

## **Chapter I Introduction and Statement of the Problem**

### *The Unresolved Issue in Education*

Historically, the US public school system has been characterized by a commitment to wellbeing and citizenship. The concept of providing universal education captured a social ideal of having a standard level of academic proficiency but also an investment in future generations' ability to fully engage in a democratic system. As a public sponsored system, perceptions about how well public schools are doing have long been a focus of the schools directly, the general public, scholars, and politicians.

Unfortunately, these perceptions are not always positive. Public and political indignation towards the education system was heightened with the Reagan Administration's 1983 publication of *A Nation at Risk*. In this volume, the authors claimed that the education system was failing, which was supported by evidence illustrating a dangerous decline in academic achievement among US students (National Commission on Excellence in Education, 1983). The authors further noted that the national trends would negatively impact the nation in terms of economic and global productivity (1983).

In the four decades that have followed, such perceptions have led to high levels of criticism, mounting concerns, and waves of education reform efforts. Ultimately, the resulting social, political, and academic discourse supported a shift in educational accountability, and standardized achievement tests quickly emerged as the primary measure of success.

While the nation's perception of public schools remains under constant attack, there is a growing interest in multiple measures of success and achievement, including an emergent focus on a range of non-academic factors that contribute to learning and school outcomes. These influences include environmental factors, such as poverty and neighborhood conditions, and non-cognitive factors such as health, attitude, and resilience. Education scholar David Berliner has presented research on the influence of exogenous variables on academic outcomes, claiming that upwards of 60% of the range in student achievement could be attributed to out of school factors (Berliner, 2014). Berliner focused a great deal of attention on socioeconomic status and claimed that the most effective school reform movement would be to focus on eliminating poverty and improving neighborhood conditions (Berliner, 2009, 2013, 2014).

From another perspective, public health researchers and practitioners have consistently documented the synergistic relationship between health outcomes and education outcomes. In terms of public health, academic attainment is a social determinant of health, which means that health outcomes are directly and indirectly shaped by educational experiences. One of the measures of this relationship is observable through epidemiological studies, where researchers can document lower mortality and morbidity rates as years of education increase.

This relationship is evident in both chronic and acute conditions. For example, the age adjusted mortality rate among high school dropouts is almost twice that of people with some college, and the risk of heart disease is reduced by 2.2%

among adults who have 4 years of additional years of education beyond high school (Telfair, 2012). Furthermore, early educational experiences serve a purpose in helping children develop knowledge, skills, and habits that will promote good health throughout life. The magnitude and scope of the influence of these potentially positive health-promoting experiences, however, are subject to community circumstances and contexts in which the children live and go to school.

In addition to health outcomes that are influenced by academic attainment, school success is influenced by health experiences (and problems). According to Charles Basch, healthy students are more capable and motivated to learn. Basch argues that eliminating health disparities could be an effective strategy to close the achievement gap in US education outcomes (Basch, 2011). Ultimately, it is in the interest of public health to ensure that all students have school-based opportunities to develop healthy cognitive, social, and health-promoting knowledge and skills and are prepared for college. It is in the interest of public schools to help promote both pupil and school health to maximize learning and student capacity.

One area where the relationship between health and learning has emerged is through contemporary scholarship, practice, and policies directed at improving school climate. School climate generally refers to the culture of the school and is inclusive of the environment, attitudes, and behaviors of students, school personnel, and the broader community. It is the organizational character that

establishes the school behaviors and practices – the norms, values, rules, and expectations (Hopson & Lee, 2011; National School Climate Council, 2016; Sheldon, 2010; Thapa, Cohen, Guffey, & Higgins-D'Alessandro, 2013).

Understanding the climate of a particular school is important because a positive perception of schools is directly and indirectly associated with a number of educational outcomes. For example, according to Thapa et al.'s (2013) review of the published literature on school climate, there are prolific data that document the impacts of positive school climate on academic success, motivation, health, and general wellbeing.

There are also studies that have explored the relationship between school climate and external factors. Schools with high enrollment have been related to negative perceptions of school climates (Goldkind & Farmer, 2013) and, similarly, schools that are in areas of high poverty have also shown a relationship to negative perceptions. Hopson and Lee (2011), who have found a relationship between negative perceptions of school climate and poverty, also posit that improving climate perceptions in these same schools could have a positive effect on school achievement outcomes.

The concept of school climate is not new to education scholarship. In fact, it first appeared as a concept in Arthur Perry's book, *Management of a City School* (Perry, 1908). Perry claimed that an important role of a principal was in ensuring that school conditions would be favorable to students, parents, teachers, the

public, and the authorities (1908). The concept has been researched since, with a recent surge that has been influencing policy and practice.

In education practice, there is increased attention being devoted to surveillance and descriptive processes as school personnel set out to characterize the climate at their schools, identify needs, and strategize programs (and services) to improve school climate. Educational scholarship has established that non-academic factors (Farrington et al., 2012) make a difference in student outcomes including college and career readiness. Now many policy makers and advocacy groups are calling for multiple measures to ensure a more equitable education for children particularly those in high need schools as defined by the (ESSA).

In education policy, the trend to include non-academic influences on growth and school development in state benchmarks and accountability processes is increasing. For example, all 50 states articulate preschool benchmarks for social and emotional developmental competencies and a growing number of states are continuing to explore expectations beyond preschool (Dusenbury & Weissberg, 2016).

Fewer states have incorporated these non-academic indicators in state accountability systems despite the invitation under the federal policy called Every Student Succeeds Act (ESSA). In fact, according to the Center for American Progress, only four states have included school climate specifically, five have included chronic absenteeism as a proxy for climate, and one has included

parent engagement directly (Martin, Sargrad, & Batel, 2016). California is one of the four states in the nation to include school climate as one of the measures of school accountability, included in the revised state funding system, Local Control Funding Formula (LCFF). The move signaled a shift away from the prior decade's sole reliance on standardized achievement tests.

While the changes in accountability have resulted in an immediate shift of attention toward school climate, California has begun to develop guidance for districts and schools through a process of measuring school climate. Thus, there is a need to ensure that the instruments that will be used to assess and measure climate are accurate and effective in guiding meaningful change that can improve school conditions.

There are numerous instruments that have been developed to assess school climate, but these tools are inadequate for state accountability for several reasons. First, there is little consistency in the definition and operationalization of variables. Second, the tools need improved rigor in psychometric testing to be used beyond research purposes, particularly state accountability and decision making. Third, tools are predominantly absent of a theoretical framework or foundation. Fourth, there is a lack of discussion in terms of the purpose and usability of the instruments. Lastly, there is little attention being paid to the interpretation and future planning for improvement of school climate following assessment (Berkowitz, 2016; Konold, 2014; Lee et al, 2017; Thapa et al., 2009; Wang & Degol, 2015; Zullig et al., 2015).

### *Significance of the Problem*

The purpose of this study is twofold. First, this study will identify and analyze the range of instruments that are currently being utilized by schools in their assessment of school climate for California accountability expectations. Second, a school climate instrument will be developed and piloted in one Bay Area school. The purpose is to contribute to the research on school climate measurement and assessment for both state accountability and inform and guide community- and school-based change as well.

School environments that foster, condone, ignore, or perpetuate behaviors that pose risks to healthy development are deeply in need of greater understanding, just as environments that foster positive health and quality of life are in demand. School climate, if adequately understood and assessed, can facilitate interactions between community health and school systems. If school climate is either not well understood or poorly assessed, it will not capture the complexity of social, emotional, and health dynamics that influence educational institutions and school wellness, and therefore, cannot adequately guide change.

Ideally, an effective assessment process would be multidimensional and include a range of subjective perspectives and objective observations; intellectual, social, emotional, and physical health indicators would be included; the process would be non-static; a theory of change would be clearly depicted; and validation would be ongoing.

### *Problem of Practice Statement*

Academic outcomes and health outcomes are interconnected and synergistic at both individual and population levels. Current K-12 public education policy in California has identified school climate as a statewide measure of accountability in the LCFF, which has the potential to invite discussion and understanding of healthy schools in a new way. The problem is that school climate is not consistently defined and measured, thus, impacting the use and applicability of the assessment tools available and the potential for change as a result.

