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The Relationship Between School Climate and College and Career Readiness: A Quantitative Analysis of Protective Factors, Internal Assets, and the California College and Career Indicators

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ABSTRACT

The California College and Career Readiness measures are new to the California school accountability dashboard, and few studies have examined how these data connect to student outcomes. The purpose of this quantitative, correlational study was to determine the degree of relationship between school protective factors (i.e., caring relationships and meaningful participation), student internal assets (i.e., student academic motivation), and College and Career Readiness Indicator outcomes. The resilience youth development module (RYDM) framework served as the model to determine the degree of relationship among these variables. The sample for this study included comprehensive, public high schools across California, including only schools that administered the California Healthy Kids Survey in the 2019–2020 school year (n = 474). Public data files were accessed from the California Accountability Dashboard and California Healthy Kids Survey. The correlational coefficients were determined using multiple regression analysis. A positive correlation between school protective factors and student internal assets was shown after controlling for schoolwide socioeconomic status. Although both school protective factors and student internal assets significantly predicted College and Career Readiness Indicator outcomes, caring adult relationships were the only positively correlated variable after controlling for socioeconomic status. Further research is recommended to explain how students define caring adult relationships and how schools can enhance practices to cultivate those relationships across all student populations. Additionally, the researchers recommend future studies to assess how the change in college and career indicators over time could assess trends and garner more information about the school supports that positively impact proficiency.

***Keywords*:** college and career readiness; school protective factors; student internal assets; caring adult relationships; meaningful participation; school academic achievement; California School Accountability

School accountability in California is in the midst of a historic shift. In the No Child Left Behind era, schools were measured narrowly, focusing on academic measures of mathematics and reading in the form of standardized testing (Darling-Hammond et al., 2016). In 2015, President Obama enacted the Every Student Succeeds Act (ESSA), widening the focus of accountability measures. California added the College and Career Indicator (CCI) in the 2017–2018 school year, providing schools with a measure of the number of graduating seniors considered to meet the requirements of preparedness for success after high school. Students can demonstrate preparedness through various academic assessments and coursework completion paths, early college credit coursework, or proficient scores on standardized assessments (California Department of Education, n.d.) With the variety of options to demonstrate preparedness, high schools are tasked with creating diverse programs and opportunities to provide many students with options and opportunities.

Multiple studies have established a correlation between school climate measures and student achievement (Bae, 2018; Hanson & Kim, 2007; Jain et al., 2015; Scales et al., 2006; Scales & Taccogna, 2000; Whitlock, 2006). However, there is a gap in the research on the relationship between career readiness indicator dashboard outcomes and school climate measures

such as protective factors and student internal assets. With the addition of this new robust measure of student achievement, the relationship between this new data set and school climate has yet to be addressed in research. Creating systems of genuine accountability requires systematic change across the educational ecosystem. The triangulation of meaningful learning, resource accountability, and professional capacity must all be supported to develop a comprehensive accountability system.

REVIEW OF LITERATURE

In today's global economy, high school graduation alone does not provide students with the skills and knowledge necessary to be productive members of society (Conley, 2007, 2014). However, supporting students to graduate high school and be ready for whichever postsecondary pathway they may embark on is an essential component of college and career readiness. California has added a new accountability measure, the College and Career Indicator Dashboard, to track and measure college and career readiness using both assessment and coursework data. Understanding school level progress toward proficiency can support schools in developing and supporting a broader understanding of their students' progress toward college and career readiness and the school supports that enhance this progress (Bae, 2018).

School Climate

School climate was defined by Cohen et al. (2009) as the quality and character of the school experience. Freiberg (2005) articulated that "school climate is the heart and soul of a school" (p. 11). The climate is developed through patterns of experiences that create a sense of community and is reflective of the complex elements of norms, values, relationships, practices, and structures valued by the school community (Blum, 2005; Cohen et al., 2009; Korpershoek et al., 2020). School climate is simultaneously an individual and collective experience encompassing all aspects of school life (Cohen et al., 2009).

