3.17, p = 0.001, 95% CI = 0.17, 0.66). In this case, however, the significant predictors of missingness remained in the model as each contained less than 3% missing data, indicating little to no impact on the outcomes of the planned analysis (Dong & Peng, 2013; Schafer, 1999). Therefore, the use of full information maximum likelihood estimation was employed (Schafer & Graham, 2002), using all available data to generate parameter and standard error estimates while accounting for missing data (McArdle, 2013).

Results

Results of the LPA revealed four distinct rural adolescent profiles categorized by *low*, *limited*, *moderate*, and *high* levels of academic motivation and college and career readiness. Each profile was further defined by adolescents' concurrent levels of peer relationships, internalized behavior, and externalized behavior. Overall sample means and standard deviations for adolescent peer relationships, internalized behavior, externalized behavior, academic motivation, and college and career readiness are presented in Table 1. A description of variable levels for each distinct profile follows this table. Next, results of LCA that include the categorical, demographic characteristics of each profile

are discussed. This discussion provides further insight into the type of rural adolescent who is experiencing a low, limited, moderate, or high level of academic motivation and college and career readiness.

In this study, a four-class model emerged with the best overall fit of the data as determined by an AIC smaller than both the BIC and adjusted BIC, a significant LMR LRT ($p < 0.001$), and final profile counts each containing greater than 5% of the overall sample and an acceptable entropy value of 0.88 (S. L. Ferguson et al., 2020; Spurk et al., 2020). The model fit statistics for all examined models in the current study can be found in Table 2.

Table 1

Mean, Standard Deviation, and Range of Continuous Variables of Overall Sample

Variable	*n*	%	*M*	*SD*	Range
Peer relationships	8419	98.6	3.82	0.83	1–5
Internalizing behavior	8477	99.3	3.74	1.06	1–5
Externalizing behavior	8474	99.2	4.23	0.73	1–5
Academic motivation	8529	99.9	3.65	0.82	1–5
College/career readiness	8328	97.5	3.96	0.90	1–5

Note. $N = 8{,}541$.

Table 2

Fit Statistics for Latent Profile Models Examined

Profiles	Smallest class size (%)	AIC	BIC	SABIC	LMR LRT p	Entropy
1	-----	144,649.32	144,748.03	144,703.54	-----	-----
2	30%	137,979.89	138,149.11	138,072.85	0.0000	0.74
3	7%	136,310.76	136,550.50	136,442.45	0.0095	0.72
4	**11%**	**130,864.06**	**131,174.31**	**131,034.48**	**0.0000**	**0.88**
5	2%	114,850.28	115,231.04	115,059.44	0.0000	0.89
6	2%	113,368.45	113,819.71	113,616.33	0.0000	0.87

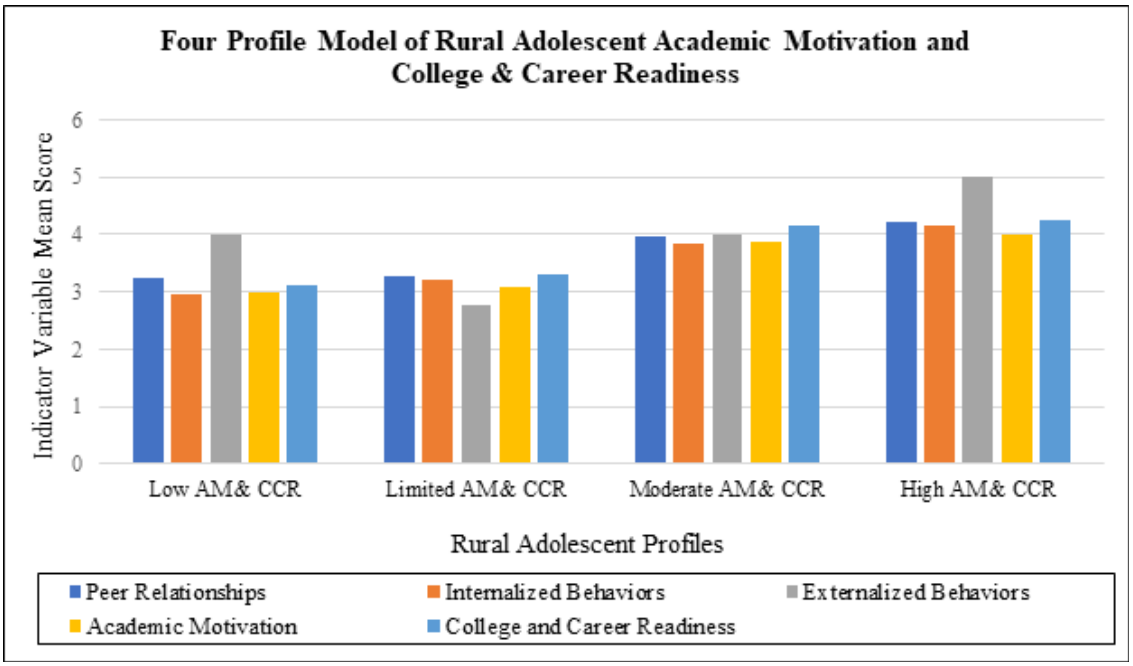
Note. $N = 8{,}541$. Bolded values indicate the best-fitting model. SABIC = adjusted BIC. Profile percentages for each model are not included.

Latent Profiles

Each profile has been defined according to rural adolescents' levels of AM and CCR constructs (low, limited, moderate, and high AM and CCR), and how they concurrently impact peer relationships and both internalized and externalized behavior. Figure 1 presents a line graph of each profile identified in the analysis. Each latent profile (low, limited, moderate, and high AM and CCR) is represented by an individual line. The x-axis indicates the variables measured to compose each profile. The y-axis provides the mean score of each indicator variable score for the four profiles; as the number approaches 5, the strength of that variable within the profile is higher.

Figure 1

Graphical Representation of Low, Limited, Moderate, and High AM and CCR Latent Profiles



Note. This figure demonstrates the four profiles identified within the sample as determined by the mean score of five indicator variables. Each variable was determined by a 5-point Likert-type scale, with scores closer to five indicating a more positive orientation.

Looking across the four identified profiles of rural adolescents in the current study sample, key characteristics began to emerge between those students who expressed low, limited, moderate, and high levels of academic motivation and college and career readiness. Below, I elaborate on the defining demographic characteristics of each profile, followed by the results of multinomial logistic regression between various individual inclusion characteristics. Table 3 presents the demographic percentage scores for each profile, including 95% confidence intervals (CI).

Disengaged and Underprepared (Low AM and CCR)

Rural adolescents who were the least academically motivated and least prepared for postsecondary pathways (*Low AM and CCR*) represented 12.3% (n = 945) of the overall sample. Adolescents in the *Low AM and CCR* profile also indicated the lowest perceptions of their peer relationships (M = 3.24, SD = 0.05, t = 67.51, $p < 0.001$) and internalized behavior (M = 2.97, SD = 0.09, t = 33.13, $p < 0.001$). However, this profile did not indicate the lowest levels of externalized behavior (M = 4.00, SD = 0.00, t = 49,086.12, $p < 0.001$). This profile was evenly split between female and male (49.7% female, SE = 0.03, $p < 0.001$, CI [-0.26, 0.23]). Further, these rural adolescents had higher probability of being White (85.2%, SE = 0.02, $p < 0.001$, 95% CI [1.52, 1.98]), high school age (60.1%, SE = 0.02, $p < 0.001$, 95% CI [-0.57, -0.25]), and having a lower SES (52.7%, SE = 0.02, $p < 0.001$, 95% CI [-0.06, 0.27]).