### *Research Questions*

The following research questions will be resolved in this study that aims to contribute to the scholarship on school climate and the statewide need for an effective instrument to measure school climate. The first question will inform the second and both are fundamental to addressing the Problem of Practice, which essentially proposes that current tools for measuring school climate are not adequate for state accountability purposes.

1. What are the instruments that are currently being used by schools? What is their evidence of validity and reliability? What constructs are being measured? Are the instruments sensitive to public health outcomes?
2. What is the validity and reliability of a newly developed instrument designed to assess healthy school climate?



### *Initial Definitions*

There are a number of discipline specific terms that will be important in this study. Following are the definitions that will be used.

**Academic outcomes:** Academic outcomes pertain to individual or school based measures of learning or performance.

**Assessment:** Assessment is any process that seeks to obtain information or measure performance in order to draw inferences about the characteristics people, objects, or programs (American Educational Research Association, 2014, p. 216).

**Health:** Health is “not merely the absence of disease” but a “state of complete physical, mental, and social wellbeing” (World Health Organization, 2017, para. 1).

**Non-cognitive skills:** Non-cognitive skills are characterized by individual “patterns of thought, feelings, and behaviors that are socially determined and can be developed throughout the lifetime to produce value” (Zhou, 2016, p. 2). These skills are inclusive of terms such as personality traits, attitudes, motivation, grit, perseverance, mindset, and self-efficacy.

**Public Health:** Public health includes any strategic effort that “promotes and protects the health of people and the communities where they live, learn, work, and play” (American Public Health Association, 2017, para 1).

Quality of life: Quality of life is simply defined as “the degree to which a person enjoys the important possibilities of his or her life” (Quality of Life Research Unit, 2017, para. 4).

School Climate: “School conditions and climate refers to the character and quality of school life” (California Department of Education, 2017, screen 11).

Social and emotional learning: Social and emotional learning is “a process through which children and adults acquire and effectively apply the knowledge, attitudes, and skills necessary to understand and manage emotions, set and achieve positive goals, feel and show empathy for others, establish and maintain positive relationships, and make responsible decisions” (Collaborative for Academic, Social, and Emotional Learning , 2017, para. 1).

Wellness (or wellbeing): According to SAMHSA, “wellness is being in good physical and mental health” and includes the emotional environmental, financial, intellectual, occupational, physical, social, and spiritual dimensions (SAMHSA, 2017, para. 2).

#### *Site Selection and Sample*

This study will take place in Northern California. Districts residing in regions one through 6 will be queried to learn more about the instruments that are currently used to assess school climate. Schools and personnel will be identified through the CDE database. Curriculum and Instruction personnel, who are involved in the Local Control Accountability Plan process, will be asked to complete a survey regarding the school climate tool that they are currently using.

Findings from the survey will then be used to develop and pilot an assessment instrument that will be administered in one school in the Bay Area. The school will be selected based on diverse student demographics and a willingness to participate.

#### *Scope and Limitations of the Study*

This study will not identify and evaluate all school climate assessment instruments that are currently being used around the state. Additionally, this study will only begin the process of gathering evidence on the validity and reliability of a pilot instrument. Revisions and psychometric analyses will be required to further develop the tool for implementation. This study will continue to deepen the scholarship of school climate measurement, but the results will not be generalizable to the entire public education system.

#### *Assumptions, Background, and Role of the Researcher in the Study*

There are many assumptions that guide this research and inform my perspectives as the researcher. At the very least, there has been too little attention paid to the role (and potential) of community and public health in education. Furthermore, since schools are representative of small communities, public health perspectives on school climate can be helpful in processes that seek to change or improve school climate. My professional public health experience has also led me to the conviction that positive school environments could foster health and quality of life for children and youth that will help build a foundation of good health for life. I am confident that communities and schools

are capable of change and assume that they desire change to improve climate, conditions, quality of life, health, and academic outcomes. If more leaders, community members, school personnel, and academics know more about non-academic experiences in the public school system, communities can better implement supports, programs, and services that to improve the wellbeing of students and school personnel.

I believe that school climate can be measured and that these measures can and should include indicators of overall wellbeing. In developing an instrument that can measure school climate, it is important to gather a range of reliability and validity evidence to determine the accuracy of the instrument before formal implementation. In my work and practice, I promote collaborative uses of school climate data and feel that encouraging schools and public health to work together to improve climate and conditions is a worthwhile investment for our communities.

## **Chapter Two: Review of the Literature**

### **Introduction**

This chapter provides an in depth review of the literature on health, education, and climate. Literature sources were obtained through library databases (Academic Search Complete, Education Research Complete, and ERIC) and google scholar using combinations of the following keywords: school climate, health outcomes, academic outcomes, assessment, and measurement.

The first part of this literature review explores the research documenting the relationships between health and education, the impact health has on learning, and disparities in the health and education systems. The second part explores the school climate literature and current assessment instruments. This chapter concludes by addressing research gaps and opportunities followed by the conceptual framework that will guide the research methods and data analysis.

### **Education as a Public Health Issue and Health as an Education Issue**

This section will focus on three relevant themes that emerged from the health and education literature. First, there is evidence pointing to a relationship between health outcomes and education attainment. Second, there is evidence suggesting that health impacts learning and academic outcomes. Finally, there is a shared experience with populations disproportionately burdened by health disparities who are also over-represented in the education achievement gap literature. Following, each theme will be explored in more depth.

### **The relationship between health outcomes and education attainment**

Epidemiologists have consistently documented a relationship between the number of years of schooling completed and morbidity and mortality. The evidence connecting education to health outcomes is the basis for public health labeling education as a social determinant of health. Social determinants of health are contexts that contribute to population based health outcomes. In addition to education, the other social determinants are healthcare, neighborhood conditions, economic stability, and social dimensions (Office of Disease Prevention and Health Promotion (ODPHP), 2017a). This literature clearly documents the impact of education on health outcomes. Analysis of mortality data show an increase in death rates among populations with the lowest education levels; a trend that is recognized in the US as well as globally (Adler et al., 2016; Pomeranz & Chang, 2017; Venkataramani, Chatterjee, Kawachi, & Tsai, 2016; World Health Organization (WHO), 2017a). The correlation is not only a clear relationship, but the effect appears to be gradient. Statistical analyses illustrate that as years of schooling increases, mortality rates decrease (Krueger, 2015), suggesting causality.

If educational experiences directly influence health outcomes, then low educational attainment is implicated as a cause of early and premature death (Krueger, Tran, Hummer, & Chang, 2015). Researchers have presented evidence that the impact of education on mortality is akin to other behavioral and biological causes of death, such as smoking (Galea, Tracy, Hoggatt, DiMaggio, & Karpati, 2011; Krueger et al., 2015).

Another compelling body of evidence in the extant literature is the gap in mortality among the educated and non-educated (Krueger et al., 2015; Pomeranz & Chang, 2017). This gap has been articulated as two decades of life lost for people who have not graduated high school (Telfair & Shelton, 2012). While the gap in education completion has been well documented, there have been few studies exploring the potential that the gap is widening. Krueger et al. (2015) explored this trend using data from the National Health Interview Survey (NHIS), the Centers for Disease Control and Prevention (CDC), and the American Community Survey. In their study, they first examined mortality rates and individuals without a high school diploma compared to those who had started college and those who completed college. Second, they looked at individuals with anything less than a college degree compared to those with a college degree.

The findings from this study document a statistically significant effect of educational attainment and mortality in every comparison (Krueger et al., 2015). For example, they reported that males who do not graduate from college had a 23% higher risk of premature death. Risk of death was 6% lower for some college and 25% lower with a college degree. Furthermore, the authors reported an estimate of 145,245 deaths in 2010 that were attributable to not having earned a high school diploma or the equivalent (2015). The results of this study compliments other research, documenting a correlation between years of education completed and premature death.

Researchers, in congruence with epidemiologists and public health professionals suggest that increasing attention in policy and practice to reduce educational gaps and increasing completion will have a drastic improvement on premature death in the US and globally (Adler et al, 2016; Basch, 2011a). It is speculated that education impacts health because of inverse relationships influenced by socioeconomic status, access to healthcare, behaviors, and overall psychological wellbeing (Krueger, 2015).

This literature supports a rhetoric that educational opportunities enable individuals to obtain higher paying jobs, increasing opportunities for access to healthcare, social mobility, improved relationships, and development of healthy habits and behaviors. Thus, an underlying moral argument in the literature on the relationship between health and education, is the valuing and promotion of quality educational opportunities for all (Adler et al., 2016; Basch, 2011a; ODPHP, 2017b; WHO, 2017b).

