

ASSOCIATIONS BETWEEN THE SCHOOL PHYSICAL ENVIRONMENT AND
CLIMATE IN RURAL SCHOOLS

by

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DEDICATION

My pursuit of this doctorate has been the hardest thing I've ever done, but has brought me immeasurable amounts of joy, satisfaction, dread, and despair; and will forever stand tall as a signature achievement and a dream come true for me! While there are countless family and friends who've helped get me to this point, there are six individuals who helped me summit this "Mount Everest" of endeavors, without whom I would not be here.

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ABSTRACT

According to the National Center for Education Statistics (2021), more than half of all public-school districts and nearly one-third of all public-school students attend rural schools in the U.S. This study identifies characteristics of the physical environment of rural schools, considers how the physical environment of rural schools compares to urban and suburban schools, and describes the associations of a school's physical environment with perceptions of school climate among students, staff, and parents.

Using the School Assessment for Environmental Typology (SAfETy; Bradshaw et al., 2015), this study objectively assessed the physical environment of 40 rural schools in Idaho. Those characteristics were compared with data collected in prior research (Bottiani et al., 2020). This study found rural and non-rural schools, and the make-up of their physical environments, are not that different. The physical environment of rural schools had low frequencies of instances of disorder, such as trash, graffiti, drugs, paraphernalia, and evidence of building decline, such as broken windows and neglected landscaping. Rural schools also produced moderate scores related to appearance, with characteristics including illumination, visibility, and ownership. Most schools in this study were found to have interior and exterior surveillance cameras in place and employed school resource officers.

Rural secondary schools in this study had a higher presence of surveillance measures than non-rural high schools, whereas non-rural high schools had higher frequencies of disorder. And, although a comparison to non-rural elementary schools is

not available, the rural elementary schools score in the current study show similar physical environmental characteristics as did urban secondary schools in all three factors of the SAfETy.

In addition, the current work also examined aspects of the social environment, through evaluating school climate. The Maryland Safe and Supportive (MDS3) School Climate Survey Suite was administered to students, parents, and staff in all 40 schools participating in this study. Multi-variable regression analysis was used to examine the associations between the SAfETy and school climate. Several associations were found among students, with fewer associations among staff and parents.

This research study concludes that a variety of important, urgent, and malleable associations exist between a rural school's physical environment and perceptions of school climate among students, staff, and parents. This research, and future research that builds upon this work, will assist schools as they strive to transform, strengthen, and sustain positive school environments for all stakeholders.

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LIST OF ABBREVIATIONS

BSU	Boise State University
GC	Graduate College
MDS3	Maryland Safe and Supportive School Climate Survey Suite
PBIS	Positive Behavior Interventions & Supports

CHAPTER ONE: STATEMENT OF PROBLEM

Schools are places where students can excel academically, grow in social skills, develop emotionally, and prepare to become contributing members of society. In order for students to succeed at school, they must feel safe and connected to their school community. But there is a lot we do not know about how the physical environment of a school—particularly those located in rural areas—either nurture or impede perceptions of safety and influence the school’s social climate. Research has been done to understand the correlation between these variables in urban schools, but very little research has been conducted to understand these associations in rural schools.

In every setting, in any location, the physical environment influences the social environment around it. Elements of the physical environment, including overall design, layout, and the use of space can either promote and foster feelings of safety, connectedness, and prosperity within a community, or it can facilitate and support an increase in violence and crime (Cisneros, 1995; Crowe, 1991; Mair & Mair, 2003). A school’s physical environment is no different. A growing body of literature suggests that a connection exists between a school’s physical characteristics and its impact on student perceptions and the way they behave at school (Bosch, 2006; Plank et al., 2009; Uline & Tschannen-Moran, 2008). With this in mind, it is critical that more is known about these physical characteristics, particularly in rural communities.

The proposed study will examine how aspects of school buildings and physical structures in rural schools are associated with student outcomes such as perceived school climate, including safety, order and discipline, fairness, and connectedness.

The current work examines the following research questions:

1. What are the characteristics of the physical environment in a sample of rural schools?
2. How are the characteristics of the physical environment in rural schools similar or different to what other research has documented about urban or suburban schools, using the same measurement approach, the SAfETy tool?
3. How are aspects of the physical environment at rural schools related to perceptions of school climate among school staff, students, and their parents?

CHAPTER TWO: REVIEW OF LITERATURE

The primary purpose of this research is to examine the relationship between the physical environment and the social climate of a school, particularly those located in rural communities. This review of literature begins by considering several theories that explain how people are influenced by their physical and social environments, and how the interactions of both types of environment influence the experiences of people who spend time in those settings, with a specific focus on schools and students in rural communities.

Theoretical Framework

Abraham Maslow's hierarchy of needs (Maslow & Freger, 1987) theorizes that humans' most basic need is for physical survival – food, water, warmth, and rest – and that once those needs are satisfied we need to have our social needs met in order to feel safe and secure (Maslow & Freger, 1987). The fulfillment of needs can be met by our physical and social environments.



Figure 2.1 Abraham Maslow's Hierarchy of Needs

These basic needs are just as essential in school environments, and contribute to the overall climate of schools, and the experiences of students in those settings. The current work focuses on rural schools, which are located across all regions of the United States, serving nearly 10 million students each year (Blad, 2019). Each school has a unique climate—with social climate being a construct that is complex, described by Maxwell et al. (2017) as the unwritten personality of each school, fostering its own atmosphere, which includes expectations, values, and traditions that influence students' perceptions and choices. To ensure students are safe, engaged, and included in an environment that supports growth and helps students achieve the best within each of them, schools must be strategic in how they design and maintain safe learning communities to promote and foster positive school climates.