Quietly Struggling (Limited AM and CCR)

Rural adolescents with limited academic motivation and college and career readiness (*Limited AM and CCR*) represented 10.8% (n = 901) of the overall sample. These adolescents also indicated more negative perceptions of their peer relationships (M = 3.28, SD = 0.03 t = 100.78, $p <$ 0.001) and internalized behaviors (M = 3.20, SD = 0.04, t = 78.45, $p < 0.001$). Of note, this profile exhibited the lowest levels of externalized behavior (M = 2.78, SD = 0.02, t = 159.74, $p < 0.001$). This profile had a higher probability of being female (66.0%, SE = 0.02, $p < 0.001$, 95% CI [0.52, 0..81]), White (78.9%, SE = 0.01, $p < 0.001$, 95% CI [1.15, 1.48]), and high school age (51.6%, SE = 0.02, $p < 0.001$, 95% CI [-0.20, 0.07]). Rural adolescents in this profile also had a higher probability of having a low SES (62.7%, SE = 0.02, $p < 0.001$, 95% CI [0.38, 0.66]).

Table 3
Percentages of Demographic Characteristics by Latent Profile

	Low AM/CCR (n = 945)		Limited AM/CCR (n = 901)		Moderate AM/CCR (n = 2,788)		High AM/CCR (n = 3,893)	
Variable	%	95% CI	%	95% CI	%	95% CI	%	95% CI
Gender								
Female	50	[44, 56]	66	[63, 69]	58	[55, 61]	43	[42, 45]
Male	50	[44, 56]	34	[31, 37]	42	[40, 45]	57	[55, 58]
Race								
White	85	[82, 88]	79	[76, 82]	88	[87, 90]	90	[87, 91]
SGM	15	[12, 18]	21	[18, 24]	12	[11, 13]	10	[9, 11]
Grade								
Middle school	40	[36, 44]	48	[45, 52]	47	[45, 49]	51	[49, 52]
High school	60	[56, 64]	52	[48, 55]	53	[51, 55]	49	[48, 51]
Socioeconomic status								
Low income	53	[49, 57]	63	[59, 66]	52	[50, 54]	41	[39, 42]
High income	47	[43, 51]	37	[34, 41]	48	[46, 50]	59	[58, 61]

Note. SGM = students of the global majority; refers to learners who are Black, Asian, Brown, dual-heritage, Indigenous, or otherwise racialized as "minorities" in Western contexts, though they constitute ~80% of the world's population.

Stable and Uncertain (Moderate AM and CCR)

Rural adolescents who were moderately academically motivated and prepared for postsecondary pathways (*Moderate AM and CCR*) represented 31.8% (n = 2,788) of the overall sample. Relative to the previous profiles, this profile demonstrated higher perceptions of peer relationships (M = 3.97, SD = 0.28, t = 147.17, $p < 0.001$), internalized behavior (M = 3.84, SD = 0.04, t = 110.91, $p < 0.001$), and externalized behavior (M = 4.00, SD = 0.00, t = --.--, $p < 0.001$). This rural adolescent profile had higher probabilities of being female (57.9%, SE = 0.01, $p < 0.001$, CI [0.21, 0.43]), White (88.1%, SE = 0.01, $p < 0.001$, 95% CI [1.87, 2.14]), high school age (52.8%, SE = 0.01, $p < 0.001$, 95% CI [-0.20, -0.02]), and having lower SES (51.8%, SE = 0.01, $p < 0.001$, 95% CI [-0.02, 0.16]).

Confident and Future-Oriented (High AM and CCR)

The final profile of rural adolescents demonstrated the highest levels of academic motivation and college and career readiness (*High AM and CCR*) and represented 45.1% (n = 3,893) of the overall sample. This profile also demonstrated the most positive perceptions of peer relationships (M = 4.21, SD = 0.01, t = 342.49, $p < 0.001$), internalized behavior (M = 4.16, SD = 0.02, t = 280.07, $p < 0.001$), and externalized behavior (M = 5.00, SD = 0.00, t = --.--, $p < 0.001$). In contrast to the previous three profiles, these rural adolescents had a higher probability of being male (56.8%, SE = 0.01, $p < 0.001$, 95% CI [-0.34, -0.21]), White (89.6%, SE = 0.01, $p < 0.001$, 95% CI [2.05, 2.26]), and middle school age (50.8%, SE = 0.01, $p < 0.001$, 95% CI [-0.03, 0.10]). Further, these adolescents were identified as coming from a higher socioeconomic background (59.5%, SE = 0.01, $p < 0.001$, 95% CI [-0.45, -0.32]).

Research question two focused on distinguishing characteristics of identified groups of rural adolescents. In answer to this question, odds ratio results of individual inclusion characteristics for each profile are provided to identify significant differences in the sociodemographic arrangement of each profile. These results are displayed in Table 4 for ease of interpretation.

Low AM and CCR Comparisons

Rural adolescents in the *Low AM and CCR* profile had 49% (OR = 0.51, SE = 0.08, t = -6.55, $p < 0.001$, 95% CI [0.38, 0.68]) decrease in the odds of being female, relative to being male or included in the *Limited AM and CCR* profile. *Low AM and CCR* adolescents also had a 54% increase in

Table 4
Multinomial Logistic Regression Results Comparing Profiles of Rural Adolescents

Profile	Demographic Characteristics	*OR*	*SE*	*p*	95% CI *LL, UL*
Low AM and CCR					
Limited AM and CCR	Female	1.510	0.075	0.000***	0.38, 0.68
	White	0.462	0.223	0.016*	1.16, 2.05
	Middle school	1.707	0.077	0.000***	0.57, 0.88
	Low income	1.662	0.074	0.000***	0.53, 0.82
Moderate AM and CCR	Female	1.392	0.224	0.080	1.02, 1.91
	White	1.295	0.195	0.130	0.96, 1.74
	Middle school	1.346	0.141	0.014*	1.20, 1.65
	Low income	0.966	0.103	0.743	0.78, 1.91
High AM and CCR	Female	0.768	0.099	0.020*	0.60, 0.99
	White	1.504	0.193	0.009**	1.17, 1.93
	Middle school	1.555	0.138	0.000***	1.31, 1.85
	Low income	0.612	0.055	0.000***	0.51, 0.73
Limited AM and CCR					
Moderate AM and CCR	Female	0.710	0.064	0.000***	0.59, 0.85
	White	1.992	0.215	0.000***	1.61, 2.46
	Middle school	0.952	0.079	0.543	0.81, 1.12
	Low income	0.639	0.054	0.000***	0.54, 0.75
High AM and CCR	Female	0.392	0.031	0.000***	0.34, 0.46
	White	2.313	0.230	0.000***	1.90, 2.81
	Middle school	1.100	0.083	0.231	0.95, 1.28
	Low income	0.405	0.032	0.000***	0.35, 0.47
Moderate AM and CCR					
High AM and CCR	Female	0.189	0.116	0.000***	1.60, 2.05
	White	1.861	0.076	0.067	0.73, 0.97
	Middle school	1.866	0.049	0.007**	0.77, 0.97
	Low income	0.420	0.089	0.000***	1.42, 1.77

Note. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

odds of being White (*OR* = 1.54, *SE* = 0.22, *t* = 2.41, *p* < 0.05, 95% CI [1.16, 2.05]), a 29% decrease in odds of being in middle school (*OR* = 0.71, *SE* = 0.08, *t* = -3.82, *p* < 0.001, 95% CI [0.57, 0.88]), and a 34% decrease in odds of being low income (*OR* = 0.66, *SE* = 0.07, *t* = -4.58, *p* < 0.001, 95% CI [0.53, 0.82]), relative to being a student of the global majority, high school age, high-income students, and included in the *Limited AM and CCR* profile.

Rural adolescents demonstrating *Moderate AM and CCR* were 35% more likely to be middle school age (*OR* = 1.35, *SE* = 0.14, *t* = 2.45, *p* < 0.05, 95% CI [1.20, 1.65]) relative to being high school age or included in *Low AM and CCR* students. Gender, race, and SES were not significant inclusion predictors when comparing *Low AM and CCR* students with *Moderate AM and CCR* students.