While extensive research documents the relationship (even causality) of education and premature death, there is a second important relationship that emerged from the literature. The influence of health on learning, academic potential, and outcomes has been well established by public health researchers and more commonly explored in contemporary education scholarship. Essentially, health impacts an individual's capacity to learn.



### **The relationship between health and learning**

Leading researcher, Charles Basch (2011a), posits that most US schools have implemented some programs and services directed towards children's health, but his critique is threefold: first, programs and services vary considerably; second, efforts are not typically comprehensive or coordinated; and third, it is unrealistic to burden schools with the sole task of reducing the education gap by eliminating health disparities.

Basch (2011a) argues social investment in poverty and improved investment in coordinated school health is necessary for significant changes in academic outcomes and achievement. Furthermore, he postulates that school environments should address health behaviors that are directly related to mortality and morbidity in children and adolescents as well as those that are formed during childhood and adolescence, including: nutrition; physical activity; injury; violence; alcohol, tobacco, and other drugs; and sexual risk.

The research undertaken by Basch documents the claim that improving health can positively contribute to efforts in closing achievement gaps, because, in Basch's words: "Healthier children learn better" (2011a). To support this claim Basch takes an in-depth look at several "educationally relevant health disparities" (2011a, p.395). For example, it is estimated that one in five school aged children have some type of visual impairment and while many schools routinely provide screening, there is concern that the screenings are not effective (Berliner, 2009) and the lack of follow up coordination has a negative impact on lower income

families (Basch, 2011a). According to Basch (2011a), the effect of vision on student learning and academic achievement is attributed to sensory perceptions, cognition, and connectedness.

Asthma is another health problem that is widely documented in the literature as a predictor of educational outcomes. Health data reveal high rates of asthma among children, but disproportionately affect black and low income children. It was estimated that 14% of children under the age of 18 were affected by asthma, but the rates were nearly 45% greater for black urban youth, compared to whites (Basch, 2011b). The need for healthy school environments is fundamental for children who have asthma, yet, in one national study, it was estimated that the indoor air quality of schools was greatly compromised, particularly in low income communities (ODPHP, 2017c).

Effective asthma management impacts school experiences through excessive absences, connectedness, and cognition. Absenteeism, as a result of asthma, negatively impacts schools and students alike. Data analysis suggests that in 2003 children with asthma missed roughly 12.8 million school days as a result of hospitalization, medical visits, avoidance of triggers, non-adherence to medication, or sleep deprivation (Basch, 2011b).

Teen pregnancy can provide another example. While decreasing nationwide, teen pregnancy is still disproportionately prevalent among Black and Hispanic teens. Currently, Hispanic adolescents have the highest rates (47.9 per 1000 live births), putting these teens at risk for not completing high school or enrolling in

college (Basch, 2011c). As a final example, neuroscience has drawn clear relationships between brain functioning and movement, suggesting that physical activity improves cognition. However, according to data from the National YRBS survey, at the highest rates, 42.1% of teens were not physically active in the past seven days (Basch, 2011d).

Taken in its entirety, Basch's scholarship has explored the relationships between health problems and academic experiences to document a convincing snapshot of the ways in which health can (and does) impede academic outcomes and student capacities. His research suggests sensory perceptions, cognition, connectedness at school, absences, disruptive classroom behavior, and dropping out are all related to specific health problems that are common among children and school-aged youth.

A great deal of the literature documenting the relationships between health and education is found in public health and school health scholarship, but education researchers have also been looking to non-academic factors as an explanation for the widening achievement gap. At the forefront is the research presented by David Berliner who has detailed the impact of non-school factors on academic achievement. Berliner refers to these factors as exogenous variables and he attributes nearly 60% of the variance in test scores to these factors (2009).

In his research, Berliner points to non-genetic pre-natal influences, healthcare access, environmental pollutants, food insecurity, and family and neighborhood

stress as directly impacting the academic and learning potential of many children, exacerbated significantly by poverty (Berliner, 2009, 2010, 2014). Berliner's research is a direct parallel to the research on school health by Basch. Both recognize that the work of schools - to educate children – is impeded by factors related to social wellbeing and economics.

### **Shared Disparities**

The previous sections alluded to the third theme that emerged from the literature, which acknowledges that the experience of health disparities and poor academic achievement is predominantly shared among similar populations. In public health scholarship, the term health disparities, is used to describe a population trend documenting a disproportionate burden of disease or disability in one population when compared to another. Disparities are not just differences, but they are the result of systematic and population based inequities and injustices (Braveman et al., 2011).

There are many examples of health disparities in the United States, following are a few examples impacting school age children and their families. First, there are racial and ethnic disparities. The rate of maternal mortality for black women is more than three times the rate of white women (Lu et al., 2010) and Hispanics have the lowest rate of insurance coverage when compared to all other races and ethnicities (ODPHP, 2017b). Maternal mortality puts families at risk and health insurance improves access to healthcare, both of which are important foundations for children's health.

A second example is among adolescents who are gender non-conforming or discovering their sexual orientation. These LGBTQ youths are part of a population that is impacted by a number of health disparities. Sexual minorities experience higher levels of stress, stigma, and discrimination (Jackson, 2016) and they disproportionately report heavy drinking, injuries, and delay of medical care (ODPHP, 2017b). This population is also two to three times more likely to commit suicide (2017b).

A third example is people with disabilities, who are also negatively impacted by systematic inequalities that put them at greater risk for non-fatal violent crimes, injuries, anxiety and depression, and poor mental health (Krahn, Walker, & Correa-De-Araujo, 2015). For many of the above populations, the disparities are exacerbated by low socioeconomic status. Recent research documented a life expectancy difference by wealth is more than 2 decades (Telfair, 2012).

The majority of this research focuses on race/ethnicity and socioeconomic status, but some has also been devoted to girls and math achievement (Cimpian, Lubienski, Timmer, Makowski, & Miller, 2016) and overall academic completion for students with disabilities. There is a robust body of literature exploring a gap in achievement outcomes among white and black and Hispanic students.

According to National Assessment of Educational Progress (NAEP) data, the gap in math outcomes grows significantly among black and white students from fourth to eighth grade (NCES, 2015a) and the graduation rate for black students is the lower than any other race/ethnicity (2015a). However, more recent data suggest

that the gap is slowly narrowing for both Black and Hispanic youth (DePaoli, 2017). Low income youth and students with disabilities also share a significant gap in graduation rates. Low income youth are 13.7 percentage points behind the national average and depending on the state, students with disabilities are between 20 to 40 percent behind (2017).

Research in education and public health clearly reveal parallels in the populations at greatest risk for poor education and health outcomes. The relationships between these two disparately functioning systems have led some practitioners to collaborate to improve overall school wellness with comprehensive school health programs or whole child models. Both of these approaches envision school environments as places where opportunities for healthy student development are central to learning and growing.

With efforts to maximize the positive potential of youth and teachers in the nation's schools, attention has turned to the learning environment. School climate is one of the contemporary terms used to describe the school environment and while climate is not synonymous with health, it does provide an opportunity to explore the overall health and wellness of schools. Research on school climate has been largely undertaken in the education discipline and while health specific language is sometimes absent, shared conceptualizations are evident. The following section will explore school climate research beginning with overarching themes, then looking at the correlational studies linking climate and outcomes, and concluding with a discussion on equity.

## **School Climate, Education, and Health**

School climate literature suggests compelling and robust relationships between climate and a variety of important outcomes and contributing factors. Despite a range of definitions and approaches, the research suggests a clear relationship between climate and both academic and health promoting behaviors and commitments. This relationship has been explored for decades but the contemporary interest in climate has heightened with political and health sectors now adopting a rhetoric of improving school climate to help decrease the academic achievement gap. Understanding the overarching themes and impacts of school climate, as presented in the literature, is the starting point for this analysis.

### **School Climate Themes**

The overarching themes captured in school climate literature includes three central tenets: first, school climate is real; second, school climate is malleable; and third, school climate impacts learning, educational outcomes, and overall wellbeing. While researchers and practitioners appear to largely agree on these broad themes, the details of school climate remain inconsistent. For example, there is no consistent definition of school climate that is used in research or practice and the domains that are employed are not always congruent with the definition. It is no surprise that the tools used to measure school climate reflect these inconsistencies employing a range of definitions and variables.