Theoretical Framework

The resilience youth development module (RYDM) theoretical framework emphasizes the importance of resiliency in healthy human development. Human needs for safety, love, belonging, respect, mastery, challenge, power, and meaning are inherent desires. The process in which one seeks these needs is youth development (Voight et al., 2013). Supportive environments in school, at home, in the community, and with their peer groups support the developmental needs of youth. These external protective environments give youth support through caring relationships, opportunities to rise to high expectations, and contributions in meaningful participation. When youth needs are met, the internal assets of the individual are developed. These internal assets of cooperation, empathy, problem-solving, self-efficacy, self-awareness, and aspirational goal setting lead to improved health, social, and academic outcomes (Constantine et al., 1999; Furlong et al., 2009; Hanson & Kim, 2007). Figure 1 from the RYDM framework displays how external assets impact youth need to build internal assets, which leads to improved life outcomes.

With resiliency as the lens, strong protective factors within a school are essential components of a positive, supportive school climate and high academic motivation. These support the resilient growth necessary for youth to meet their developmental needs, which helps support development of the internal assets necessary for success. Research has shown a positive relationship between the expectations of school staff and students and the scores on school climate surveys because schools with high expectations often provided better supports for student growth and more opportunities for school and extracurricular participation (Cohen et al., 2009; Johnson, 2019).

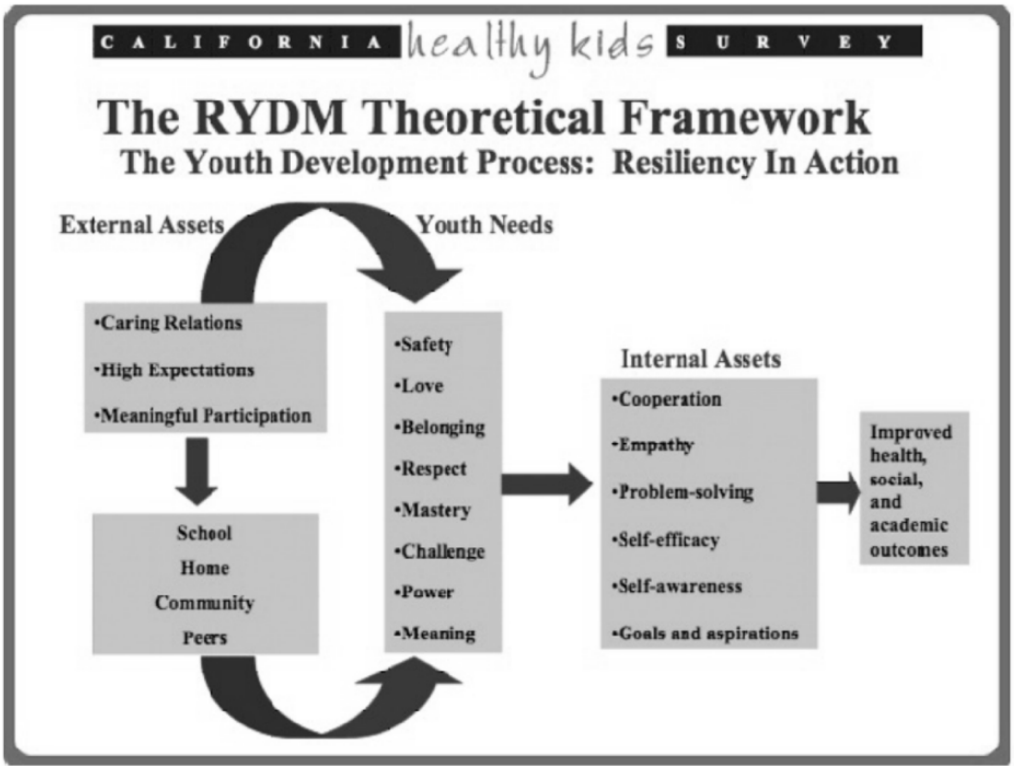
External Protective Factors

Protective factors stem from resiliency. Protective external factors can mediate the response to stressors and provide the support necessary to learn and grow from adversity. Rutter (1987) stated, "Protection in this case resides, not in the evasion of risk, but the successful engagement with it" (p. 318). Protective factors counter the risks and lead to adaptations to allow for individual growth and success. Benard (1991, 2004) identified three vital school protective factors: meaningful relationships, high expectations, and opportunities for participation.