Rural adolescents included in the *High AM and CCR* profile had a 33% decrease in the odds of being female (*OR* = 0.77, *SE* = 0.10, *t* = -2.33, *p* < 0.05, 95% CI [0.60, 0.99]), relative to being male or included in the *Low AM and CCR* profile. Further, *High AM and CCR* adolescents were 50%

more likely to be White (*OR* = 1.50, *SE* = 0.19, *t* = 2.61, *p* < 0.01, 95% CI [1.17, 1.93]), 56% more likely to be middle school age (*OR* = 1.56, *SE* = 0.14, *t* = 4.02, *p* < 0.001, 95% CI [1.31, 1.85]), and demonstrated a 39% decrease in odds of being low income (*OR* = 0.61, *SE* = 0.06, *t* = -7.02, *p* < 0.001, 95% CI [0.51, 0.73]), relative to being a student of the global majority, high school age, high-income, or included in the *Low AM and CCR* profile.

Limited AM and CCR Comparisons

Adolescents within the *Moderate AM and CCR* profile had a 29% decrease (*OR* = 0.71, *SE* = 0.06, *t* = -4.52, *p* < 0.001, 95% CI [0.59, 0.85]) in the odds of being female, relative to being male or included in the *Limited AM and CCR* profile. Concurrently, adolescents in the *Moderate AM and CCR* profile had a 99% increase in odds of being White (*OR* = 1.99, *SE* = 0.22, *t* =4.61, *p* < 0.001, 95% CI [1.61, 2.46]) and a 36% decrease in odds of being low income (*OR* = 0.64, *SE* = 0.05, *t* = -6.69, *p* < 0.001, 95% CI [0.54, 0.75]), relative to being a student of the global majority, high income students, or included in the *Moderate AM and CCR* profile. Age was not identified as a significant factor in comparison between limited and moderate AM and CCR profiles.

Adolescents in the *High AM and CCR* profile, had a 61% (*OR* = 0.39, *SE* = 0.031, *t* = -19.40, *p* < 0.001, 95% CI [0.34, 0.46]) decrease in odds of being female, relative to being male or included in the *Limited AM and CCR* profile. These same adolescents had a 131% increase in odds of being White (*OR* = 2.31, *SE* = 0.23, *t* = 5.71, *p* < 0.001, 95% CI [1.90, 2.81]), and a 59% decrease in odds of being low income (*OR* = 0.41, *SE* = 0.03, *t* = -18.58, *p* < 0.001, 95% CI [0.35, 0.47]), relative to being a student of the global majority, high-income students, or included in the *Limited AM and CCR* profile. In this profile comparison, age was once again a nonsignificant factor for comparison.

Moderate AM and CCR Comparison

Rural adolescents included in the *Moderate AM and CCR* profile had an 81% increase in odds of being female (*OR* = 1.81, *SE* = 0.12, *t* = 6.96, *p* < 0.001, 95% CI [1.60, 2.05]), relative to being male or included in the *High AM and CCR* profile. These *Moderate AM and CCR* students had a 13% decrease in odds of being in middle school (OR = 0.87, *SE* = 0.05, *t* = -2.72, *p* < 0.01, 95% CI [0.77, 0.97]), but demonstrated a 58% increase in odds of being low income (*OR* = 1.58, *SE* = 0.09, *t* = 6.51, *p* < 0.001, 95% CI [1.42, 1.77]), relative to being high school age, high income, or included in the *High AM and CCR* profile. Race was a nonsignificant factor in the comparison between moderate and high AM and CCR profiles.

Discussion

The present study has demonstrated the continued value of LPA and LCA for uncovering meaningful differences in rural adolescent school experiences and their relationships with academic motivation and postsecondary readiness. As with prior work investigating rural youth educational contexts (e.g., Knox, 2023), this analytic approach reveals distinct subgroups of adolescents whose perceptions of school factors and developmental outcomes vary systematically, suggesting that rural youth are not a homogeneous group (Meece et al., 2014). These differences are pertinent not only for understanding variations in individual development, but also for contextualizing how rural school climates and cultures, local economic shifts and opportunities, and school-community partnerships and program availability shape rural youth aspirations and readiness trajectories (Agger et al., 2018; Koricich et al., 2018; Parsons, 2022). Consistent with theoretical and empirical expectations, the results identified four distinct profiles of rural adolescents that differed in peer relationships, internalized and externalized behaviors, and levels of academic motivation and postsecondary preparation: (a) low, (b) limited, (c) moderate, and (d) high postsecondary aspirations and readiness. Each profile was further distinguished by demographic characteristics, which provide insight into the social and structural contexts shaping rural students' developmental pathways.

Students classified within the lowest readiness profile were equally likely to be male or female but were disproportionately White and low-income high school students. These findings align with the reality of structural and systematic barriers in many rural communities and economies, where fewer high-skill jobs and limited career pathways may limit the perceived relevance of academic preparation (Kilpatrick et al., 2023). Moreover, recent research suggests that rural students' aspirations are deeply shaped by local opportunity structures and community attachment (e.g., community/social norms toward work, availability of local postsecondary pathways) that sometimes create tensions between staying in place and pursuing education that could facilitate economic mobility outside the community (Crain, 2023).

Within the limited and moderate profiles, White, low-income female high school students were more prevalent. These patterns align with other rural research showing that girls often report higher academic aspirations but may still experience constrained access to programs that support transition to postsecondary education or skilled labor markets (Agger et al., 2018; Irvin et al., 2011; Witherspoon & Ennett, 2011). Peer and adult support systems in rural contexts play a critical role in shaping these aspirations. Recent scholarship indicates that strong social capital

networks and community support can sustain aspirations even in the face of limited structural opportunities, but that such supports are unevenly distributed across rural populations (M. Brown et al., 2022).

Students in the highest readiness profile were more likely to be White, male, and of middle school age, suggesting that developmental timing and gender intersect in complex ways to influence readiness and motivation. This pattern provides nuance to earlier assertions that males universally face greater deficits in motivation and engagement (Beaman et al., 2007; Logan & Medford, 2011) and aligns with research showing that gender differences in internalizing and externalizing behaviors evolve across adolescence (Bugler et al., 2015). These findings also reflect rural cultural norms that differently shape boys' and girls' views of career paths and community ties, consistent with evidence that rural gender expectations and occupational structures influence educational decision making.

The interplay of gender and rural identity illuminated by this study also aligns with broader developmental scholarship on rural youth. Gender differences in prosocial behaviors and peer relationships intersect with local community and social norms and economies/labor markets, shaping how boys and girls interpret the value of postsecondary education and career preparation (Busching & Krahé, 2015; Van der Graaff et al., 2018). While some cross-sectional findings in rural settings point to greater aspirations among females, these aspirations may not always translate into readiness outcomes when structural supports (e.g., college guidance, work-based learning, advanced coursework) are limited. This perspective aligns with an increasing amount of scholarship that is beginning to emphasize that such structural constraints in rural schools and communities can be as consequential as individual psychological factors in shaping postsecondary motivations and aspirations.

These findings reinforce the importance of contextualizing adolescent motivation and aspirations within broader socioeconomic structures. The current results highlight how socioeconomic disadvantage is intricately linked with school experiences (e.g., peer relationships, internalized/externalized behavior) to influence readiness for postsecondary pathways. Consistent with prior research on rural socioeconomic constraints, lower SES is associated with limited access to advanced academic offerings, career exposure programs, and pathways aligned with local labor market needs, which reinforces both actual and perceived barriers to postsecondary preparation.