Despite these challenges, the importance of school climate, in terms of the effects on students and teachers, is a central argument for further research and improved consistency school climate assessment. The following will present literature documenting relationships to outcomes and then transition into a review of current research practices revealing discrepancies and opportunities in contemporary assessment practices.

### **School Climate Outcomes**

A great deal of school climate research has been devoted to examining relationships between climate and outcomes. A review of the literature reveals three broad themes in this area: student academic outcomes, student health and wellness outcomes, and the influence of climate on teachers.

**Student Academic Outcomes.** Education researchers interested in the achievement gap have explored school climate as a potential variable that could support schools in reducing the gaps within student groups. Researchers have been able to demonstrate convincing relationships through correlational studies using school climate survey data and math, English language arts (ELA), and overall GPA as the measure of academic performance.

A recent study with a national sample of students in suburban schools revealed that suburban schools share important school climate trends in academic achievement with urban schools (Sulak, 2016). Sample data were obtained from the NCES School Survey on Crime and Safety with 2,560 schools reporting during the 1999-2000 academic year. Regression analysis results



suggested that a 14.5% variance in test scores among the lower performing students was a result of school climate related variables (2016). In this study, school climate measures were based on discipline and disciplinary infractions and schools with fewer infractions and disruptive behavior reported higher academic performance schoolwide (2016).

In another recent study of New York schools (Kraft, 2016), school climate survey and academic achievement data analysis revealed strong relationships between safety and academic gains in both math and ELA. Other studies documenting relationships between school climate suggest that decreasing bully behaviors (Konishi, 2010) and increasing positive relationships with adults (McMahon, 2009) correlate with higher math and reading achievement outcomes.

In a comprehensive review of the school climate literature, Wang and Degol (2016) investigated academic outcomes according to four climate domains. Their analysis pooled supportive evidence that positive climate can influence academic performance. They suggested that two domains influence academic achievement directly. First, an academic climate with high expectations, leadership, and teachers who demonstrate their belief in students were related to academic achievement (2016). Second, when schools are characterized as positive learning communities with positive relationships, a strong sense of a belonging, clear communication, and racial and gender equity, performance was higher (2016).

The school climate literature exploring the learning environment and academic outcomes clearly points to a relationship, thus signaling that school climate plays a role. The literature is not conclusive, however, with some studies showing strong relationships, others showing weak, and there was also a lack of clarity in directionality (Benbenishty, Astor, Roziner, & Wrabel, 2016; Wang & Degol, 2015). Even with these discrepancies, the research supports a continued need for research and understanding because climate exists, it impacts student learning, and it appears to be malleable.

A second common outcome measured in relationship to school climate was health. Even with confounding variables and inconsistent and undefined constructs, it appears that school climate directly and indirectly affects academic performance by influencing the health and wellness of students and teachers. School climate is associated with teacher turnover, job satisfaction, relationships between teachers, collaboration, and perceptions and expectations of students (Kraft, Marinell, & Yee, 2016; Thalpa, Cohen, Guffey, & Higgins-D'Alessandro, 2009).

While there are relatively few studies exploring the health and wellness of teachers, there is no disputing the strength of the relationship between school climate and student health. An underlying theme is the belief that positive climate perceptions improve the likelihood that schools are safe places where students can establish meaningful relationships with peers and teachers (Low & Van Ryzin, 2014; Shulz, 1987), feel a sense of belonging (Shulz, 1987), and have the

opportunity to develop academic, social, and health promoting skills (Basch, 2011a).

When the climate perceptions are positive, behaviors are also more positive and health promoting (Benbenishty, Astor, Roziner, & Wrabel, 2016; Dumas, Midgett, & Johnston, 2017; Espelage, Polanin, & Low, 2014; Hopson & Lee, 2011; Karakos, Voight, Geller, Nixon, & Nation 2015; O'Brennan, Bradshaw, & Furlong, 2014; O'Malley, Voight, Renshaw, & Eklund, 2014). Alternatively, when climate perceptions are negative, high risk behaviors occur more frequently. The health and academic promoting behaviors most commonly explored in the literature will each be summarized.

**Violence.** Violence and bully prevention researchers have approached school climate as a potential for site-based interventions. Studies in this domain suggest that as climate perceptions improve, bullying, violence, and aggression on campus decreases (Benbenishty et al., 2016; Low & Van Ryzin, 2014; Espelage, Polanin, & Low, 2014; Hopson & Lee, 2011). In one study, data generated from students who completed a school climate survey twice in one year revealed that the strongest correlation to bullying was in the relationships students had with adults in the school and at home (Gage, Larson, & Chafouleas, 2014).

In another study, Benbenishty et al. (2016) analyzed school climate survey data from more than 3,000 students over three waves of data collection in middle school and high school. The results supported the relationship between school climate and violence, but also further suggested the importance of adult

relationships at school, particularly teachers and administrator support. Benbenishty's study also reveals the significance of adult tolerance for harassment and a willingness to intervene (2016). When students believe that adults have a low tolerance for harassment, demonstrated by their intervention, school climate is perceived as more positive. Furthermore, when students perceive that adults are willing to intervene, they too are more likely to report a willingness to intervene when witnessing aggressive behavior among other students or peers (Benbenishty et al., 2016).

Most studies query students to assess school climate, but some look at teacher perceptions as well. In one study, middle school student and teacher data were collected and analyzed for correlations between violence and bullying and school climate perceptions (Espelage et al., 2014). Student results were compared to teacher results to determine the congruency between the two different aggregated experiences. Results from this study suggested that the perceptions are not on par with one another. Teachers and other school personnel did not perceive the impacts of harassment and bullying as problematic, which was different from the student reports (2014).

The Espelage (2014) study adds a further dimension to research by exploring the importance of adult relationships as the findings suggested that when staff and teachers perceive a problem and intervene, climate perceptions improve and bullying decreases. Interestingly, this study also correlated staff and teacher intolerance for sexual harassment directly to a decrease in bullying and an

increasing willingness to intervene at the student level (2014), thus revealing the importance of gender equity in positive school climates.

These results are corroborated by another study in California where researchers analyzed school climate survey data and two specific climate variables: safety and engagement (Gase et al., 2017). This study revealed that not only are adults at school perceiving a different climate than students, but the student perceptions were directly related to student behaviors, where the adult perceptions were not (2017).

***Alcohol, tobacco, and other drugs (ATOD).*** There are several studies exploring the relationship between increased rates of substance use and poor school climate. These studies reveal a clear connection between alcohol use and poor school climate, particularly among students who are victimized or harassed at school (Doumas et al., 2017; Gase et al., 2017). In the research conducted by Doumas et al. (2017), the study findings suggest that in middle school, students who experience bullying or harassment are at greater risk for alcohol use and in high school the risk for illicit drug use increases. The results indicate that an improved climate can reduce these risks, thus suggesting that school climate mediates the effect of bullying or harassment at school (2017). Data analyzed by Gase et al. (2017) suggest a strong correlation between student perceptions of safety and engagement and use of tobacco, alcohol, marijuana, and other drugs. Students who perceived climate negatively reported higher rates of substance use (2017).

***Absenteeism and Truancy.*** Another significant student behavior that has been correlated to school climate is attendance. Most notably, is the research connecting absences with perceived safety (Burton, Marshal, & Chisolm, 2014; Hopson & Lee, 2011). Hopson and Lee's research supports the belief that positive school climate correlates with a decrease in truancy for all students (2011). Burton (2014) explored the relationship between climate and LGBTQ students specifically and found a strong correlation between absenteeism and fear of being assaulted or harassed at school.

***Health Outcomes.*** A number of studies have directly explored the relationship of mental health and school climate. Many have focused on specific student populations who are already high risk for poor mental health, such as LGBTQ youth. As previously noted, the research by Burton (2014) revealed a strong relationship between climate and LGBTQ experiences at school, but the research conducted by Hatzenbuehler, Birkett, Van Wagenen, & Meyer (2014) explores the relationship further. Hatzenbuehler et al. (2014) reported that positive school climates for LGBTQ students have strong cultural behaviors that demonstrate an intolerance for harassment, inclusion of LGBTQ experiences in the curriculum, and Gay, Straight Alliances on campus. When these elements are present, LGBTQ students reported fewer suicidal thoughts, ideation, and less planning (2014).