The school environment can bolster student resiliency and play an essential role in the resiliency development of students. For students who come from home or community environments that do not provide the protective factors of caring relationships, high expectations, and opportunities for meaningful participation, the school can be the environment that nurtures these factors (Banatao, 2011; Benard, 1991, 1993; Rutter, 1987).

Figure 1

The RYDM Theoretical Framework



Note. From Using the Resilience & Youth Development Module," by California Healthy Kids Survey, 2003, p. 3 (https://data.calschls.org/resources/rydm_presentation.pdf).

Internal Student Assets

Internal assets are the individual resiliency traits individuals develop that are enhanced by external protective factors (Hanson & Kim, 2007). These assets in youth naturally react to environmental and external supports (Bronfenbrenner & Morris, 1998; Hanson & Kim, 2007; Scales et al., 2006). The external assets that students build through external protective factors work to enhance the student's internal assets. These assets, which develop over time, support a healthy social and academic outcome for youth (Furlong et al., 2009; Scales et al., 2006).

Weissberg and O'Brien (2004) explained that the mission of school is to develop students who are "knowledgeable, responsible, healthy, caring, connected, and contributing" (p. 87). They highlighted the need for social, emotional, and academic learning integration to support full development. Research has suggested that the most significant student outcomes occur when collective actions support multiple developmental needs simultaneously across settings (Bronfenbrenner & Morris, 1998).

Internal Assets Demonstrated Through Student Academic Motivation

There has been increasing awareness and research interest in academic motivation as a broader measure of educational outcomes. A student's self-evaluation of their academic ability, or academic self-concept, is a critical component of a student's internal assets. Motivation and self-concept play a complementary role in development (Green et al., 2012). Scales et al.'s 2006 longitudinal study followed 370 students throughout high school, offering evidence of the importance of building internal developmental assets to promote their academic motivation toward achievement. Therefore, students who demonstrate substantial academic achievement have developed assets such as educational role models, involvement in the school community, and long-term future planning.

California School Accountability

Accountability is a complex political dynamic within the education system, and each state is responsible for establishing an accountability system. As a part of the broader accountability measure, California added the CCI in the 2017–2018 school year. To earn a prepared classification, students have numerous avenues to demonstrate their preparedness (California Department of Education, n.d.), including academic assessments and coursework completion (California Department of Education., 2019. To be proficient in the measures of academic assessment criteria, students need to (a) score a 3 or higher on both the SBAC English language arts and literacy (ELA) and mathematics assessments, (b) score a 3 or higher on two advanced placement program (AP) exams, (c) earn a State Seal of Biliteracy with at least a score of 3 on the ELA SBAC, or (d) score at least a 4 on two IB exams.

Students can also demonstrate proficiency through coursework measures by completing the following:

- two semesters, three quarters, or three trimesters of college credit coursework with a grade of C- or better in either an academic or CTE course,
- 2 years of leadership or military science and an SBAC score of 2 in ELA or math, or
- a CTE pathway with at least a C- in the capstone course and either a combination of a 2 and 3 on the SBAC ELA and math or one semester, two quarters, or two trimesters of college credit coursework with a C- or better (California Department of Education, n.d.-c, 2019b; California School Dashboard, n.d.; University of California Admissions, n.d.).

Students can also demonstrate proficiency through completing the A-G coursework requirements set forth by the University of California and California State University with an additional criterion of one of the following:

- a combination of a 2 and 3 on the SBAC ELA and math or one semester, two quarters, or two trimesters of College Credit Coursework with a C- or better,
- a score of at least 3 on one AP exam,
- a score of at least 4 on an IB exam, or
- the completion of a CTE Pathway (California Department of Education, n.d.-c, 2019b; California School Dashboard, n.d.; University of California Admissions, n.d.).

College and Career Preparedness Outcomes

In 2020, only 45.8% of high school seniors in California were considered college and career prepared on the California School Dashboard (California Department of Education, 2020b). The achievement gap between subgroups is prominent. Although 74% of Asian students, 64.9% of Filipino students, 54.9% of White students, and 51.1% of students of two or more races demonstrated a level of preparedness, the other subgroups recorded levels well behind the state average. Only 26.2% of African American students, 28.1% of American Indian students, 38.1% of Hispanic students, 17.2% of English learners, 37.9% of socioeconomically disadvantaged students, 12.4% of students with a disability, and 16.6% of foster youth achieved the prepared level.