A growing body of literature now emphasizes that rural students' aspirations and outcomes should be understood in relation to place-based opportunity structures, including local labor markets, geographical isolation, and program availability in schools and communities. For example, recent scholarship demonstrates that rural students' college aspirations are shaped by attachment to place as well as by limited access to postsecondary institutions and career pathways, which can influence the translation of aspirations into attainment (Bernsen et al., 2022; Stich & Crain, 2023). Further, Bouchard and Wike (2022) also have detailed how rural community contexts (e.g., economic realities and social expectations) frame decisions about leaving or staying in place for education and work, underscoring the potential for programs that bridge school, community, and economic development efforts to expand opportunity structures in rural areas.

Collectively, the results of this study underscore the significance of both individual developmental factors and contextual rural structures in understanding academic motivation and postsecondary readiness. They reinforce the call for rural education research and practice to move beyond deficit framings toward frameworks that explicitly consider rural realities, including economic opportunities, postsecondary preparation program availability, and structural opportunities like dual enrollment, work-based learning, and pathway programs that align with local labor needs and broaden real options for rural youth. These approaches are central to closing persistent gaps in rural postsecondary enrollment and success and to supporting equitable educational and economic outcomes for rural students.

Strengths and Limitations

Unique strengths of this study include the use of LPA and LCA, which provide examples of underused analytical methods for identifying subgroups of individuals. Weller and colleagues (2020) and Muthén and Muthén (2000) explained that LCA and LPA are tools for detecting latent, unobserved diversity among sample groups. Because school climate and culture are increasingly understood to influence the experiences, aspirations, and achievements of students through various mechanisms (Aldridge & McChesney, 2018; Gregory et al., 2011; Maxwell et al., 2017), use of this method to identify subgroups of students who may or may not be benefitting from school experiences can serve as an example for alternative school, district, or community contexts. The focus on a large sample of rural adolescents also is a strength, as it provides a more nuanced investigation into the underresearched experiences of rural students and schools (Lavalley, 2018). In this study, low-income female adolescents emerge as a group of students requiring further investigation to understand how they can improve peer relationships, subsequent mental and behavioral health, and their ultimate postsecondary readiness and aspirations.

This study is also not without limitations. First, latent class and profile analyses center on the person as opposed to their response or score. Thus, assigning an individual to the most appropriate class or profile is not exact. Probabilities inform the assignment to classes, so exact scores or percentages of individual characteristics cannot be used. This lack of exact scores or percentages can create a limitation in the distinct labeling of classes or profiles. In other words, whatever class or profile label is used to define them may not be the most accurate for every individual included. Second, the current study investigated a large sample of rural adolescents from a particular region in the United States. As such, the generalizability of this study's findings is limited in that they demonstrate the unique individual characteristics and school experiences of this specific sample and its regional context. The ways in which peer relationships, internalized and externalized behaviors, and postsecondary motivation and readiness variables coalesce among more diverse rural adolescent populations or regions may be very different (Ali et al., 2019; Eccles & Roeser, 2011; Graham & Echols, 2018). Third, the survey instrument used in data collection is nearly a decade old and uses potentially confusing language to assess perceptions of certain constructs (e.g., internalized and externalized behaviors). Updating and expanding the CAYCI-SES to include more gender identity, sexual orientation, and racial/ethnic options may provide more accurate and inclusive student perception data, which may lend itself to different latent classes or profiles of students who experience varying levels of motivation or readiness.

Implications for Rural Education Policy and Practice

Promoting adolescent motivation and adequate preparation for multiple postsecondary pathways has become an increasing priority for schools and educators over the past several decades (Camara, 2013; Conley, 2012; Darling-Hammond et al., 2014; Wentzel, 2017). Concurrently, scholarship continues to highlight the critical role that school climate, peer relationships, and students' lived experiences play in shaping motivation, engagement, and postsecondary readiness (Cornell & Mayer, 2010; Hoffman et al., 2017). Despite this growing body of evidence, the translation of these insights into policies and practices that are responsive to rural students and school contexts remains uneven, in part due to shifting definitions of rurality and the variability of indicators used to assess student readiness and motivation (Wang & Degol, 2016). The use of empirically derived rural student profiles offers a promising pathway forward by providing educators and policymakers with a more nuanced, subjective understanding of rural student populations. Such profiles can support school- and district-level leaders in moving beyond one-size-fits-all approaches toward more differentiated, equitable supports that align resources with students' developmental, social, and academic readiness.

From a practice perspective, the four readiness profiles identified in this study point to the importance of targeted and differentiated supports across rural secondary schools. Rather than applying uniform interventions, school and district leaders can leverage these profiles to design supports that meet students where they are. Strategies might look like targeted mentoring programs, restorative practices to promote safer school environments, and contextualized social-emotional learning curricula for students who demonstrate lower motivation or readiness, alongside expanded access to early college coursework, CTE, work-based learning, and project-based learning for students demonstrating clearer postsecondary trajectories. Aligning interventions with student profiles allows rural schools, which often operate with limited staffing and financial capacity, to employ and integrate resources more strategically while avoiding deficit-based assumptions about rural learners and their communities.

Findings related to peer relationships further underscore the need for intentional investments in peer and community connections within rural schools. Given the strong links between peer relationships, internalizing and externalizing behaviors, and subsequent outcomes related to motivation and college and career readiness, rural schools should prioritize structures and partnerships that foster belonging, identity development, and connectedness. Practices may include targeted advisory periods, school- or community-based mentoring networks, and partnerships with local organizations or community partners that expand opportunities for meaningful engagement through work-based and project-based learning aligned with student interests. Such approaches are particularly salient in rural contexts, where schools often naturally function as central community hubs and where strengthening social capital may mitigate isolation and disengagement among adolescents.

Notably, low-income students and female students were disproportionately represented in the low, limited, and moderately motivated and postsecondary-ready profiles. These findings suggest a need for further investigation into the peer dynamics, social pressures, and mental and behavioral health challenges faced by rural adolescent girls. For educators and administrators, these results point to the importance of proactively identifying social and cultural barriers affecting these students and implementing targeted, contextually relevant supports. Examples may include localized adaptations of girls' prosocial development programs (e.g., Friend to Friend) or the use of tele-mentoring and professional learning models, such as Project ECHO, to build educator capacity to support female students' social-emotional development in geographically isolated settings (Leff et al., 2016). Additionally, the strong association

between SES and postsecondary aspirations reinforces the need for rural schools to engage families and communities in addressing basic needs through rural-focused family–school–community partnerships such as Community Schools or Promise Zone initiatives that integrate academic, social, and health-related supports (Daniel et al., 2019; Perna & Leigh, 2018).

At the policy level, these findings highlight the urgency of integrating college and career pathways into rural education policy in more equitable, sustained, and comprehensive ways. Policymakers and education leaders must ensure that rural students have genuine access to both college-preparatory and workforce-oriented pathways by investing in transportation, broadband and technology infrastructure, and credentialing partnerships that connect students to regional employers, emerging industries, and institutions of higher education. Without such investments, postsecondary options and opportunities for rural students, particularly those in lower readiness profiles, remain limited, regardless of their motivation or aspiration.

Finally, although not an original aim of this investigation, the findings carry particular relevance in the post–COVID-19 educational landscape. As students have returned to full-time, in-person learning, educators increasingly are observing social-emotional skill gaps and behavioral challenges linked to prolonged isolation (Brausch et al., 2023). The results of this study provide empirical support for centering peer relationships, sense of belonging and safety, and social connectedness as foundational components of motivation and postsecondary readiness. For rural schools and communities that are navigating recovery and renewal, these findings offer both support and guidance for navigating our current educational landscape. The strengthening of relationships, aligning supports with student readiness, and embedding college and career pathways into policy and practice are not and should not be secondary efforts or afterthoughts, but rather be considered critical strategies for fostering equitable postsecondary preparation and success for rural students and communities.