School Climate

Referred to as the persona of a school (Thapa et al., 2013; Wang & Degol, 2016), school climate is a complex construct that serves as the heart and soul of a school and significantly impacts and influences its stakeholders in a myriad of ways (Zakariya, 2020). For example, a positive school climate promotes prosocial behaviors, improves teacher morale, and provides a safe, welcoming space for students to learn and progress academically, emotionally, and socially (Thapa et al., 2013).

Conceptualization of School Climate

When considering the origins of school climate, it is important to note that its conceptualization is the result of much debate and has produced a wide range of ideas (Lindstrom Johnson, Waasdorp, & Bradshaw, in press) which has led to variations in the way in which it is measured and reported. Until recently, it was unclear which school components should be considered when measuring school climate. For instance, for a time, measuring school climate focused on student engagement (Payne, 2018). Researchers, however, posited that there were more constructs to school climate than just student engagement, specifically school safety and aspects of the school environment (Benbenishty et al., 2016).

Measurement of School Climate

With this debate in mind, the U.S. Department of Education (USDOE) crafted an inclusive tool to measure school climate that included student safety, the school environment, and student engagement. These three components were connected in their purpose. For example, students that are engaged have established meaningful relationships with teachers and staff that have been nurtured over time. Establishing and

maintaining these valued relationships within school environments has been facilitated by an intentional structure put in place that includes clear rules, expectations, and supports that help students reach their full potential. Highly engaged students within a structured school environment help to foster perceptions of both physical and emotional safety (National Center on Safe Supportive Learning Environments, 2018), helping to produce positive, healthy school climates. This extensive conceptualization of school climate, while more comprehensive than previous models, was still difficult to interpret using the USDOE model, but each of the constructs within this model have individually been linked to academic and behavioral outcomes (Lindstrom Johnson et al., in press).

For the purposes of this study, I use an existing tool to measure school climate, the Maryland Safe and Supportive Schools (MDS3) suite of questionnaires. This initiative, which was funded by the USDOE to build upon the work that had been done to understand school climate and target specific areas of improvement, was "...a joint project of the Maryland State Department of Education (MSDE), Sheppard Pratt Health System, and John Hopkins University" (Bradshaw et al., 2014, p. 283) done through partnerships with 58 schools in Maryland.

Environmental Impacts on School Climate

The theories discussed within this review of literature highlight the notion that we all live within physical environments and social environments, which have complex and reciprocal relationships, and which both impact the individuals who spend time in those environments. This review describes theories including Broken Windows Theory, Social Disorganization Theory, and Ecological Systems Theory, all of which posit that the environment that people experience has an impact on them. Thereafter, the review

considers intervention approaches such as Crime Prevention Through Environmental Design (CPTED), which strives to change environments to improve outcomes. This requires an investment in resources, maintenance, and prevention efforts to ensure students feel safe where they learn. While these theories help us to understand how to prevent social disorder within a larger community, schools can also apply these critical ideas to help them create school climates that promote safety and are socially sustainable.

Research has discovered that both the physical and social characteristics of the school environment significantly impact the way students and school staff perceive the climate of their school (Bradshaw et al., 2015). For example, schools use target hardening as a form of situational crime prevention that is designed to reduce opportunities for crime. Target hardening is anything that can be done to a structure to strengthen, fortify, or protect it from damage or harm. Some schools have utilized strategies such as installing security cameras inside and/or outside the building, or increasing the presence of security officers at school. Results are mixed on whether or not such approaches improve perceptions of school climate. As Johnson and colleagues (2018) note “research suggests students and faculty see physical characteristics, in particular school security officers and cameras, as important contributors to a safe school.” However, in their study of urban schools, those two strategies did not significantly impact students’ perceptions of risk or fear of crime (Johnson et al., 2018, p. 733).

While security measures may contribute to improved perceptions of school climate, social interactions and the relationships that exist within the building also play a critical role. In order to create a positive school climate, students must feel cared for, accepted, valued, and secure and have regular, positive interactions with a caring adult

(Borkar, 2016). While student achievement is often used to evaluate schools and determine their overall success, "...there are growing numbers of schools who are now acknowledging the need to develop students in a more holistic way, with a stronger focus on wellbeing" (Borkar, 2016, pg. 861).

PBIS and School Climate

One way that schools are changing their physical and social environment to have an impact on school climate is Positive Behavior Interventions and Supports (PBIS). The PBIS approach began more than three decades ago (Horner and Sugai, 2015) as a way to provide support for and improve behavior among students with disabilities who were receiving special education services.

Thereafter, it incorporated schoolwide universal prevention as a foundation, utilizing a tiered system of supports ranging from universal schoolwide strategies for all students to intensive supports for some students. Schoolwide efforts focus on establishing schoolwide expectations or norms, with clear and specific consequences for violations of those expectations, and the use of data tracking and analysis of student behavior problems (Horner and Sugai, 2015). The approach focuses on environments, as stated by one of the founders, Rob Horner: "the signature feature of positive behavior support has been a committed focus on fixing environments, not people" (Horner, 2000, pg. 97). Horner also points out that "We must design schools, homes, and communities that effectively prevent problem behaviors. Effective environments make problem behaviors irrelevant, inefficient, and ineffective" (Horner, 2000).

As of 2020, more than 31,000 schools throughout the United States used PBIS, with the aims of promoting positive behavior, and improving and strengthening

relationships (Gion et al., 2020). The implementation of PBIS has been shown to be effective in reducing student disciplinary incidents, reducing suspensions and expulsions, and increasing student achievement outcomes (Horner et al., 2009). PBIS has also been shown to improve student and staff perceptions of school climate, and has been shown to significantly reduce teacher burnout and improve morale (Romney, 2018). Research indicates that changes to the social environment—through approaches such as PBIS—can improve a range of important outcomes (Horner et al., 2009, Horner and Sugai, 2015).