With less than half of California's seniors leaving high school without meeting proficiency on the college and career indicators and even more significant gaps among subgroups, the importance of college and career readiness has grown (California Department of Education, 2020). Without dynamic college and career readiness understanding, preparation, and supports for all, California's students are exiting the K-12 educational system without the preparation to compete in the global workforce.

METHOD

This study compared school protective factors, student internal assets, and college and career readiness percentages after controlling for socioeconomic status. A correlational, quantitative research design was chosen to address the research questions and test the hypotheses. This study used annually reported, publicly available data from the California Department of Education's Dashboard from the 2019–2020 school year. WestEd data from the CHKS are available through a searchable directory from school district reports (WestEd, 2018). The sample included the demographics of race and ethnicity, free or reduced meal qualifications, and gender for descriptive statistics purposes.

WestEd's CHKS database served as the primary basis for selection because its database is more limited than the CCI, which is required as a part of every public high school's dashboard. The CHKS survey is administered yearly to students across the state of California. According to California School Climate, Health, and Learning Surveys (n.d.-a), the

anonymous CHKS survey used "validity criteria such as alternate forms of questions and cross-checks to assess how truthful each respondent has been and eliminate any answer forms that may be questionable" ("Will CHKS Results Validly Reflect" section). This biannual survey of students informs the school and district of the students' perceptions of their school's culture (Furlong et al., 2009; Hanson & Kim, 2007). The data from these surveys garnered a global school climate score and subscale scores to measure various dimensions of school climate (Furlong et al., 2009; Voight et al., 2013). The CHKS is designed for districts to measure trends from the school-level perspective and to help guide programmatic school-level decision-making (Hanson & Kim, 2007).

The sample for this study used the following guidelines for determining high schools to include in the sample, finishing with an estimated sample size of 400 high schools:

- The high school administered CHKS surveys in the 2019–2020 school year.
- The school is a public high school, including but not limited to Grades 9–12.
- The high school is not considered a DASS school. Schools such as continuation schools, community day schools, and juvenile court schools are included in this status (California Department of Education, 2020).

RESULTS

Research Question 1

What is the relationship between school protective factors (caring relationships and meaningful participation) and student internal factors (student academic motivation) after controlling for school socioeconomic status?

Multicollinearity occurred with the variables of *CHKS high expectations* and *CHKS total school supports*, as displayed in Table 1. CHKS total school supports was highly correlated with CHKS caring adults in school, CHKS high expectations of adults in school, and CHKS meaningful participation. The total school supports were derived from those questions. CHKS high expectations was highly correlated with CHKS caring adults and CHKS total supports. To address this error, the two variables were excluded from the analysis.

Table 1

Pearson Correlations

	CHKS student academic motivation	CHKS caring adults in school	CHKS high expectations of adults in school	CHKS meaningful participation in school	Schoolwide socioeconomic status
CHKS student academic motivation					
CHKS caring adults in school	.418**				
CHKS high expectations of adults in school	.500*	.892*			
CHKS meaningful participation in school	.402**	.595*	.503*		
Schoolwide socioeconomic status	.216***	.328**	.246***	.113***	

Note. *$p < 0.5$. ** $p < 0.3$ *** $p < 0.001$.

There was one standardized residual greater than ±3 standard deviations, and one outlier was removed. There were no leverage values greater than 0.2, and values for Cook's distance above in Table 1. The assumption of normality was met, as assessed by a P-P and Q-Q plot. All assumptions were met, and a total of 474 schools were included in the data set.

The multiple regression model statistically significantly predicted CHKS caring adults in school, and CHKS meaningful participation in school statistically significantly predicted CHKS student academic motivation while controlling for schoolwide socioeconomic status, $R^2 = .29$, $F(3, 470) = 46.917$, $p < .001$. All three variables statistically significantly added to the prediction, $p < .05$. Regression coefficients and standard errors can be found in the results shown in Table 2.