Fewer studies have looked at other health outcomes and the role of climate, but one public health study explored obesity and two school climate variables

(Richmond, Milliren, Walls, & Kawachi, 2014). In this study, researchers looked at the relationship between BMI and school connectedness and parental involvement. Data were analyzed from the National Longitudinal Study of Adolescent Health (N=13,428) and the results suggested that there was a correlation between school connectedness and weight (BMI) among girls. The results did not show a direct correlation among boys; however, at schools where climate was positively perceived, all students reported lower BMI's (2014). Ultimately, the researchers posited that there is a public health interest in ensuring that students feel connected at school.

### **Climate and Equity**

In congruence with the previous research depicting disparities in health and education outcomes among shared populations, school climate research has revealed different perceptions and relationships by population. Given the research that highlighted disparities, it is not surprising that the populations who more frequently report negative school climates include black and Hispanic students (Jain, Cohen, Huang, Hanson, & Austin, 2015; Voight & Hanson, 2015) and those who are at greater risk for victimization, such as girls (Espelage, 2014) and LGBTQ students (Burton, 2016; Coulter, 2016).

In a recent study, Fan, Williams, & Corkin (2011) explored risks to academic completion and school climate and their findings suggested that students of color perceive climate more negatively than their white peers. Using data from a national sample of 16,168 10<sup>th</sup> graders who participated in the Education

Longitudinal Study of 2002, researchers found that black males perceived less connectedness at school and unfair enforcement of rules, Hispanic and Asian students were critical of safety and discipline, and native American students had a less favorable perception of their relationships with teachers (Fan et al., 2011).

In another study, researchers utilized student data from the California Healthy Kids Survey (CHKS) and teacher data from the California School Climate Survey (CSCS) between 2008 and 2010 to explore racial differences in climate perceptions and the achievement gap (Voight et al, 2015). The researchers focused their attention on black and white students and the school climate domains of safety, connectedness, and adult-student relationships. Their findings revealed a significant difference in student perceptions in all three domains as well as a relationship to academic outcomes.

These findings suggest that schools with positive climates, as perceived by students of color, share characteristics in terms of cultural inclusivity, school norms that promote diversity, and fair discipline policies and practices. Furthermore, these authors propose that improving school climate can have a positive impact on reducing the achievement gap between black and white students (Voight et al., 2015).

The research consistently reveal data supporting differences in climate perceptions by racial/ethnic and gender demographics, but research does not support differences according to socioeconomic status (SES). One study did find a relationship between school climate and SES (Jain et al., 2013), but there is



not consistent evidence suggesting school climate is perceived more negatively from students of low SES households. What does appear to be evident, however, is that schools with positive climate perceptions moderate the potential negative associations between low SES and academic outcomes (Berkowitz et al., 2017; Fan et al., 2011). It also appears that positive school climates can moderate negative experiences among LGBTQ students, serving as a protective factor against suicidal ideation and other risky behaviors (Coulter et al., 2016).

Overall, the literature on school climate reveals an increasing interest in the environmental influence of learning and academic proficiency. This interest is shared by the general public as well as politicians and researchers who are actively shaping the landscape through research and policy to understand and account for the impact of climate on personal and academic growth and development. One of the ways that this interest has emerged in politics is in state expectations for learning and instruction and accountability measures for school success. In a recent nationwide comparison of state education policy, it was discovered that four states have identified school climate as one component of state-level school accountability measures (Batel, Sargrad, & Jimenez, 2016).

### **Climate and Policy**

California is one of the four states in the country that has broadened the public school accountability metrics to include climate. In 2013, California changed the state financing of public education, decentralizing control from the state to the local education agencies. In the restructuring, the state department of

education broadened the accountability measures to focus more on growth and include non-academic school factors that influence learning.

School climate, as a measure of accountability is included in Priority 6 of the new LCFF. Local education agencies are expected to measure climate by suspension and expulsion rates in addition to collecting their own data to better elicit an understanding of campus climate (CDE, 2017). While the state Department of Education has specified this expectation, the state has yet to provide additional resources or clarity for schools and districts in how to measure climate and how to make positive changes to climate based on what they learn.

California is at the forefront of policies and practices that seek to use school climate as an assessment tool and method for intervention to improve educational outcomes. What happens in California, in terms of how school climate is measured, how schools are held accountable and implemented changes, will likely influence other states in the nation. Up to this point, school climate as served a purpose in research and practice in terms of directing programs, services, and contributing to an expanding body of knowledge, but California has now launched school climate into the territory of high stakes decision making.

As an official indicator of school success and an influence in state and local policy, it is important that schools have the ability to accurately assess school climate, thus calling into question the current measurement practices. The

following section will highlight the results of a review of the literature related to assessment and measurement of school climate variables.

### **Assessment of Climate**

As previously noted, school climate has a long history of research in public health and education scholarship. At the center of this research there is considerable diversity in the conceptualization of school climate definitions and domains. Despite decades of attention, there remains no formal agreement on a definition of school climate, domains and variables to assess, and the usability of assessment instruments.

There have been several robust literature reviews spanning the topic of climate and subdomains (Thapa et al., 2009; Wang & Degol, 2015). The commonality in each is the admission of the lack of cohesiveness in terminology or agreement in measurement variables and instruments (Berkowitz, 2016; Konold, 2014; Lee et al., 2017; Thapa et al., 2009; Wang & Degol, 2015; Zullig et al., 2015). Researchers have called for an increased rigor in the development of psychometrically sound assessment tools and processes, particularly as tools are implemented beyond research and into decision making.

Many instruments are used in research and have been studied in terms of their psychometric properties. Researchers regularly include the validity and reliability evidence in their publications. The most common evidence reported includes confirmatory factor analysis, content validity, and Cronbach's alpha. Furthermore, validity and reliability evidence was gathered during the instrument

development and early testing phases, but there was no indication of ongoing efforts to ensure adequate validity or reliability.

Three tables were developed to highlight the similarities and differences of several assessment instruments that were reviewed in the literature. The tables identify studies that have employed different school climate instruments and show the range of definitions used, domains measured, availability of psychometric evidence, theoretical foundations, and whether or not the publication was subjected to a peer review process.

Table 1 (on page 40) provides a comparison of the definitions of school climate. The most common definition was Cohen et al. (2009) from the National School Climate Center. Of the ten articles included in this review, 70% used Cohen 2009 in full (50%) or at least in part (20%). As a result, the majority of the definitions were very similar. When analyzing all of the definitions, two commonalities are visible: first, climate was associated with shared beliefs, and second, climate intended to capture social or interpersonal school experiences.

The range of domains that are measured in each of the instruments are listed in the second table (on page 41). There do not appear to be any domains that are shared across all instruments. There are domains that appear quite frequently, such as: engagement and safety; and other domains, such as leadership, only appear in one instrument. As a whole, the domains that were measured by the ten different instruments reviewed include: interpersonal

relationships, safety, discipline practices and perceptions, satisfaction, leadership, connectedness, engagement, and student behaviors.

Table 3 (on page 42) offers a side by side comparison of important instrument considerations. The key themes that emerged from these comparisons are that the researchers consistently report some level of evidence of validity and reliability, but only two identify a theoretical foundation guiding the measurement. Another theme was that the most common respondent was the student population and only two queried students, faculty/staff, and parents.

These tables support the recommendations of many researchers who have advocated for improved consistency and rigor in climate assessment processes and illustrates the range of perspectives currently guiding assessment. The following section will address a number of conflicts that have emerged from this review of school climate measurement research.

### **Exploring Conflict and Discrepancies in School Climate Variables**

The first conflict to resolve is the definition of school climate. It is not plausible to consider consistently assessing school climate if there is no agreement on what climate is or is not. At the heart of this question is whether or not school climate is an objective observation or a subjective perception, or a combination of both. The majority of school climate assessment tools include personal and individual perceptions, but some also propose the value of objective and observable climate measures. For example, Wang and Degol (2015) suggest

observation and walking tours of school environments to measure physical environment characteristics.

Other researchers, however, focus entirely on measuring perceptions. In a recent publication advocating a theoretical framework for studying school climate, researchers proposed that school climate is a perception (Rudasill et al., 2017). The perception of school climate is influenced by a number of factors including physical characteristics of a school, but these observable characteristics are not part of the construct proposed by the authors.