Physical Environment

This section explores how the physical environment can influence students' attitudes and behaviors, and the reciprocal impacts these factors can have on school climate. Several theories such as the Broken Windows Theory address these relationships, and the Crime Prevention Through Environmental Design (CPTED) movement seeks to utilize research on these topics to intentionally create safer environments through attention to physical attributes.

Broken Windows Theory

James Wilson and George Kelling (1982) conducted research around the physical environment and its impact on human behavior, developing what is known as the Broken Windows Theory. Wilson and Kelling (1982) theorized that without proper upkeep and care, buildings such as factories, shopping malls, libraries, and schools, are likely to become hotspots for physical and social disorder. They found that when there are buildings with broken windows, graffiti, and trash, places that are left unrepaired or unaddressed, or spaces that in any way suggest they are not cared for or monitored, people are likely to engage in mischief or criminal behavior. They theorize that in places

where physical disorder is not addressed, social control is far less likely to be important to those who live in the area, thereby increasing the likelihood of consistent criminality and reducing the likelihood of collective efficacy within a community.

Plank and colleagues (2009) elaborated on hypotheses that can be drawn from the Broken Windows Theory, pertaining to how and why physical disorder can lead to crime. The first hypothesis, known as the “invitation to evildoers” claim, suggests that within a social community, there is always someone waiting in the shadows, or even in plain sight, for the right time and opportunity to act on their deviant tendencies. The second elaboration of the Broken Windows Theory posits that when physical disorder is present, it causes one to feel fear and mistrust. The individual, assuming collective efficacy is absent and no one is there to protect them, reverts to self-protection.

Broken Windows Theory in Schools

As applied to schools, this theory suggests that problem behavior among students will be lessened in schools that are cared for, maintained, and updated. Plank et al. (2009) suggest that a profound connection exists between the elements of the Broken Windows Theory and perceptions of school climate. The authors surveyed students in grades 6-8 in 33 schools in a single urban community to examine the relationship among physical disorder, fear, collective efficacy, and social disorder. Their findings suggested a potent association between perceptions of social disorder and physical factors, such as broken windows, worn curriculum or equipment, or poor building conditions.

Crime Prevention Through Environmental Design

While the Broken Windows Theory posits ways that a building’s physical condition can influence feelings of safety and a sense of collective efficacy, the work of

Oscar Newman helps us better understand how to manipulate a built environment to create safe communities. In the 1970s, Newman, an architect and city planner, developed a framework, known as the Crime Prevention through Environmental Design (CPTED), that posits that one's environment can affect one's attitudes and actions.

According to Bradshaw et al. (2015), CPTED examined how an established set of rules and standards in a society help to build a social fabric that is able to stand on its own. Newman theorized that of profound importance are the physical characteristics of an environment and indicators of social control, such as: 1) how people claim and use space; 2) how public spaces are designed to promote maximum visibility and enhance feelings of safety and security; and 3) how these characteristics impact the places in which people live in general. His theory states by changing or modifying these physical characteristics and indicators of social control, behavior could be influenced in transformative ways and significantly assist in reducing criminality. CPTED has been used to intentionally design features of cities, communities and neighborhoods with the aim of decreasing anti-social activity and building social sustainability.

Johnson and colleagues (2009) explain that CPTED addresses four factors that influence the characteristics of the school environment. These include: 1) natural surveillance; 2) territorial features; 3) maintenance; and 4) access management. Newman's framework suggests constructing spaces that allow residents opportunities for natural surveillance, made possible using street lights, landscaping, and clear sight-lines, while making the surrounding areas more visible, which in turn helps to reduce opportunities for crime and promotes feelings of safety within the community. Likewise, territorial features, such as the way semi-public places are designed, also help to reduce

criminality in residential areas. For example, when local residents view and protect public spaces around their home—such as parks, walking paths, or community gardens—as their own, criminals are less likely to target these areas and a sense of unity prevails within these communities.

Another important factor, as highlighted in the Broken Windows Theory, that influences environments is physical maintenance. Neighborhoods that showcase homes that are well cared for, including manicured lawns, green grass, and working street lamps and adequate outdoor home lighting, are more likely to deter criminal activity. Typically, these types of neighborhoods are protected by an additional layer of criminal repellent, that of access management. For example, gated communities, neighborhood watch programs, and enhanced landscaping all serve as effective methods of access management.

Whether it's a single-family home, an apartment building, or a large neighborhood, intentional modifications in territorial features, physical maintenance, or access management, help to reduce violent crimes and decrease the shield of anonymity. Likewise, clearly defining what is public versus private property, to suggest signs of ownership, and providing regular maintenance for these spaces, contribute to the perceptions of investment in an area and help to promote social norms of appropriate behavior.

CPTED in Schools

With the usefulness of these strategies in other design areas, these types of changes or modifications of the physical environment have begun to be applied to schools. According to Bradshaw et al. (2009), some of the modifications that have been

utilized are: reducing or eliminating tall bushes close to the building to improve visibility; minimizing the number of entrances to the school; and mitigating safety issues, such as students needing to cross the street to get from one building to another. It is anticipated that each of these modifications helps to keep schools safer and help to reduce problem behavior, respond more effectively to behavior, and put in place a set of rules and standards that promote social sustainability. These interventions may also help to enhance feelings or perceptions of safety, which in turn influence the social climate of a school. However, there is currently little empirical evidence about whether these school modifications or characteristics are actually associated with student attitudes and behaviors, and thus more work is needed to examine those associations.

Lamoreaux and Sulkowski (2019) point out that to date, only a handful of noteworthy studies have examined the use of CPTED principles in a school setting. In their research they highlight the work of Johnson et al. (2018), which assessed the influence of CPTED-related factors on school violence. Results showed that both poor exterior and interior lighting in school settings, such as cafeterias, hallways, and unsupervised locations, could inadvertently promote student violence or misbehavior. CPTED promotes natural surveillance and adequate lighting as a means of deterring undesired behaviors.