Conclusion

The academic motivation and college and career readiness of students remain a primary goal of educators and school systems. A school's context, climate, and culture shape formative experiences and social connections developed by students. In turn, these connections and experiences influence students' internalized and externalized behaviors, which impact self-efficacy, goal setting, motivation, and postsecondary attainment and success. Therefore, a school's ability to foster a culture and climate that supports healthy, prosocial relationships and promotes the development of positive internalized and externalized behavior can directly influence the motivation and preparation of all students. This strategy may be more of a challenge for rural communities and schools due to limited resources and collaborative opportunities. On the other hand, rural schools may hold unique assets or social frameworks that foster greater connection, support, and social capital among students due to smaller sizes and more concentrated interaction opportunities. Using latent class and profile analysis, a school can gain the ability to determine whether subgroups of students may require more focused intervention or support. This analytical method may help an educator or school discern specific and efficient policy shifts or targeted programming that might be most beneficial for vulnerable or at-risk students. In this way, greater equity in support and attainment for rural students of all backgrounds can be attained.

References

Abraham, J., & Barker, K. (2015). Exploring gender difference in motivation, engagement and enrolment behaviour of senior secondary physics students in New South Wales. *Research in Science Education*, *45*(1), 59–73. https://doi.org/10.1007/s11165-014-9413-2

Afifi, R. A., Parker, E. A., Dino, G., Hall, D. M., & Ulin, B. (2021). Reimagining rural: Shifting paradigms about health and well-being in the rural United States. *Annual Review of Public Health*, *43*, 135–154. https://doi.org/10.1146/annurev-publhealth-052020-123413

Agger, C., Meece, J., & Byun, S. Y. (2018). The influences of family and place on rural adolescents' educational aspirations and post-secondary enrollment. *Journal of Youth and Adolescence*, *47*(12), 2554–2568. https://doi.org/10.1007/s10964-018-0893-7

Aldridge, J. M., & McChesney, K. (2018). The relationships between school climate and adolescent mental health and wellbeing: A systematic literature review. *International Journal of Educational Research*, *88*, 121–145. https://doi.org/10.1016/j.ijer.2018.01.012

Ali, S. R., Pham, A., Loh Garrison, Y., & Brown, S. D. (2019). Project HOPE: Sociopolitical development and SCCT beliefs of Latinx and White rural middle school students. *Journal of Career Development*, *46*(4), 410–424. https://doi.org/10.1177%2F0894845319832973

Allensworth, E. M., & Clark, K. (2020). High school GPAs and ACT scores as predictors of college completion: Examining assumptions about consistency across high schools. *Educational Researcher*, *49*(3), 198–211. https://doi.org/10.3102/0013189X20902110

An, B. P., & Taylor, J. L. (2015). Are dual enrollment students college ready? Evidence from the Wabash National Study of Liberal Arts Education. *Education Policy Analysis Archives*, *23*(58), 1–30. https://doi.org/10.14507/epaa.v23.1781

Anderson-Butcher, D., Amorose, A. J., Iachini, A., & Ball, A. (2013). *Community and Youth Collaborative Institute school experience surveys [CAYCI-SES]*. College of Social Work, The Ohio State University. https://cayci.osu.edu/cayci-surveys/cayci-surveys-technical-reports/

Anderson-Butcher, D., Amorose, A., Bates, S. M., Iachini, A. L., Ball, A., & Henderson, T. (2020). Driving school improvement planning with Community and Youth Collaborative Institute school experience surveys (CAYCI-SES). *Children & Schools*, *42*(1), 7–17. https://doi.org/10.1093/cs/cdz028

Ardoin, S., & McNamee, T. C. (2020). Spatial inequality and social class: Suggestions for supporting rural students across social class backgrounds. *New Directions for Student Services*, *2020*(171–172), 37–46. https://doi.org/10.1002/ss.20363

Asparouhov, T., & Muthén, B. (2014). Auxiliary variables in mixture modeling: Three-step approaches using Mplus. *Structural Equation Modeling: A Multidisciplinary Journal*, *21*(3), 329–341. https://doi.org/10.1080/10705511.2014.915181

Astin, A. W., & Oseguera, L. (2012). Pre-college and institutional influences on degree attainment. In A. Seidman (Ed.), *College student retention: Formula for student success* (2nd ed., pp. 119–145). Rowman & Littlefield. https://doi.org/10.5040/9798216414476.ch-006

Avery, L. M., & Sipple, J. W. (2016). Common Core, STEM, and rural schools: Views from students and states. In G. M. Fulkerson & A. R. Thomas (Eds.), *Reimagining rural: Urbanormative portrayals of rural life* (pp. 123–145). Lexington Books. https://doi.org/10.5040/9781978725744.ch-008

Azano, A. P., & Biddle, C. (2019). Disrupting dichotomous traps and rethinking problem formation for rural education. *The Rural Educator*, *40*(2), 4–11. https://doi.org/10.35608/ruraled.v40i2.845

Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Prentice-Hall.

Beaman, R., Wheldall, K., & Kemp, C. (2007). Recent research on troublesome classroom behaviour: A review. *Australasian Journal of Special Education*, *31*(1), 45–60. https://doi.org/10.1017/S1030011200025586

Bernsen, N. R., Crandall, M. S., Leahy, J. E., & Biddle, C. (2022). How far to go? Community influences on youth educational aspirations in rural, resource-dependent places. *RSF: The Russell Sage Foundation Journal of the Social Sciences*, *8*(3), 189–207. https://doi.org/10.1080/15575330.2021.1998170

Bouchard, L. M., & Wike, T. L. (2022). Good as gone: Narratives of rural youth who intend to leave their communities. *Rural Society*, *31*(2), 69–86. https://doi.org/10.1080/10371656.2022.2084584

Bourdieu, P. (1986). The forms of capital. In J. G. Richardson (Ed.), *Handbook of theory and research for the sociology of education* (pp. 241–258). Greenwood Press.

Bowers, A. J., & Sprott, R. (2012). Why tenth graders fail to finish high school: A dropout typology latent class analysis. *Journal of Education for Students Placed at Risk (JESPAR)*, *17*(3), 129–148. https://doi.org/10.1080/10824669.2012.692071

Brand, S., Felner, R. D., Seitsinger, A., Burns, A., & Bolton, N. (2008). A large scale study of the assessment of the social environment of middle and secondary schools:

The validity and utility of teachers' ratings of school climate, cultural pluralism, and safety problems for understanding school effects and school improvement. *Journal of School Psychology*, *46*(5), 507–535. https://doi.org/10.1016/j.jsp.2007.12.001

Brausch, A. M., Whitfield, M., & Clapham, R. B. (2023). Comparisons of mental health symptoms, treatment access, and self-harm behaviors in rural adolescents before and during the COVID-19 pandemic. *European Child & Adolescent Psychiatry*, *32*(6), 1051–1060. https://doi.org/10.1007/s00787-022-02039-x

Brimhall, K. C., & Saastamoinen, M. (2020). Striving for social good through organizational inclusion: A latent profile approach. *Research on Social Work Practice*, *30*(2), 163–173. https://doi.org/10.1177/1049731519832103

Bronfenbrenner, U., & Morris, P. A. (2006). The bioecological model of human development. In R. M. Lerner & W. Damon (Eds.), *Handbook of child psychology: Theoretical models of human development* (pp. 793–828). Wiley. https://doi.org/10.1002/9780470147658.chpsy0114

Brown, M., Pyle, C., & Ellison, N. B. (2022). "On my head about it": College aspirations, social media participation, and community cultural wealth. *Social Media + Society*, *8*(2), Article 20563051221091545. https://doi.org/10.1177/20563051221091545

Brown, S. D., & Lent, R. W. (2019). Social cognitive career theory at 25: Progress in studying the domain satisfaction and career self-management models. *Journal of Career Assessment*, *27*(4), 563–578. https://doi.org/10.1177/1069072719852736