The confusing landscape of conceptualizing school climate is evident in the variance of definitions currently being used. While each definition is slightly distinct, there are shared similarities, with the majority, including elements of safety, norms, values, and relationships.

The confusion is further depicted by a wide range of domains that are being assessed in the instruments that have been published in the peer reviewed literature. The range of domains included in the instruments reviewed include elements of safety, engagement, belonging, discipline and the fairness of rules, satisfaction, parent involvement, leadership, programs and services, physical environment, learning and instruction, and student behaviors.

Another layer of depth is the unresolved question of whether or not the domains of interest can be adequately measured. There is a substantial body of research with considerable criticism, in the defining and measuring of what is termed non-cognitive factors or social and emotional learning (SEL). School

climate advocates posit the need for school environments to foster SEL and those opportunities are included in a number of school climate domains, yet research remains inconsistent in terms of how to measure and which factors are most important to supporting student growth and development. For example, there has been considerable growth in the research around concepts such as grit, mindset, motivation, and self-efficacy. However, there is also mounting criticism in terms of how these characteristics and skills are being measured and an overall lack of adherence to sound recommendations in terms of psychological testing and assessment (Duckor, 2017).

While it is clear that research is not conclusive regarding which factors are most important and which methods are most appropriate for assessing, researchers are presenting robust arguments espousing the value of non-cognitive, SEL, influences on learning. An additional conflict is in terms of health specific variables. At issue with health is the extent to which school climate and health are connected. Drawing from organizational climate research and practice, the health and wellness of those within the organization are important variables to consider in assessment.

From a public health perspective, wellness and wellbeing are fundamentally important as foundations for productive work, relationships, and by extension, academic learning (OCPHP, 2017c). School climate researchers may share concepts with public health, but not all measures consistently capture a range of health variables.

Table 1. School Climate Definitions

<b>Publication</b>	<b>Original source</b>	<b>Definition</b>
Bear, 2011	Haynes 1997, Cohen 2009	the quality and consistency of interpersonal interactions within the school community that influence children's cognitive social, and psychological development.
Cohen, 2009	Cohen, 2009	quality and character of school life [that is] based on patterns of peoples' experiences [and includes] norms, goals, values, relationships, teaching and learning, and organizational structures. climate includes norms, values, and expectations that support people feeling socially, emotionally, and physically safe. p.182
Bradshaw, 2014	Emmons 1996, Kupermine, 1997, Haynes, 1997	"shared beliefs, values, and attitudes that shape interactions between students, teachers, and administrators and set the parameters of a acceptable behavior and norms for the school"
Durham, 2014	Cohen, 2009	"captures how students, teachers, and parents view their school and it is correlated with social, emotional, and academic outcomes"
Gage, 2014	cohen, 2009	"quality and character of the school's social environment that sets the occasion for shaping the norms, values, rules, and structures of a school."
Lee et al, 2017	Anderson, 1982, Ramelow, 2015, Thapa, 2013.	"social aspects of the learning environment including school members' interactions and relationships, shared values and norms, and the personal development and growth of the members"
McGuffey, 2016	Hoy, 2002; NASSP, 2011	"the atmosphere of the school as represented in the foundational beliefs and values of members of the school community as well as the wider community in regard to education, beliefs and values of members of the school community as well as the wider community in regard to education, beliefs that drive the focus of the school, and the perception of how to foster sustainable change." p.98
Schueler, 2014	Cohen, 2009	"the quality and character of school life which is based on patterns of peoples' experiences of school life and reflects norms, goals, values, interpersonal relationships, teaching and learning practices, and organizational structures.
You et al, 2014	Cohen, 2009	"The quality and character of school life which is based on patterns of peoples' experiences of school life and reflects norms, goals, values, interpersonal relationships, teaching and learning practices, and organizational structures.
Zullig, 2015	Cohen, 2009; Zullig, 2010 & 2014	"the quality and character of school life which is based on patterns of peoples' experiences of school life and reflects norms, goals, values, interpersonal relationships, teaching and learning practices, and organizational structures.



Table 2: School Climate Domains

<b>Author, Year</b>	<b>Instrument</b>	<b>Domains</b>
Bear et al, 2011	DSCS-S	caring relationships, fairness of rules, school safety, liking of school
Bradshaw et al, 2010	MDS3	safety, engagement, environment
Durham et al, 2014	Multimethod	Nat'l school climate center
Gage et al, 2016	Meridian	safety, home-school connectedness, adult support, acad support at home, peer support, aggressive
Lee et al, 2017	SCASIM-St	Belonging/connectedness and social identity. Instrument emerged from research by Moos' and colleagues. Academic measures: achievement (standardized test scores), absences, aggression scale, depression scale, parental education level, SES at school level (Australian index).
McGuffey, 2016	CASE	Collaborative leadership, personalizing school environment, curriculum instruction and assessment
NCES, 2016	EDSCLS	Engagement, Safety, Environment
Schueler et al, 2014	Parent survey	Nat'l climate center domains
You et al, 2014	Brief-California School Climate Survey	safe learning environments, norms and standards that encourage academic success, positive staff-student and intrastaff relationships, student behaviors and conditions that facilitate learning, and services and programs that address student nonacademic barriers to learning.
Zullig, 2015	SCM	parent involvement and engagement (2 new domains tested w/ available measure) Domains of SCS:

Table 3: School Climate Instrument Comparisons

<b>Author, Year</b>	<b>Instrument</b>	<b>Validity/ Reliability</b>	<b>Theoretical framework</b>	<b>Perspective</b>	<b>Peer Review</b>
Bear et al, 2011	DSCS-S	Yes	Yes	student	Yes
Bradshaw et al, 2010	MDS3	Yes	No	student Student, staff, teacher	Yes No
Durham et al, 2014	Multimethod	None	No	Students	Yes
Gage et al, 2016	Meridian	Yes	No	Student	Yes
Lee et al, 2017	SCASIM-St	Yes	No	Student, parent, staff	Not sure
McGuffey, 2016	CASE	Partial	No	Student, teacher/staff	Grey
NCES, 2016	EDSCLS	Yes	No	Parents Teachers, administrators, instructional staff	Yes
Schueler et al, 2014	Parent survey Brief-California School Climate	Yes	No	Students	Yes
You et al, 2014	Survey	Yes	Yes		
Zullig, 2015	SCM	Yes	No		

## **Instrument Development**

Literature reveal that establishing clear and consistent definitions, domains, and variables important to school climate is a necessary starting point. The next recommendation is the rigorous development of scientifically sound instruments to measure school climate. Currently, instruments demonstrate adequate psychometrics for use in research, but their evidence of validity and reliability has been called into question if their use is expected to inform policy or decision making. There are five key themes that have emerged from the literature characterizing the critique and recommendations for future instrumentation and assessment of school climate.

First, establishing robust validity and reliability evidence that meets expectations for decision making. Increasing rigor of psychometric testing (Berkowitz, 2016; Konold, 2014; Lee et al, 2017; Thapa et al., 2009; Wang & Degol, 2015; Zullig et al., 2015). Second, few instruments with publications detailing their development identify a theoretical foundation. Thus, there is a lack of theoretical guidance informing the development, purpose or intended use.

A second conflict to resolve is whose perspective should inform school climate assessment. The majority of measures solicit student perceptions, some teacher, but few parent or community perspectives are included. Most select one perspective only.

In this review of the literature, most school climate surveys were collected at only one time, signifying a belief that climate is static. However, climate is not

static, but rather dynamic and changing. Contrary to such views, perceptions of climate are more likely subject to change throughout the school year, based on events and experiences and expanding development of school-based relationships.

A final consideration that emerged from the literature is for what purpose are schools measuring climate. The majority of literature documenting measurement climate are for correlational research studies. The aim of these instruments is to inform and build a body of knowledge to better understand climate and the role of climate in schools. What still needs defining is the practice-oriented use of school climate measures.

In California, state expectations are to use school climate to inform accountability, but how remains undefined, vague and whether or not there is a purpose beyond accountability. Practitioners value the ability to plan and implement programs and services to improve school success, but whether or not school climate tools help practitioners in program planning is not well documented in the literature.