The study by Johnson et al. (2018) also concluded that simply modifying a school's physical environment is not enough to deter or eliminate delinquent behaviors if those modifications do not change students' perceptions of the school's environment. Only when those modifications are noticed and change students' attitudes and perceptions of the physical environment in positive ways will it result in greater safety

perceptions among students. Any modifications made to improve a school's physical environment must be intentional, noticeable, and address significant needs to lead to a meaningful change in how students feel about their safety and the safety of others.

Student perceptions are key in understanding the connection between the hypothesized impacts of CPTED principles, school climate, and student achievement. Vagi et al. (2018) interviewed more than 4,000 students in 50 middle schools in the United States to assess the relationship between student perceptions of safety and CPTED. This study evaluated how well these schools implemented CPTED principles, such as natural surveillance, territoriality, physical maintenance, and access management. Students reported that they felt safer in a variety of areas around and near the school and there were fewer cases of school violence in schools that implemented CPTED principles with higher levels of fidelity. Lamoreaux and Sulkowski (2019) point out that this is the first large-scale study of CPTED in a school setting, but its results are promising and indicate that a connection exists between perceptions of student safety, school climate and a school's physical environment.

Social Environment

This section explores how social environments impact human wellbeing and interactions with others, and those influences on school climate. Two theories are reviewed, including Social Disorganization Theory and Ecological Systems Theory.

Social Disorganization Theory

Shaw and McKay's (1969) Social Disorganization Theory explores how contextual variables play a significant role in how likely someone is to participate in deviant behaviors (Bradshaw et al., 2015). Neighborhoods with social disorganization

have high rates of poverty, transiency, inadequate housing, racial and ethnic heterogeneity, and a lack of social connections. These demographic—or contextual—characteristics can influence perceptions of safety and make it difficult for communities to create feelings of cohesiveness, trust, and friendship, and to foster a set of rules and standards that help to solidify conventional values and deter instances of crime (Parillo, 2008).

Additionally, in socially disorganized communities, investments in neighborhood institutions, such as schools, local businesses, youth programs, churches, and service organizations are difficult to establish and support over time. This may be due in part to the contextual variables previously-noted, such as poverty, mobility, and lack of connections. Without resources and institutions, which serve as a unique part of a community's social environment and assist in creating and nurturing traditional values and expectations, communities will struggle (Parillo, 2008). Poverty is a pervasive problem, leaving many families wanting for the basic needs (i.e., shelter, food) that are established in Maslow's (1982) hierarchy of basic needs.

As neighborhoods grapple with issues related to poverty, poor housing quality, and a lack of economic opportunities, they struggle to procure the social resources necessary to help them adequately address crime. Without resources, a new value system may become the norm, in which crime occurs, challenging the conventional values of those who live within these communities.

20th Century Chicago School

Shaw and McKay (1969) began their work on Social Disorganization Theory as a result of observing many of the challenges that beset the 20th-Century Chicago School. In

1910, the city of Chicago was one of America's largest cities whose manufacturing industry was growing at an accelerated pace, due in part to an influx of European immigrants. As noted by Parillo (2008), with this growth came an increase in crime and poverty, which is speculated to have occurred because of changes in family traditions because immigrants and their children were adapting and learning a new language. Leaving rural and often isolated communities in their homeland to relocate to new urban surroundings may have upended traditional family and community social controls. As Parillo (2008) reviews, during that time in history the rates of crime in Chicago among Polish immigrants were higher compared to their homeland of Poland, which is speculated to have occurred because of the time it took after immigrating for the establishment of cohesive neighborhoods, community organizations, and schools.

Social Disorganization in Schools

The historical trends about community safety and social disorganization illuminate the importance of considering how broader social characteristics can influence individual behavior. Bradshaw and colleagues (2015) posit that the challenges identified in Social Disorganization Theory also occur in schools, where they impact social climate. Just as a neighborhood's social and economic characteristics influence its safety, they also can impact the climate in schools.

Olssen and Modin (2020) found that a school's organizational characteristics, or the way they structure their social environment, has a direct impact on student success—regardless of a student's background. For example, schools that establish, teach, and practice a set of values and beliefs significantly improve the way students, teachers, and staff interact and build relationships. With this in mind, these researchers highlight that,

“The fact that school ethos and related concepts such as school climate and school culture have been found to be associated with student behaviors suggest that it may be just as important to examine the influence of social ties and collective social control on behavior in the school as in the neighborhood setting” (Olssen and Modin, 2020, p. 159). This research suggests that schools that strive to improve the quality of their physical and social environments may be more successful in creating places that are safe, promote academic success, and give all students—especially those with disadvantaged backgrounds—greater opportunities to excel. These spaces may also foster collective social control and encourage self-efficacy, which plays a critical role in establishing and maintaining a positive school climate.

Ecological Systems Theory

While Shaw and McKay’s Social Disorganization Theory claims that where you live influences your behavior and choices, Bronfenbrenner’s Ecological Systems Theory (1977, 1986) describes how all aspects of the environment affect human development and wellbeing. A series of concentric circles are used to illustrate these environments, which create an interrelated tapestry of systems.