Budge, K., Wargo, E., Carr-Chellman, D., & Canfield-Davis, K. (2021). When "college and career ready" means only (or mostly) college ready: Perspectives from stakeholders in six rural and small communities. *Leadership and Policy in Schools*, *20*(4), 543–562. https://doi.org/10.1080/15700763.2019.1696371

Bugler, M., McGeown, S. P., & St Clair-Thompson, H. (2015). Gender differences in adolescents' academic motivation and classroom behaviour. *Educational Psychology*, *35*(5), 541–556. https://doi.org/10.1080/01443410.2013.849325

Busching, R., & Krahé, B. (2015). The girls set the tone: Gendered classroom norms and the development of aggression in adolescence. *Personality and Social Psychology Bulletin*, *41*(5), 659–676. https://doi.org/10.1177/0146167215573212

Byun, S., Irvin, M. J., & Meece, J. L. (2012). Predictors of bachelor's degree completion among rural students at four-year institutions. *The Review of Higher Education*, *35*(3), 1–16. https://doi.org/10.1353/rhe.2012.0023

Byun, S., Meece, J. L., & Irvin, M. J. (2012). Rural–nonrural disparities in postsecondary educational attainment revisited. *American Educational Research Journal*, *49*(3), 412–437. https://doi.org/10.3102/0002831211416344

Byun, S., Meece, J., & Agger, C. (2017). Predictors of college attendance patterns of rural youth. *Research in Higher Education*, *58*(8), 817–842. https://doi.org/10.1007/s11162-017-9449-z

Cain, E. J. (2020). Place-based identity: A model. *New Directions for Student Services*, *2020*(171–172), 11–19. https://doi.org/10.1002/ss.20360

Cain, E. J., & Class, S. (2023). Exploring the college enrollment of students from rural areas: Considerations for scholarly practitioners. *Georgia Journal of College Student Affairs*, *39*(1), 1–24. https://doi.org/10.20429/gcpa.2023.390101

Camara, W. (2013). Defining and measuring college and career readiness: A validation framework. *Educational Measurement: Issues and Practice*, *32*(4), 16–27. https://doi.org/10.1111/emip.12016

Carr, P., & Kefalas, M. (2009). *Hollowing out the middle: The rural brain drain and what it means for America*. Beacon Press.

Chaudry, A., & Wimer, C. (2016). Poverty is not just an indicator: The relationship between income, poverty, and child well-being. *Academic Pediatrics*, *16*(3), S23–S29. https://doi.org/10.1016/j.acap.2015.12.010

Cohen, J., McCabe, L., Michelli, N. M., & Pickeral, T. (2009). School climate: Research, policy, practice, and teacher education. *Teachers College Record*, *111*(1), 180–213. https://doi.org/10.1177/016146810911100108

Comeau, J., & Boyle, M. H. (2018). Patterns of poverty exposure and children's trajectories of externalizing and internalizing behaviors. *SSM–Population Health*, *4*, 86–94. https://doi.org/10.1016/j.ssmph.2017.11.012

Conley, D. T. (2012). *A complete definition of college and career readiness*. Educational Policy Improvement Center. https://eric.ed.gov/?id=ED537876

Corbett, M. (2021). Structures of feeling and the problem of place in rural education. In S. White & J. Downey (Eds.), *Rural education across the world: Models of innovative practice and impact* (pp. 167–183). Springer. https://doi.org/10.1007/978-981-33-6116-4_9

Cornell, D., & Mayer, M. (2010) Why do school order and safety matter? *Educational Researcher*, *39*(1), 7–15. https://doi.org/10.3102%2F0013189X09357616

Cornell, D., Shukla, K., & Konold, T. R. (2016). Authoritative school climate and student academic engagement, grades, and aspirations in middle and high schools. *AERA Open*, *2*(2), Article 2332858416633184. https://doi.org/10.1177/2332858416633184

Crain, A. M. (2023). Social constructions of rurality: A case study in institutional policy design. *Journal of Research in Rural Education*, *39*(2), 1–18. https://doi.org/10.26209/JRRE3902

Daniel, J., Quartz, K. H., & Oakes, J. (2019). Teaching in community schools: Creating conditions for deeper learning. *Review of Research in Education*, *43*(1), 453–480. https://doi.org/10.3102/0091732X18821126

Darling-Hammond, L., Wilhoit, G., & Pittenger, L. (2014). Accountability for college and career readiness: Developing a new paradigm. *Education Policy Analysis Archives*, *22*(86), 1–38. http://dx.doi.org/10.14507/epaa.v22n86.2014

Dong, Y., & Peng, C. Y. J. (2013). Principled missing data methods for researchers. *SpringerPlus*, *2*, Article 222. https://doi.org/10.1186/2193-1801-2-222

Durlak, J. A., Weissberg, R. P., Dymnicki, A. B., Taylor, R. D., & Schellinger, K. B. (2011). The impact of enhancing students' social and emotional learning: A meta-analysis of school-based universal interventions. *Child Development*, *82*(1), 405–432. https://doi.org/10.1111/j.1467-8624.2010.01564.x

Dymnicki, A., Sambolt, M., & Kidron, Y. (2013). *Improving college and career readiness by incorporating social and emotional learning*. College and Career Readiness and Success Center, American Institutes for Research. https://eric.ed.gov/?id=ED555695

Eccles, J. S., & Roeser, R. W. (2011). Schools as developmental contexts during adolescence. *Journal of Research on Adolescence, 2*1(1), 225–241. https://doi.org/10.1111/j.1532-7795.2010.00725.x

Ferguson, K. M. (2006). Social capital and children's wellbeing: a critical synthesis of the international social capital literature. *International Journal of Social Welfare*, *15*(1), 2–18. https://doi.org/10.1111/j.1468-2397.2006.00575.x

Ferguson, S. L., Moore, E. W. G., & Hull, D. M. (2020). Finding latent groups in observed data: A primer on latent profile analysis in Mplus for applied researchers. *International Journal of Behavioral Development*, *44*(5), 458–468. https://doi.org/10.1177/0165025419881721

Flora, C., & Flora, J. (2007). *Rural communities: Legacy and change* (3rd ed.). Westview Press.

Fulkerson, G. M., & Thomas, A. R. (2019). *Urbanormativity: reality, representation, and everyday life*. Lexington Books. https://doi.org/10.5040/9781978738959

Graham, S., & Echols, L. (2018). Race and ethnicity in peer relations research. In W. M. Bukowski, B. Laursen, & K. H. Rubin (Eds.), *Handbook of peer interactions, relationships, and groups* (pp. 590–614). Guilford Press.