Assessing many of these instrument design concerns can be improved by adhering to recommendations of two foundational resources in educational assessment: *Knowing what students know*, published by the National Research Council and *Standards for Educational and Psychological Testing*, published by American Educational Research Association. According to “*Knowing What Students Know*,” effective educational assessment requires three fundamental

elements: theory of change (or cognition), a method (or observation), and the interpretation and use of the results. These elements make up the assessment triangle (NRC, 2014, p.44). In school climate assessment, the range of tools that were reviewed in the literature clearly adhere to only one point of the triangle – the observation. There are many tools, but few identify a strong theory of change and a clear interpretation or use of results.

The underlying problem is that poorly designed tools can misinform or misguide decisions. Some of the questions that emerged from reviewing assessment tools is whether or not the instruments take into consideration developmental relevance or user diversity, if the validation process is ongoing, and what is the purpose, and how are the tools implemented and used by the schools.

### **Gaps in Research and Practice**

This literature review revealed three themes that highlight gaps in research and practice in regards to school climate. First, there is discrepancy in research and practice in terms of solutions to school climate reform efforts. In practice, the approaches are largely independent services or programs that are fragmented and disconnected from one another, not offered universally, and established as a result of an event that captured the attention of stakeholders (at school or in the community), such as PBIS or violence prevention programs. In contrast, scholarship consistently proclaims the benefit and desirability for approaches that

coordinate activities and offer services and opportunities for learning and growth universally.

Second, there is a gap in school climate assessment processes. This literature documents a range of instruments currently being used by researchers and schools, revealing a number of important recommendations for future research and practice-oriented approaches to measure school climate. The way climate is measured has direct implications for the gap, previously discussed. Scholars have yet to approach school climate measurement systematically and the practices that have emerged as a result are a clear reflection of the confusion in this landscape (Berkowitz, 2016; Konold, 2014; Lee et al, 2017; Thapa et al., 2009; Wang & Degol, 2015; Zullig et al., 2015).

Third, despite being one of only four states in the nation to include school climate as a state accountability measure of school success, California has yet to clearly articulate their expectations. The state is currently engaged in a process to more clearly define and guide, but given the fact that the state law is already in effect, this presents a clear gap in practice.

### **Conceptual Framework**

The proposed research aims to continue to fill the gap in research on school climate measurement and assessment by conceptualizing climate in terms of school wellness. This study is guided by a theoretical foundation that is rooted in ecological systems theory, critical race theory, and social justice. Ecological systems theory is an appropriate lens to approach school climate research

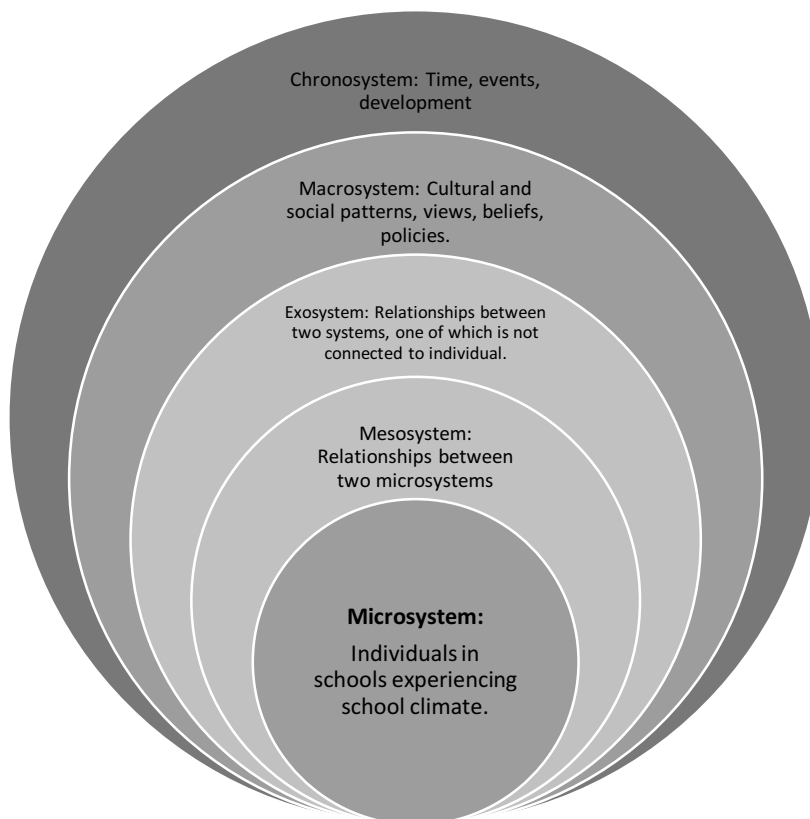
because it is multidimensional and it relies heavily on observing and understanding complex relationships (Rudasill, Snyder, Levinson, & Adelson, 2017; Wang & Degol, 2016).

Ecological systems theory, developed by Bronfenbrenner (1977) is widely used in conceptualizing complex constructs and revealing relationships that interact with and influence the construct being studied. School climate has been explored from an ecological systems theory view, but instrument/assessment processes have not. Thus, this study will contribute to both research and practice by employing a systems perspective through the analysis and development of an instrument to assess the multidimensionality of school climate.

School climate is an excellent construct to explore in systems theory because of its perspective on dimensions, complexity, and relationships. Bronfenbrenner's ecological systems theory was developed as a child development theory and provided a lens to see the many relationships that could impede or support healthy development. The theory has been widely used to explain complex interrelationships between people, places and things (Bronfenbrenner, 1977).

The nested structure of the theory is an important reminder of the influences and interactions that cannot be lost, but need to be understood and recognized. The ecological systems theory consists of several nested systems, each one interacting with the other. Most commonly, the theory is visualized as concentric circles with the smallest unit of measure in the center and the more indirect and abstract influences on the outside rings (see Figure A).

Figure A: A Visual Model of School Climate and Ecological Systems Theory



### **Application of School Climate to Ecological Systems Theory**

The center of the model is represented by individuals who experience the school climate within the school setting directly. These individuals included students, staff, teachers, other site based personnel, and parents/guardians. This center system is called the microsystem.

The next circle outward is the mesosystem. The mesosystem is characterized as experiences between the two microsystems. In school climate, interactions and relationships between teachers and students, students and administrators, teachers and parents, administrators and parents, students and students, students and parents, teachers and teachers, and teachers and administrators.



The third circle outward from the center is the exosystem, characterized by two or more settings or experiences, one of which is not directly connected to the individual in the center. In terms of school climate, the exosystem includes parental employment sites, community services and opportunities, district policies, curriculum and instruction decisions, and school resources and opportunities.

The next circle outward is the macrosystem which includes the dimensions of influence that are further removed from the individual experience, but can still have influence over shaping individual experiences, behaviors, beliefs, and potential opportunities. Characteristics of this realm are reserved for cultural patterns and customs, policy, and social norms and values. The final, most outward circle is the chronosystem, which is an abstract realm dealing with time, events, or the biological development of students.

In addition to helping visualize and explain the multiple layers of influence, the ecological systems theory allows researchers to see the impact that change, in any of the circles, can have on the other circles. For example, if an individual experiences a negative health event at school, that event will influence other individuals (in the microsystem), but it may also influence interpersonal experiences between individuals at schools and the parents (mesosystem), and it is possible that the event could impact policies and practices at the district level (exosystem) or state/national policy (macrosystem). As another example, the impact of a negative school event, such as a mass shooting, could be a

chronosystem disturbance that has an impact on policies, practices, behaviors, and perceptions of school safety for schools and students throughout the nation.

**Critical Race Theory (CRT).** CRT is included in the conceptual framework because of the intersectionality of experiences among students and populations in terms of their perceptions of school climate and academic outcomes.

Intersectionality is a construct of CRT that seeks to capture the multiple inequalities that simultaneously influence life experiences (Crenshaw, 1991).

Intersectionalities are categories that require both independent and synergistic analysis and must consider the power dynamics that enforce the inequality. The purpose of studying intersectionalities is to identify the problem in order to fix the problem (Crenshaw, 1991).

This is an important concept in this study because the populations most at risk for health and education disparities overlap and their experiences should be perceived and understood in concert with each other, rather than as independent phenomena. CRT and intersectionality offers an important lens to consider as current school climate assessment practices have taken little consideration of diverse identities or experiential differences in school climate perceptions.