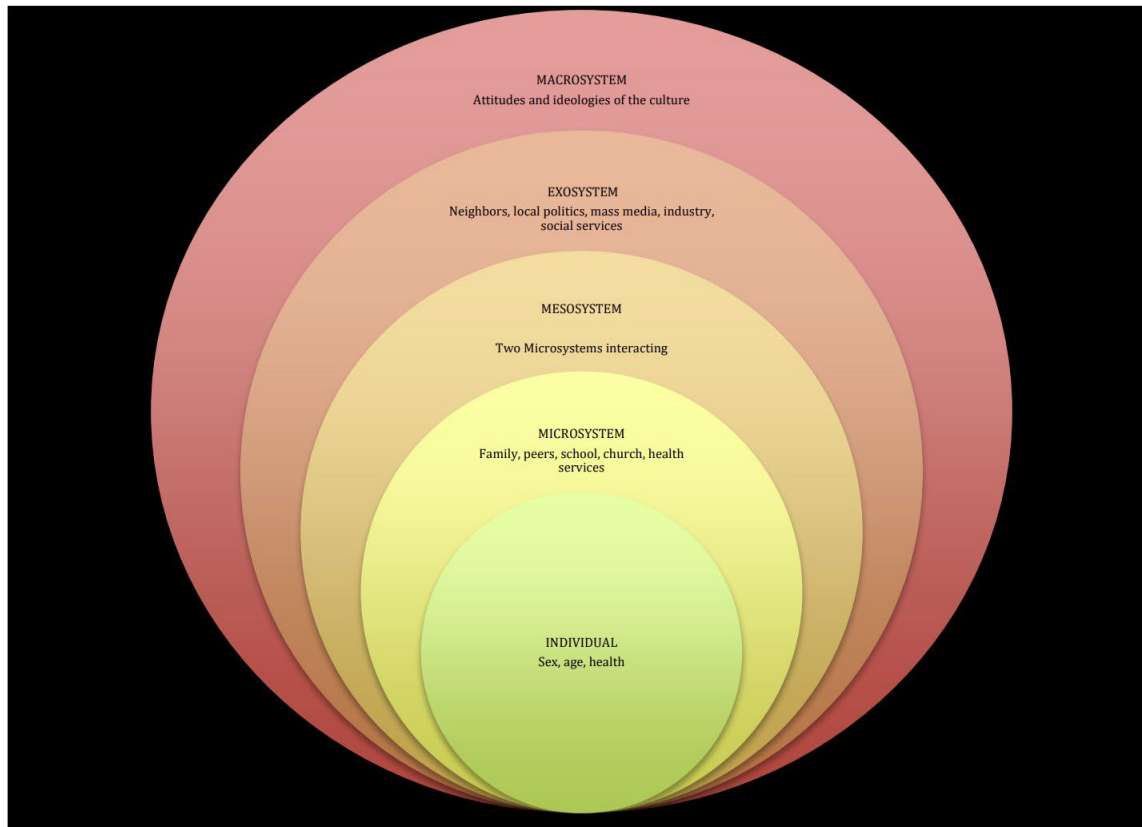


Figure 2.2 Schematic view of Bronfenbrenner's Biological Systems Theory

The first and most proximal to each child is the microsystem – or the immediate environment where the child lives – which includes any person or organization that child interacts with regularly. These can include family, friends, or anyone in a school setting. Second is the mesosystem – or a combination of microsystems and the relationships that exist among them. Third is the exosystem – the broader social factors that may indirectly impact children, even absent of the child's participation. For example, a parent's workplace or employment status can indirectly impact children, such as whether a parent receives a promotion at work or becomes unemployed, the experience can affect the child at home. Finally, the macrosystem – the most far-reaching system – includes society, socioeconomics, and the cultural values of the community at large (Ashiabi and O'Neal, 2015). These systems, and the interrelationships that exist among them, have a significant

impact on what we believe, how we feel, how we treat others, and ultimately who we become. As articulated by Ashiabi and O’Neal (2015, p. 2), Bronfenbrenner’s theory argues that “...human development takes place through the processes of progressively more complex reciprocal interaction between an active, evolving, biopsychological human organism and the persons, objects, and symbols in its immediate external environment.”

Ecological Systems Theory in Schools

Bronfenbrenner’s (1977, 1986) proximal processes, or the idea that how we develop as humans is significantly influenced by the ongoing interactions between a person and the elements within their microsystem, directly relates to student experiences in schools. Interactions within the microsystem—when students are at school—occur between students and their teachers and peers. Classroom routines, transitions, learning activities, and even extra-curricular events can also be considered important interactions that drive human development among children and adolescents in schools (Melvin et al., 2019). The microsystem can be impacted by community-level risk or protective factors at a macrosystem level, such as the economic conditions of a school district (i.e., funding resources available), or policy factors (i.e., decisions made by the school board).

Conceptual Framework

Having examined the Broken Windows Theory, Social Disorganization Theory, and Ecological Systems Theory, and the relationships among physical, social, and structural environments, an important aspect of research is to be able to measure these constructs.

Environmental Assessments

An important step in studying physical environments is the use of valid and reliable tools; however, thus far very few measures have been available for these constructs. This section describes two tools which assess physical environments, one in community settings and the other related tool, which was adapted to be specific to school settings.

The Neighborhood Environment for Environmental Typology (NifETy; Furr- Holden et al., 2008) is a standardized inventory that was designed to better understand where and how youth are exposed to violence, alcohol, and other drugs, how often they are exposed to them, and the environmental factors associated with heightened levels of exposure in the communities where they live (Furr- Holden et al., 2010). The NifETy is an observational tool, with data collected by trained observers who visit community areas (streets, building, etc.) to code characteristics within seven domains, including: physical layout; types of structures; adult activity; youth activity; physical disorder and order; social disorder and order; and indicators of violence, alcohol and other drugs (Bradshaw et al., 2015). The NifETy instrument has been validated examining child mental health and academic outcomes (Bradshaw et al., 2015).