Table 2

Multiple Linear Regression Analyses Predicting Student Academic Motivation with Caring Relationships and Meaningful Participation Controlling for School Socioeconomic Status

CHKS student academic motivation		95.0% CI *B*					
	B	*LL*	*UL*	*SE* B	β	R^2	Δ R^2
Model						.29	.28***
Constant	.995***	.084	1.15	.08			
CHKS caring adults in school	.229***	.150	0.31	.04	.28***		
CHKS meaningful participation in school	.222***	.140	0.30	.04	.27***		
Schoolwide socioeconomic status	.047***	.020	0.08	.02	.12***		

Note. Model = "Enter" method in SPSS Statistics; B = unstandardized regression coefficient; CI = confidence interval; *LL* = lower limit; *UL* = upper limit; *SE* B = standard error of the coefficient; β = standardized coefficient; R^2 = coefficient of determination; Δ R^2 = adjusted R^2.
*$p < 0.05$. ** $p < 0.01$. *** $p < 0.001$.

After controlling for schoolwide socioeconomic status, both predictors were significant. Caring adults in school had a positive predictive association with student academic motivation ($b = .229$, $p < .001$). These results demonstrated that for each 1-unit increase in the caring adults in school, the outcome variable of academic motivation increased by .229 units. Meaningful participation in school had a positive predictive association with student academic motivation ($b = .222$, $p < .001$). For each 1-unit increase in the meaningful participation, the outcome variable of academic motivation increased by .222 units. Schoolwide socioeconomic status had a positive predictive association with student academic motivation ($b = .047$, $p < .01$). Finally, for each 1-unit change in schoolwide socioeconomic status, the outcome variable of academic motivation increased by .047 units. Based on the standardized data, caring adults in schools and meaningful participation in school have a relatively stronger correlation to student academic motivation than schoolwide socioeconomic status.

Research Question 2

What is the relationship between student internal factors (student academic motivation) and college and career readiness percentage after controlling for school socioeconomic status?

A multiple linear regression was run to examine the influence of the independent variable of *student academic motivation* on the dependent variable of *college and career readiness* while controlling for *school socioeconomic status*. The multiple regression model statistically significantly predicted college and career readiness, $R^2 = .37$ $F(2, 445) = 136.591$, $p < .001$. All variables added statistically significantly to the prediction, $p < .05$. Regression coefficients and standard errors can be found in Table 3.

After controlling for schoolwide socioeconomic status, student academic motivation had a negative predictive association ($b = -.359$, $p < .0001$). These results demonstrate that for each 1-unit increase in the student academic motivation,

the outcome variable of college and career readiness decreased by .359 units. Schoolwide socioeconomic status also had a negative predictive association with student academic motivation (b = -.334, p < .0001). For each 1-unit change in schoolwide socioeconomic status, the outcome variable of college and career readiness decreased by .334 units.

Table 3

Multiple Linear Regression Analyses Predicting College and Career Readiness with Student Academic Motivation Controlling for School Socioeconomic Status

College and career readiness	B	95.0% CI *B*		*SE* B	β	R^2	Δ R^2
		LL	*UL*				
Model						.37	.36***
Constant	1.443***	1.21	1.67	.12			
CHKS student academic motivation	-0.359***	-0.48	-0.24	.06	-.23***		
Schoolwide socioeconomic status	-0.334***	-0.38	-0.26	.03	-.52***		

Note. Model = "Enter" method in SPSS Statistics; B = unstandardized regression coefficient; CI = confidence interval; *LL* = lower limit; *UL* = upper limit; *SE* B = standard error of the coefficient; β = standardized coefficient; R^2 = coefficient of determination; Δ R^2 = adjusted R^2. *p < 0.05. **p < 0.01. ***p < 0.001.

Research Question 3

What is the relationship between school protective factors (caring relationships and meaningful participation), student internal factors (student academic motivation), and career readiness percentage after controlling for school socioeconomic status?

A multiple regression was run to predict *college and career readiness*, *CHKS student academic motivation*, *CHKS caring adults in school*, and *CHKS meaningful participation* while controlling for schoolwide socioeconomic status. The multiple regression model statistically significantly predicted college and career readiness, R^2= .36, F(4, 451) = 64.248, p < .001. All variables added statistically significantly to the prediction, p < .05. Regression coefficients and standard errors can be found in Table 4.