Gregory, A., Cornell, D., & Fan, X. (2011). The relationship of school structure and support to suspension rates for Black and White high school students. *American Educational Research Journal*, *48*(4), 904–934. https://doi.org/10.3102/0002831211398531

Gregory, A., Cornell, D., & Fan, X. (2012). Teacher safety and authoritative school climate in high schools. *American Journal of Education*, *118*(4), 401–425. https://doi.org/10.1086/666362

Hoffman, J. A., Anderson-Butcher, D., Fuller, M., & Bates, S. (2017). The school experiences of rural youths: A study in Appalachian Ohio. *Children & Schools*, *39*(3), 147–155. https://doi.org/10.1093/cs/cdx010

Hooker, S., & Brand, B. (2010). College knowledge: A critical component of college and career readiness. *New Directions for Youth Development*, *2010*(127), 75–85. https://doi.org/10.1002/yd.364

Irvin, M. J., Meece, J. L., Byun, S. Y., Farmer, T. W., & Hutchins, B. C. (2011). Relationship of school context to rural youth's educational achievement and aspirations. *Journal of Youth and Adolescence*, *40*(9), 1225-1242. https://doi.org/10.1007/s10964-011-9628-8

Johnson, J., Showalter, D., Klein, R., & Lester, C. (2014). *Why rural matters 2013–2014: The condition of rural education in the 50 states*. Rural School and Community Trust. https://eric.ed.gov/?id=ED556045

Johnson, H., & Wiener, R. (2017). *This time, with feeling: Integrating social and emotional development and college-and career-readiness standards*. Aspen Institute. https://eric.ed.gov/?id=ED577037

Kilpatrick, S., Fischer, S., Woodroffe, J., Barnes, N., Groves, O., & Austin, K. (2023). A whole-of-rural-community approach to supporting education and career pathway choice. *Australian and International Journal of Rural Education*, *33*(3), 82–102. https://doi.org/10.47381/aijre.v33i3.697

Knox, P. N. (2023). Exploring factors associated with academic motivation and college and career readiness of rural adolescents. *The Rural Educator*, *44*(3), 34–52. https://doi.org/10.55533/2643-9662.1370

Knox, P. N. (2024). Examining the influence and implications of peer relationships on the academic motivation and college and career readiness of rural adolescents. *Theory & Practice in Rural Education*, *14*(1), 73–98. https://doi.org/10.3776/tpre.2024.v14n1p73-98

Koricich, A., Chen, X., & Hughes, R. P. (2018). Understanding the effects of rurality and socioeconomic status on college attendance and institutional choice in the United States. *The Review of Higher Education*, *41*(2), 281–305. https://doi.org/10.1353/rhe.2018.0004

Koth, C., Bradshaw, C., & Leaf, P. (2008). A multilevel study of predictors of student perceptions of school climate: The effect of classroom-level factors. *Journal of Educational Psychology*, *100*(1), 96–104. https://psycnet.apa.org/doi/10.1037/0022-0663.100.1.96

Kutsyuruba, B., Klinger, D. A., & Hussain, A. (2015). Relationships among school climate, school safety, and student achievement and well-being: a review of the literature. *Review of Education*, *3*(2), 103–135. https://doi.org/10.1002/rev3.3043

LaRusso, M., Romer, D., & Selman, R. (2008). Teachers as builders of respectful school climates: Implications for adolescent drug use norms and depressive symptoms in high school. *Journal of Youth & Adolescence*, *37*, 386–398. https://doi.org/10.1007/s10964-007-9212-4

LaSalle, T. P., Meyers, J., Varjas, K., & Roach, A. (2015). A cultural-ecological model of school climate. *International Journal of School & Educational Psychology*, *3*(3), 157–166. https://doi.org/10.1080/21683603.2015.1047550

Lavalley, M. (2018). *Out of the loop: Rural schools are largely left out of the research and policy discussions, exacerbating poverty, inequality, and isolation*. National School Boards Association Center for Public Education. https://eric.ed.gov/?id=ED608842

Leff, S. S., Waasdorp, T. E., & Paskewich, B. S. (2016). The broader impact of friend to friend (F2F): Effects on teacher–student relationships, prosocial behaviors, and relationally and physically aggressive behaviors. *Behavior Modification*, *40*(4), 589–610. https://doi.org/10.1177/0145445516650879

Lent, R. W., Brown, S. D., & Hackett, G. (1994). Toward a unifying social cognitive theory of career and academic interest, choice, and performance. *Journal of Vocational Behavior*, *45*(1), 79–122. https://doi.org/10.1006/jvbe.1994.1027

Logan, S., & Medford, E. (2011). Gender differences in the strength of association between motivation, competency beliefs and reading skill. *Educational Research*, *53*(1), 85–94. https://doi.org/10.1080/00131881.2011.552242

Malin, J. R., Bragg, D. D., & Hackmann, D. G. (2017). College and career readiness and the Every Student Succeeds Act. *Educational Administration Quarterly*, *53*(5), 809–838. https://doi.org/10.1177/0013161X17714845

Mattern, K., Burrus, J., Camara, W., O'Connor, R., Hansen, M. A., Gambrell, J., Casillas, A.; Bobek, B. (2014). *Broadening the definition of college and career readiness: A holistic approach* (ACT Research Report Series No. 5). ACT. https://eric.ed.gov/?id=ED555591

Maxwell, S., Reynolds, K. J., Lee, E., Subasic, E., & Bromhead, D. (2017). The impact of school climate and school identification on academic achievement: Multilevel modeling with student and teacher data. *Frontiers in Psychology*, *8*, Article 2069. https://doi.org/10.3389/fpsyg.2017.02069

McArdle, J. J. (2013). Dealing with longitudinal attrition using logistic regression and decision tree analyses. In J. McArdle and G. Ritschard (Eds.), *Contemporary issues in exploratory data mining in the behavioral sciences* (pp. 282–311). Routledge. https://doi.org/10.4324/9780203403020

McDonough, P., Gildersleeve, R. E., & McClafferty Jarsky, K. (2010). The golden cage of rural college access: How higher education can respond to the rural life. In K. Schafft & A. Youngblood Jackson (Eds.), *Rural education for the twenty-first century: Identity, place, and community in a globalizing world* (pp. 191–209). Pennsylvania State University Press.

McGee, G. W. (2021). Closing the achievement gap: Lessons from Illinois' Golden Spike high-poverty high-performing schools. In S. C. Stringfield (Ed.), *Closing the achievement gap* (pp. 97–125). Routledge. https://doi.org/10.4324/9781315046099-2

McNamee, T. C., & Ganss, K. M. (2023). Rural students in higher education: From college preparation and enrollment to experiences and persistence. *Peabody Journal of Education*, *98*(4), 380–395. https://doi.org/10.1080/0161956X.2023.2238508

Means, D. R. (2018). *Supporting the pathways to postsecondary education for rural students: Challenges, opportunities, and strategies for moving forward*. National Association for College Admission Counseling. https://eric.ed.gov/?id=ED611921

Meece, J. L., Askew, K. J., Agger, C. A., Hutchins, B. C., & Byun, S. (2014). Familial and economic influences on the gender-related educational and occupational aspirations of rural adolescents. *Journal of Educational and Developmental Psychology*, *4*(1), 238–257. https://doi.org/10.5539/jedp.v4n1p238

Mitchell, M. M., Bradshaw, C. P., & Leaf, P. J. (2010). Student and teacher perceptions of school climate: A multilevel exploration of patterns of discrepancy. *Journal of School Health*, *80*(6), 271–279. https://doi.org/10.1111/j.1746-1561.2010.00501.x

Muthén, B., & Muthén, L. K. (2000). Integrating person-centered and variable-centered analyses: Growth mixture modeling with latent trajectory classes. *Alcoholism: Clinical and Experimental Research*, *24*(6), 882–891. https://doi.org/10.1111/j.1530-0277.2000.tb02070.x

Muthén, L. K., & Muthén, B. O. (2017). *Mplus user's guide* (8th ed.). Muthén & Muthén. https://www.statmodel.com/HTML_UG/introV8

Narayan, D., & Cassidy, M. F. (2001). A dimensional approach to measuring social capital: Development and validation of a social capital inventory. *Current Sociology*, *49*(2), 59–102. https://doi.org/10.1177%2F0011392101049002006

National Center for Education Statistics. (n.d.). *Locale classifications*. Institute of Education Sciences, U.S. Department of Education. Retrieved September

1, 2025, from https://nces.ed.gov/programs/edge/Geographic/LocaleBoundaries

National Center on Safe and Supportive Learning Environments. (n.d.). *School climate survey compendium*. Retrieved April 10, 2022, from https://safesupportivelearning.ed.gov/topic-research/school-climate-measurement/school-climate-survey-compendium

Owen, A. L., & Videras, J. (2009). Reconsidering social capital: A latent class approach. *Empirical Economics*, *37*(3), 555–582. https://doi.org/10.1007/s00181-008-0246-6