The School Assessment for Environmental Typology (SAfETy; Bradshaw et al., 2015) is a similar tool, specific to school settings, and it was designed to “...serve as an observational tool that delineates and measures school physical and social environment indicators theorized to be linked with behavioral and academic outcomes” (Bradshaw et al., 2015, pg. 280). The SAfETy builds on principles of CPTED, which focuses on the need for defensible spaces and considering how the physical features of an environment

establish and maintain informal social controls (Bradshaw et al., 2015). This aligns with Social Disorganization Theory (Shaw & McKay, 1969), which examines how contextual variables play a part in how likely an individual is to participate in deviant behaviors (Bradshaw et al., 2015). With these two frameworks in mind, the SAfETy was created and is currently the only validated observational tool to measure a school's physical environment.

Before the SAfETy tool was developed, efforts to understand stakeholders' perceptions of school safety used survey data and administrative indicators of safety, such as suspension rates and discipline data (Kitsantas et al., 2004; Mayer & Leone, 1999; Van Dorn, 2004). However, these data points did not account for how a school's environment contributes to and further expands our understanding of the school context and "...provide objective evaluations of school-level social processes and physical structures to more accurately capture environmental factors" (Bradshaw et al., 2015, p. 282). Due to the need to understand more about how observational measures of the physical environment are associated with administrative indicators of safety, a tool needed to be designed to help researchers evaluate this important relationship.

The SAfETy was designed to help fill this gap in the literature and, much like the NIfETy, involves observational data collection using a standardized inventory. The SAfETy was set up to measure broad components of a school's physical environment, including 1) school ownership (e.g., benches with school logo, banners, flags, signs), 2) disorder (e.g., graffiti, trash on school grounds, evidence of alcohol or drug use), and 3) surveillance (e.g., security cameras, school police officers, proximity of staff) (Bradshaw et al., 2015).

When using the SAfETy tool to collect data, researchers examine both the interior and exterior of the school and focus on nine different locations during their evaluation, including the entrance to the school grounds, entrance to the school building, the physical layout of the school property, a playing field, hallways, stairwells, the cafeteria, and the student and staff parking lots. The amount of time it takes to conduct the SAfETy varies by school size and layout, but can take 10-30 minutes per location. In total, there are 259 items related to different aspects of the environment that are assessed by the evaluator employing either a Likert scale (e.g., rater's perceptions) or a yes/no indicator (e.g., graffiti present on exterior doors) (Bradshaw et al., 2015).

Additionally, Bradshaw et al. (2015) point out that “decisions about scale metrics were made through extensive pilot testing of the measure in three non-project schools” and that “sample observations were conducted to ensure the items, response options, and scoring were practical and that the theoretical domains mapped onto observable features of the school environment” (p.283). After the completion of the initial training and practice sessions, to ensure reliability among researchers, an inter-observer agreement of 80% or higher was needed and was exceeded with interrater reliability of 88%.

Prior use of the SAfETy shows that it is reliable, valid, and ready for extensive use in schools; however, the prior work (SAfETy; Bradshaw et al., 2015) has occurred primarily in urban or suburban schools, leaving more research needed in rural schools using this tool.

Rural Schools

The National Center for Education Statistics (NCES) has identified that more than half of all regular public school districts in the United States, and nearly one-third of all

public schools, are located in rural areas. Nearly 9.3 million, or one in five public school students in the United States were enrolled in a rural school during the 2016-2017 school year. According to the NCES, a school is classified as rural if it is located at least five miles outside of an urbanized area (2021).

Because rurality is, by definition, a distance from urban areas—and the services available there—there are some unique issues faced by educators serving students in these settings. Within rural communities, population density is extremely low, a characteristic that creates significant challenges for both schools and families. For example, due to the low population density in rural areas, schools must put more mileage on school buses and use more fuel to transport students to and from school because the population is so spread out and can live great distances from the school. Similarly, families who have limited access to public transportation options in rural areas are less likely to transport their children to and from school on their own as a result of the distance and added costs of fuel and time, limiting opportunities for families to make connections to the school and build relationships with teachers, staff, and other stakeholders (Rosenberg et al., 2015).

Students who live in homes that lack adequate transportation or whose parents are frequently out of the home because of a job can miss opportunities to participate in extracurricular activities or cannot access after-school tutoring or enrichment programs. This lack of exposure to these programs, as well as critical relationship-building opportunities with teachers and peers during these times, can leave students feeling isolated, disconnected, and lonely. Bronfenbrenner's (1977, 1986) proximal processes, or the idea that how we develop as humans is significantly influenced by the ongoing interactions

between a person and the elements within their microsystem, directly relates to the need for students, particularly those who live in rural areas, to be able to interact regularly with teachers and peers in a variety of settings in school. It is likely that doing so will help to dispel feelings of isolation and loneliness and promote feelings of connection and belonging.

In addition to the challenges noted above, poverty is a particular challenge in rural communities; the Rural School and Community Trust (2019) points out that nearly one in every six students in rural areas live in a household considered impoverished. Given what is known about the impacts of poverty on child development, this is a crucial challenge impacting rural settings. Furthermore, schools are the primary setting for mental health and special education services, and one in every seven rural students qualifies for special education services (Rural School and Community Trust, 2019); however, often these services are challenging to obtain in rural settings due to limited staffing and other issues.

Climate in Rural Schools

According to the Rural School and Community Trust (2019), rural school districts throughout the United States are small, with a median enrollment of 494 students. Low enrollment due to less-populous communities means smaller class sizes. The NCES (2021) reported that student-to-teacher ratios in rural schools were lower in 2016 than in 2003 (15.4 versus 15.7). That ratio is expected to decrease to 14.7 by 2028 (NCES, 2019).

While students in rural schools have fewer opportunities to participate in extra-curricular activities due to transportation and other challenges, these students do have more opportunities to interact with their teachers and peers in a smaller setting. Smaller

class sizes generate lower teacher-to-student ratios, creating opportunities for teachers to interact more consistently with students, which leads to stronger relationships and improved perceptions of school climate. In fact, feeling connected to the school as a result of positive relationships with others within the school helped students outperform their peers academically compared to those who reported a lack of connection to the school by a significant margin than those reported in urban areas (Sulak, 2016).