After controlling for schoolwide socioeconomic status, all three predictive variables were statistically significant predictors of college and career readiness. The three predictive variables of student academic motivation, meaningful participation in school, and schoolwide socioeconomic status had a negative predictive association with college and career readiness indicators. Meaningful participation in school had a negative predictive association (b = -.325, p < .0001), student academic motivation had a negative predictive association (b = -.267, p < .0001), and schoolwide socioeconomic status had the largest negative predictive association with college and career readiness (b = -.384, p < .0001). Caring adults in school had a positive predictive association (b = .373, p < .0001). Based on the standardized data, caring adults in schools had a relatively stronger positive correlation to college and career readiness than any of the other variables.

Table 4

Multiple Linear Regression Analyses Predicting College and Career Readiness with Caring Relationships, Meaningful Participation, and Academic Motivation Controlling for School Socioeconomic Status

College and career readiness	B	95.0% CI *B*		*SE* B	β	R^2	Δ R^2
		LL	*UL*				
Model						.36	.36***
Constant	1.387***	1.09	1.69	.15			
CHKS caring adults in school	0.373***	0.23	0.52	.07	.26***		
CHKS meaningful participation in school	-0.325***	-0.46	-0.19	.07	-.23***		
CHKS student academic motivation	-0.267***	-0.40	-0.13	.07	-.17***		
Schoolwide socioeconomic status	-0.384***	-0.44	0.08	.03	-.57***		

Note. Model = "Enter" method in SPSS Statistics; B = unstandardized regression coefficient; CI = confidence interval; *LL* = lower limit; *UL* = upper limit; *SE* B = standard error of the coefficient; β = standardized coefficient; R^2 = coefficient of determination; Δ R^2 = adjusted R^2. *$p < 0.05$. **$p < 0.01$. ***< 0.001.

DISCUSSION

This study found a positive correlation between caring relationships and meaningful participation (school protective factors) to student academic achievement (student internal assets), which was shown to be statistically significant after controlling for schoolwide socioeconomic status. Internal assets are the individual resiliency traits enhanced by external protective factors (Hanson & Kim, 2007). External supports strengthen these assets (Bronfenbrenner & Morris, 1998; Hanson & Kim, 2007; Scales et al., 2006). These assets support a healthy social and academic outcome for youth (Furlong et al., 2009; Scales et al., 2006). A student's self-evaluation of their academic ability is a vital component of their internal assets. Motivation and self-concept play a complementary role in development (Green et al., 2012).

The relationship between external school protective factors, student internal assets, and college and career readiness outcomes were more complex. The external protective factor of caring adults in school was found to have a positive correlation to college and career readiness indicator data. The importance of external protective factors is validated by studies that report students are more engaged in their learning when they have developed connections with caring adults at school (Benbenishty et al., 2016; Wang et al., 1993). Moreover, students connected to the school community are less likely to disengage from school, less likely to participate in risky behaviors, and more likely to participate in school life and achieve (Resnick et al., 1997).

However, the external protective factor of meaningful participation was negatively correlated with college and career readiness indicator data. Meaningful participation was defined by Henderson and Milstein (2003) as students viewing themselves as active participants in school rather than passively attending. Students see their participation as relevant, engaging, and enjoyable. Jennings's (2003) study on CHKS external protective factors also found a lower-than-expected correlation between meaningful participation and student outcomes. Jennings conjectured that social and demographic factors outside the school setting could constrain meaningful participation. These outcomes highlight the importance of creating significant opportunities for students in which students are supported and connected to the experience. Student self-reported academic achievement was also negatively correlated with college and career readiness indicator data (California

Department of Education, 2020. The college and career readiness indicators are a broad measure, including academic assessments and coursework completion.

IMPLICATIONS

Meta-analysis research has demonstrated that single-subject achievement measures demonstrate more significant correlations than general achievement measures. These studies have shown that global achievement measures can conceal differences between subject areas and can obscure meaningful differences in the data (Arens et al., 2013; Diseth et al., 2014; Sirin, 2005). College and career readiness indicators and CHKS data are broad by nature, which could explain the mixed results. The results of this study using the broad measure of college and career readiness indicator data may be explained by the masking of differences within the data because school averages were used in the correlations.