**Social Justice.** Lastly, a social justice perspective will guide this study because climate is not perceived equally and experiences in the school system are not equally conducive to everyone's learning and capacity. The research is being pursued for the purpose of understanding complexities of school climate so education systems and communities can work together to meet the needs of all

students. The social justice perspective will serve as a reminder of this purpose and the conviction that quality educational opportunities are a right for all children.

These three theories that will guide this research are complimentary. The systems theory provides the necessary framework from which to view detailed experiences and complex patterns influencing those experiences. Critical Race Theory, particularly intersectionalities, will help identify the experiences that are conflated with multiple identities and personal realities. The social justice perspective grounds the research in a purpose of social change and equity.

### **Conclusion**

The more we understand complex experiences, the more relevant our planning and collaboration can be and the more effective we will be in our efforts to implement change and ensure that all students have access to safe, healthy places to learn and grow.

This review of the school climate literature revealed a gap in methods to effectively assess school climate for the purpose of diagnosing potential areas for change in order to help improve academic and overall wellness outcomes for people in our schools – primarily, students, teachers, and staff. The research that is proposed seeks to better understand the methods and approaches that are currently being utilized by schools in California, followed by the development and preliminary pilot testing of an instrument that can adequately assess the experiences and relationships that establish the climate of a school.

The goal of this research is to establish a foundation for the development and implementation of a psychometrically rigorous school climate assessment process. The purpose of this research is to fill a gap in practice, recognizing that school climate assessment can be a collaborative approach used by schools and communities to discover problems and implement solutions to improve academic outcomes by ensuring that schools are healthy places to learn and develop.

### Chapter 3: Methodology

#### Problem of Practice:

*Academic outcomes and health outcomes are interconnected and reciprocal at both individual and population levels. Current K-12 public education policy in California has identified school climate as a statewide measure of accountability in the Local Control Funding Formula, which has the potential to invite discussion and understanding of school health in new ways. The problem is that school climate is not consistently defined and measured, thus impacting the use and applicability of assessment tools and the potential for change in local and state education policy and practice.*

#### Theory of Change:

*If a valid and reliable tool is available then CA schools will have an improved understanding of their climate, able to identify intervention contexts, and plan and implement interventions to improve school climate.*

<b>Resources</b>	<b>Strategies and Activities</b>	<b>Outputs</b>	<b>Short-term Outcome</b>	<b>Long-term Outcomes</b>	<b>Impacts</b>
<i>What resources are or could reasonably be available?</i>	<i>What will the activities, events, etc. be?</i>	<i>What are the initial products of these activities?</i>	<i>What changes are expected in short-term?</i>	<i>What changes do you want to after the initial outcomes?</i>	<i>What are the hoped for changes over the long haul?</i>
RQ1: <ul style="list-style-type: none"> <li>• C&amp;I personnel</li> <li>• C&amp;I responses</li> <li>• Process recording document</li> <li>• Analysis tool</li> </ul> RQ2: <ul style="list-style-type: none"> <li>• Access to instruments</li> <li>• Analysis tool</li> </ul>	RQ1: <ul style="list-style-type: none"> <li>• Write letter to introduce RQ/purpose</li> <li>• Informal query of CCWCG members</li> <li>• Develop survey on Qualtrics</li> </ul>	RQ1: <ul style="list-style-type: none"> <li>• Descriptive review of CA instruments in use</li> </ul> RQ2: <ul style="list-style-type: none"> <li>• Descriptive review document</li> </ul> RQ3:	RQ1 & RQ2: <ul style="list-style-type: none"> <li>• Inform development and design of new instrument</li> </ul> RQ3: <ul style="list-style-type: none"> <li>• Establish V/R of piloted tool</li> </ul>	Improved understanding of climate  Actionable intervention ideas/contexts for school climate improvement	Improved use of tools  Implementation of programs to improve school climate

<p>RQ3:</p> <ul style="list-style-type: none"> <li>• Students</li> <li>• Expert panel</li> <li>• Teachers</li> <li>• Administrators</li> <li>• Observers/ researchers/ data collectors</li> </ul>	<ul style="list-style-type: none"> <li>• Identify recipients from CDE database</li> <li>• Send initial email</li> <li>• Follow up * 2</li> <li>• Descriptive analysis of results</li> </ul> <p>RQ2:</p> <ul style="list-style-type: none"> <li>• Analyze instrument for PH outcomes using analysis tool</li> </ul> <p>RQ3:</p> <ul style="list-style-type: none"> <li>• Develop instrument based on RQ 1&amp;2</li> <li>• Pilot test instrument with expert panel</li> <li>• Revise instrument</li> <li>• Field test instrument in one school</li> <li>• Focus group follow up</li> </ul>	<ul style="list-style-type: none"> <li>• New school climate instrument</li> </ul>		<p>Access to instrument that is V/R</p>	
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Assumptions/Contextual Factors:

1. *Schools are interested in learning about their climate*
2. *Change is possible*
3. *Schools may have fear in terms of learning about their climate*
4. *There is concern over a lack of resources available for change that is necessary*
5. *There will be competition among private companies who have been invested in CA school climate measurement*
6. *Process of inquiry and D&D is inherently political*

Qualtrics Survey Questions (draft ideas)

1. Checklist, what tool does your school use to assess school climate? (CHKS, school developed, ...) (list informed by query with CCWG)
2. Who completes this survey? (parents, teachers, staff, students)
3. How are the results used by the school? (LCAP report, planning services, instructional changes ...)
4. Do you like the survey you use? Is it helpful? Are the data useful to your planning?
5. Is anything missing from the survey you use or data you collect?
6. Ease of use, access, expense ... (easy to administer? Affordable? Time involved?)
7. When do you administer the survey?
8. Who administers the survey?
9. How is the survey administered?
10. Who developed the survey?
11. Did the developer provide you with any materials? ... (administration procedures, validity, reliability)
12. Your name, position
13. Interested in learning more about this process over the next 2 years?

## Research Design Plan

**Problem of Practice:**

*Academic outcomes and health outcomes are interconnected and reciprocal at both individual and population levels. Current K-12 public education policy in California has identified school climate as a statewide measure of accountability in the Local Control Funding Formula, which has the potential to invite discussion and understanding of school health in new ways. The problem is that school climate is not consistently defined and measured, thus impacting the use and applicability of assessment tools and the potential for change in local and state education policy and practice.*

<b>Research Questions</b>	<b>Planned Activity and Samples (Include Number) You Need to Collect Data</b>	<b>Instruments You Need to Collect Data</b>	<b>Data Analysis Plan (Indicate if QU = Quantitative or QL = Qualitative)</b>
<b>RQ 1</b> What instruments are currently being used by California schools to assess school climate? What is the validity and reliability evidence for the instruments? Are the instruments sensitive to health indicators and outcomes?	Use CDE data to identify C&I personnel in school districts.	Survey to administer to C&I personnel	Descriptive analysis
	Develop survey.	Analysis rubric	Literature review and psychometric comparison table.
	Query districts to identify tools in use and obtain a copy.		
	Follow up as needed. Analyze results and instrument variation.		
<b>RQ 2</b> What is an appropriate tool for assessing school climate in California?	Develop tool based on literature review and expert panels	Expert panel question protocol	Analyze qualitative data for emerging themes in responses.
	Pilot tool with expert panel Pilot tool with one school Conduct psychometric analysis	Pilot rubric	Psychometric analysis of tool.
	Revise tool throughout		



### Timeline of Data Collection and Analysis Activities

<b>(RQ1: AY 2017/2018)</b>									
Research Question # and Planned Activity	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr
Determine districts to query and identify C&I personnel	X								
Develop survey	X	X							
Send initial email invitation with survey to C&I personnel		X							
Follow up as needed to increase response rates			X	X					
Analyze instruments for validity, reliability, variance in measurement approaches and domains					X	X	X	X	
Present findings									X
Participate in monthly student research grant seminars	X	X	X	X	X	X	X	X	X
<b>(RQ1: AY 2018/2019)</b>									
Research Question # and Planned Activity	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr
Develop instrument	X	X							
Pilot with expert panel		X							
Analyze and revise		X	X						
Field test at one school			X						
Analyze and revise			X	X					
Retest at one school				X					
Analyze and revise				X	X				
Write findings					X	X	X		
Complete chapters 4 & 5							X	X	
Finalize chapters 1-5								X	X

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