When it comes to school climate, research posits that there is a negative correlation between school climate and school size, which indicates that the larger a school is, the more perceptions of a positive school climate diminish (Fowler & Walberg, 1991; Pittman & Haughwout, 1987). According to the Rural School and Community Trust (2019), rural schools throughout the United States reported fewer incidents of violent behavior than urban schools. Similarly, Roberts and Green (2013) discovered that students in rural schools reported fewer gang-related incidents than students in urban schools. Further, after administering school climate surveys in several states, Lee and Stankov (2018) found that rural students perceived their school environment to be safer learning environments than urban students.

Academically, rural schools are on par with their urban counterparts. According to the NCES (2021), achievement levels in reading, math, and science for students, ages 5-to-17 in rural schools were comparable or outperformed students from urban and suburban schools. Similarly, freshman graduation rates for rural high school students were nearly nine points higher than students attending a school in a large or midsize city (NCES, 2021).

Rationale

Given that many students across the US attend schools in rural areas, and currently there is almost no data available about school physical environments using validated observational tools such as the SAfETy, there is a need for empirical study of the physical environments of rural schools and examination of associations between physical and social environments in those settings. Understanding the correlation between these two variables may help rural schools identify opportunities for changes in the physical environment to improve school climate, increase student achievement, promote and foster positive teacher morale, and create safe and healthy learning sanctuaries for all students. It will also assist researchers in their efforts to learn more about rural schools and can guide the physical design and construction of rural schools in the future.

Research Questions

Given the literature showing that physical and social environments impact human development and wellbeing—and the school-specific work showing that physical characteristics of urban schools are related to student outcomes, there is a need to consider how physical characteristics of rural schools affect students. The current work examines the following research questions:

R₁: What are the characteristics of the physical environment in a sample of rural schools?

R₂: How are the characteristics of the physical environment in rural schools similar or different to what other research has documented about urban or suburban schools, using the same measurement approach, the SAfETy tool?

R₃: How are aspects of the physical environment at rural schools related to perceptions of school climate among school staff, students, and their parents?

CHAPTER THREE: METHODS

Overview

The purpose of this quantitative study was to examine the relationship between a school's physical environment and key stakeholders' perceptions of school climate. Chapter three contains several subsections: design, sample, measures, procedures, and planned analysis.

Design

The idea for this research study came about as part of the work that I am currently doing as an external coach for the RK-12: Rural Schools Research Project at Boise State University. This research project is funded by a grant from the National Institute of Justice and is studying whether Rural School Support Strategies (RS3)—a package of implementation support strategies—is effective for promoting implementation of PBIS in rural schools. RS3 is being tested through a randomized controlled trial in 40 rural schools in Idaho, with 20 schools receiving trainings about PBIS, and 20 schools receiving PBIS trainings plus RS3 supports. While the results of this study will enhance understanding about how to effectively implement universal prevention initiatives in rural schools, this study was also designed to learn more about the environmental context of rural schools and how it may relate to stakeholder perceptions of school climate and safety.

To understand each school's level of readiness to begin implementing PBIS and their unique make-up and characteristics, a number of assessments were conducted at

each school before implementation efforts got underway in the spring of 2019. Two of these assessments, the validated Maryland Safe and Supportive Schools (MDS3) suite of questionnaires and The School Assessment for Environmental Typology (SAfETy) will be used to answering the following questions: 1) What are the characteristics of the physical environment in a sample of rural schools?; 2) How are the characteristics of the physical environment in rural schools similar or different to what other research has documented about urban or suburban schools, using the same measurement approach, the SAfETy tool?; and 3) How are aspects of the physical environment at rural schools related to perceptions of school climate among school staff, students, and their parents?

Sample

This study was conducted in Idaho, which is home to a high number of rural communities and schools. Included in this study are 40 rural elementary, middle, high school, and combined grades schools (e.g., K-12) located in what the National Center for Education Statistics (2022) defines as a rural area. These schools, representing all six regions, 25 school districts, and three public charter schools in Idaho, have participated in the RK-12 project during the 2019-2020, 2020-2021, and 2021-2022 school years.

Schools were invited to join the project in 2018; inclusion criterion required being located in a rural area, having enrollment of at least 100 students per school, and not having received prior training on PBIS. Using their criteria, there were 156 Idaho public K-12 schools that we endeavored to recruit. All eligible schools were contacted by email and phone call by myself and one other member of the research team. Interested schools had to apply for and be selected to participate. The application consisted of a letter of interest from the administrator, a letter of interest from the coach, the coach's resumes, a

coach self-evaluation, and two coach recommendation forms filled out by the administrator and one other colleague. Ultimately, 40 schools agreed to participate in the study, with 3 additional schools assigned to a waitlist. At the beginning of the project, the 40 schools were randomly assigned as either intervention schools ($n = 20$) or control schools ($n = 20$). The demographics of schools are shown in Table 3.1.