Oyen, K., & Schweinle, A. (2021). Teacher shortages in rural America: What factors encourage teachers to consider teaching in rural settings? *The Rural Educator*, *41*(3), 12–25. https://doi.org/10.35608/ruraled.v41i3.923

Parsons, R. (2022). Moving out to move up: Higher education as a mobility pathway in the rural south. *RSF: The Russell Sage Foundation Journal of the Social Sciences*, *8*(3), 208–229. https://doi.org/10.7758/RSF.2022.8.3.09

Perna, L. W., & Leigh, E. W. (2018). Understanding the promise: A typology of state and local college promise programs. *Educational Researcher*, *47*(3), 155–180. https://doi.org/10.3102/0013189X17742653

Petrin, R. A., Schafft, K. A., & Meece, J. L. (2014). Educational sorting and residential aspirations among rural high school students: What are the contributions of schools and educators to rural brain drain? *American Educational Research Journal*, *51*(2), 294–326. https://doi.org/10.3102/0002831214527493

Radcliffe, R. A., & Bos, B. (2013). Strategies to prepare middle school and high school students for college and career readiness. *The Clearing House: A Journal of Educational Strategies, Issues and Ideas*, *86*(4), 136–141. https://doi.org/10.1080/00098655.2013.782850

Ram, N., & Grimm, K. J. (2009). Growth mixture modeling: A method for identifying differences in longitudinal change among unobserved groups. *International Journal of Behavioral Development*, *33*(6), 565–576. https://doi.org/10.1177/0165025409343765

Reynolds, K. J., Lee, E., Turner, I., Bromhead, D., & Subasic, E. (2017). How does school climate impact academic achievement? An examination of social identity processes. *School Psychology International*, *38*(1), 78–97. https://doi.org/10.1177/0143034316682295

Schafer, J. L. (1999). Multiple imputation: A primer. *Statistical Methods in Medical Research, 8*(1), 3–15. https://doi.org/10.1177/096228029900800102

Schafer, J. L., & Graham, J. W. (2002). Missing data: Our view of the state of the art. *Psychological Methods*, *7*(2), 147–177. https://doi.org/10.1037/1082-989X.7.2.147

Schafft, K. A. (2016). Rural education as rural development: Understanding the rural school–community well-being linkage in a 21st-century policy context. *Peabody Journal of Education*, *91*(2), 137–154. https://doi.org/10.1080/0161956X.2016.1151734

Schreiber, J. B. (2017). Latent class analysis: an example for reporting results. *Research in Social and Administrative Pharmacy*, *13*(6), 1196–1201. https://doi.org/10.1016/j.sapharm.2016.11.011

Schreiber, J. B., & Pekarik, A. J. (2014). Using latent class analysis versus K-means or hierarchical clustering to understand museum visitors. *Curator: The Museum Journal*, *57*(1), 45–59. https://doi.org/10.1111/cura.12050

Shanahan, L., Copeland, W. E., Worthman, C. M., Erkanli, A., Angold, A., & Costello, E. J. (2013). Sex-differentiated changes in C-reactive protein from ages 9 to 21: The contributions of BMI and physical/sexual maturation. *Psychoneuroendocrinology*, *38*(10), 2209–2217. https://doi.org/10.1016/j.psyneuen.2013.04.010

Simons, E., Hwang, S. A., Fitzgerald, E. F., Kielb, C., & Lin, S. (2010). The impact of school building conditions on student absenteeism in upstate New York. *American Journal of Public Health*, *100*(9), 1679–1686. https://doi.org/10.2105/AJPH.2009.165324

Sørensen, J. (2016). Rural-urban differences in bonding and bridging social capital. *Regional Studies*, *50*(3), 391–410. https://doi.org/10.1080/00343404.2014.918945

Spurk, D., Hirschi, A., Wang, M., Valero, D., & Kauffeld, S. (2020). Latent profile analysis: A review and "how to" guide of its application within vocational behavior research. *Journal of Vocational Behavior*, *120*, Article 103445. https://doi.org/10.1016/j.jvb.2020.103445

Stich, A. E., & Crain, A. M. (2023). Structuring middle-class aspirations: The role of place-based habitus and higher education. *British Journal of Sociology of Education*, *44*(5), 805–823. https://doi.org/10.1080/01425692.2023.2206947

Taber, K. S. (2018). The use of Cronbach's alpha when developing and reporting research instruments in science education. *Research in Science Education*, *48*(6), 1273–1296. https://doi.org/10.1007/s11165-016-9602-2

Thapa, A., Cohen, J., Guffey, S., & Higgins-D'Alessandro, A. (2013) A review of school climate research. *Review of Educational Research*, *83*(3), 357–385. https://doi.org/10.3102/0034654313483907

Thier, M., Longhurst, J. M., Grant, P. D., & Hocking, J. E. (2021). Research deserts: A systematic mapping review of U.S. rural education definitions and geographies. *Journal of Research in Rural Education*, *37*(2), 1–24. https://doi.org/10.26209/jrre3702

Thomas, A. R. (2003). *In Gotham's shadow: Globalization and community change in central New York*. State University of New York Press. https://doi.org/10.1353/book4615

Thomas, A. R., Lowe, B. M., Fulkerson, G. M., & Smith, P. J. (2011). *Critical rural theory: Structure, space, culture.* Lexington Books.

Tieken, M. C. (2016). College talk and the rural economy: Shaping the educational aspirations of rural, first-generation students. *Peabody Journal of Education*, *91*(2), 203–223. https://doi.org/10.1080/0161956X.2016.1151741

Tieken, M. C., & Auldridge-Reveles, T. R. (2019). Rethinking the school closure research: School closure as spatial injustice. *Review of Educational Research*, *89*(6), 917–953. https://doi.org/10.3102/0034654319877151

Tschannen-Moran, M., Parish, J., & Dipaola, M. (2006). School climate: The interplay between interpersonal relationships and student achievement. *Journal of School Leadership*, *16*(4), 386–415. https://doi.org/10.1177/105268460601600402

Van der Graaff, J., Carlo, G., Crocetti, E., Koot, H. M., & Branje, S. (2018). Prosocial behavior in adolescence: Gender differences in development and links with empathy. *Journal of Youth and Adolescence*, *47*(5), 1086-1099. https://doi.org/10.1007/s10964-017-0786-1

Waasdorp, T. E., & Bradshaw, C. P. (2011). Examining student responses to frequent bullying: A latent class approach. *Journal of Educational Psychology*, *103*(2), 336–352. https://doi.org/10.1037/a0022747

Wang, M. T., & Degol, J. L. (2016). School climate: A review of the construct, measurement, and impact on student outcomes. *Educational Psychology Review*, *28*(2), 315–352. https://doi.org/10.1007/s10648-015-9319-1

Weller, B. E., Bowen, N. K., & Faubert, S. J. (2020). Latent class analysis: A guide to best practice. *Journal of Black Psychology*, *46*(4), 287–311. https://doi.org/10.1177/0095798420930932

Wells, R. S., Manly, C. A., Kommers, S., & Kimball, E. (2019). Narrowed gaps and persistent challenges: Examining rural-nonrural disparities in postsecondary outcomes over time. *American Journal of Education*, *126*(1), 1–31. https://doi.org/10.1086/705498

Wentzel, K. R. (2017). Peer relationships, motivation, and academic performance at school. In A. J. Elliot, C. S. Dweck, & D. S. Yeager (Eds.), *Handbook of competence and motivation: Theory and application* (pp. 586–603). Guilford Press.

Witherspoon, D., & Ennett, S. (2011). Stability and change in rural youths' educational outcomes through the middle and high school years. *Journal of Youth and Adolescence*, *40*(9), 1077–1090. https://doi.org/10.1007/s10964-010-9614-6