Free and reduced lunch applications measure schoolwide socioeconomic status in California. Schoolwide socioeconomic status has been linked directly with academic achievement across multiple studies but also indirectly through students' race and ethnicity, school and neighborhood location, family and school relationships, and access to social capital (Bronfenbrenner & Morris, 1998; Sirin, 2005). In this study, schoolwide socioeconomic status was found to be negatively correlated with both academic achievement and college and career readiness, meaning the greater the percentage of poverty in the school, the lower the achievement results. This finding is consistent with academic accountability data and college and career readiness data across the state (California Department of Education. 2020b).

A positive school environment can bolster a student's resiliency. Past research has validated that school climate is developed through patterns of experiences that create a sense of community and is reflective of the complex elements of norms, values, relationships, practices, and structures valued by the school community (Blum, 2005; Cohen et al., 2009; Korpershoek et al., 2020). Scales et al.'s 2006 longitudinal high school study highlighted the importance of building internal developmental assets in promoting their academic motivation toward achievement and long-term future planning.

The onus of the comprehensive K-12 education system is to provide students with the opportunities, knowledge, and skills to grow into productive members of society (Darling-Hammond et al., 2014). Providing students with the opportunities to be college and career ready is critical. Career choice has lifelong socioeconomic implications. Often, career exploration and career choice are significantly influenced by perceived social expectations and limiting opportunities (Callahan et al., 2019). Schools can open opportunities for students to expand their career choices and, in turn, socio-economic opportunities.

In 2019, the state reiterated its commitment to adding additional ways students can demonstrate college and career readiness. The state added a measure of workforce readiness (strategic skills) certificate program completion, a food handler certification program completion, pre-apprenticeship certification/noncertificated program completion, and a state or federal job program completion. For students with an individual education plan, the state added a workability/work-based learning measure and a transition partnership program. With the estimated 2024 release of the following dashboard, these additional criteria will provide additional pathways toward demonstrating proficiency in college and career readiness (California Department of Education, 2019a). With the pause in reporting and the addition of more paths to demonstrate proficiency, schools and school leaders must develop systems of support to provide students with the individualized attention of caring adults to ensure all students can demonstrate readiness in a way that best fits their situation.

RECOMMENDATIONS AND CONCLUSION

The California college and career readiness accountability measures are relativity new to the accountability dashboard, and few studies have examined how these data connect to student outcomes. It would be beneficial to replicate this study when college and career readiness indicators are given again in the 2024–2025 school year. With the COVID-19 pause in indicators dashboard data, understanding the change in college and career readiness would be necessary. Replicating in future years would allow for the addition of more schools in the study, as potentially different schools would have CHKS data as well, because those assessments are not given every year at every school site. Continuing to assess the change in college and career indicators over time would be necessary for evaluating trends and garnering more information about the school supports that positively impact proficiency. In future studies, controlling for the school size would also be essential to ensure the weight of each school's population could be considered.

For future studies, adding additional data measurements including non-self-reported data to assess this variable could expand understanding of how students view their strengths and weaknesses. Data measures that include more robust information on student self-efficacy, empathy, problem solving, and self-awareness could be beneficial in assessing students' internal assets. It could also be advantageous to examine student academic performance with student grades to determine whether academic motivation leads to successful academic outcomes.

Another recommendation for further study is to follow up with students longitudinally to determine whether there is a relationship between the college and career readiness indicator proficiency and actual college-going rates and career attainment metrics. Understanding whether the college and career readiness indicators at the individual student level provide an accurate measure over time bolsters the importance of the measurement or expands how readiness should be demonstrated while in high school.

Because caring adult relationships were shown to correlate positively to college and career readiness, further research is necessary to explain how students define caring adult relationships and how schools can enhance practices to cultivate those relationships across all student populations. Future studies to further explore how socioeconomically disadvantaged schools can enhance and align academic motivation and meaningful participation in schools to support student growth in college and career readiness would be advantageous.

Qualitative and mixed methods research should be considered as well for future studies. Understanding student, teacher, and school administrator perspectives would allow researchers to understand the college and career readiness measure. Because this measurement relies on student data systems for tracking, understanding the perspectives of school and district data systems would be essential to gain a broad understanding of the accountability measure.

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