Table 3.1 School-Level Demographics of 40 Participating Schools

	Intervention Schools (n=20)			Control Schools (n=20)			t
	Mean (SD)	Min	Max	Mean (SD)	Min	Max	
Number of students at each school	334.2 (184.9)	94	681	363.4 (173.2)	161	780	0.51
Number of classroom teachers at each school	17.9 (7.9)	6	36	19.6 (6.1)	12	32	0.79
Percentage of students at school eligible for free/reduced-priced meals	46.0 (19.0)	17.1	91.8	51.0 (16.7)	28.3	92.6	
	#	%		#	%		χ^2 (df)
Percentage of students eligible for free/reduced-priced meals							.456 (2)
<40% students eligible	8	40%		6	30%		
40-60% students eligible	8	40%		9	45%		
>60% students eligible	4	20%		5	25%		
Remoteness (all schools within rural/township locale)							.452 (2)
Fringe	3	15%		4	20%		
Distant	8	40%		9	45%		
Remote	9	45%		7	35%		
School level based on grades served							.743 (3)
Elementary only (grade 6 or lower)	11	55%		11	55%		
Elementary/middle (K to grade 8)	1	5%		0	0%		
Middle school (grade 6 to grade 8)	2	10%		4	20%		
Middle/high (grade 7 to grade 12)	1	5%		1	5%		
High school only (grade 9 to grade 12)	2	10%		2	10%		
All grades (K to grade 12)	3	15%		2	10%		

Note: Data source is the 2018-19 Common Core of Data, National Center for Education Statistics

A majority of schools served elementary school grades (Kindergarten through grade 6 or lower). The number of students at each school ranged from 94 to 780. The percentage of students eligible for free or reduced-priced meals, which is a proxy for poverty, averaged approximately 46 percent of students at intervention schools and 51 percent of students at control schools. The majority of intervention schools were either

considered remote (45%) or distant (40%), while control schools were similar, with 35% remote and 45% distant.

Measures

The project includes periodic collection of a variety of measures, including two instruments which will be used for these dissertation analyses.

Maryland Safe and Supportive Schools (MDS3) School Climate Survey Suite

The MDS3 suite of surveys was used to collect self-reported perceptions of school climate among three key stakeholder groups: 1) school staff, 2) students, and 3) parents/guardians of students enrolled at the school. This survey is made up of three domains – safety, engagement, and environment – and is modeled after the U.S. Department of Education’s three-pronged survey on school climate (Bottiani et al., 2019).

Safety was comprised of two subscales: (a) physical safety and bullying prevention (e.g., does a student feel safe while at school); (b) order and discipline (i.e., is there a system in place to deal with and address misbehavior among students).

Engagement includes four subscales, including (a) culture of fairness and equity (i.e., are all students treated fairly by teachers, administrators and staff); (b) parent involvement (i.e., are parents provided with opportunities to volunteer or be involved at school); (c) academic emphasis (i.e., are academics a top priority at school); (d) connectedness (i.e., do students feel invested in their school and have students established meaningful relationships with adults at the school).

Lastly, the environment component includes two subscales (a) support services and resources (i.e., do students know where to go to access resources and who to talk to

for support); (b) physical environment (i.e., are school grounds and the building itself cared for and maintained to promote a safe learning environment).

SAfETy

To examine the physical environment of each school, the School Assessment for Environmental Typology (SAfETy) was administered. According to the creators of the tool, (Bradshaw et al., 2015), this tool measures three main components of the school environment – disorder, surveillance, and appearance. Each component is assessed in both interior and exterior locations, including the entrance to the school grounds, entrance to the school building, physical layout of the school property, playing fields, hallways, stairwells, cafeteria, and the parking lot.

An updated version of the tool scoring protocol was detailed in a recent study conducted by Bottiani et al. (2019): indicators were grouped using a facet-representative parceling strategy (Little, Cunningham, Shahar, & Widaman, 2002), whereby similar items from the same facet were combined, such as location (interior and exterior). Additionally, SAfETy indicators were also combined that a) presumably shared secondary characteristics and b) manifest correlations of shared features that do not change (e.g. measured in the same location of the school).

For example, Bottiani et al. (2019) stated that the subscales of *disorder* featured “...interior and exterior graffiti, property damage, litter, substance use paraphernalia, cigarette butts, and exterior only negative behavioral expectations” (p. 5). *Surveillance* included security cameras both inside and outside the school, expectations for misbehavior within the school, and indicators of ownership outside of the school. Finally, indicators of *appearance* included a number of important items, such as mature and

manicured landscaping on the exterior of the school, artwork and murals on the walls throughout the interior of the building, properly lit entrances to the school, and well cared for bathrooms, hallways, and common areas throughout the school's interior.

Response options for items on the survey included several variations, based on the question stem. All item responses used in the scoring of the tool were able to be assigned a value from 0-3. For example, questions regarding general appearance of an area had the following responses: 0 = disrepair; 1 = poorly maintained; 2 = adequately maintained; or 3 = very well maintained. Other items that necessitated a "count" response (i.e., amount of school ownership displayed, amount of graffiti, etc.) had the following response options: 0 = zero; 1 = 1 to 3; 2 = 4 to 7; or 3 = 8 or more.

The response scores of 0-3 for each variable were summed to create each indicator. The indicators were then averaged across each subscale to generate a score for each of the three subscales as shown in Table 3.2 below for the groupings of each variable and indicator within the subscales. For a full description of the tool, see (Bottiani et al., 2019; Bradshaw et al., 2015).

Table 3.2 SAFETY Factor, Indicator, and Variable Computation Breakdown

Factor	Indicator	Variables	
Appearance	Appearance Outdoor	School Building Appearance + Playing Fields Appearance + Staff Parking Lot Appearance	
	Appearance Indoor	Main Office Appearance + Hallway 1 Appearance + Hallway 2 Appearance + Stairwell 1 Appearance + Stairwell 2 Appearance + Cafeteria Appearance*	
	Landscaping Outdoor	Entrance to School Grounds Landscaping + Physical Layout Landscaping	
	Visibility Indoor/Outdoor	School Entrance Main Office Visibility to Main Entrance + School Entrance Main Office Visibility to Outside Areas	
	Illumination Indoor	Hallway 1 Illumination + Hallway 2 Illumination + Stairwell 1 Illumination + Stairwell 2 Illumination + Cafeteria Illumination	
	Ownership Indoor	School Entrance School Ownership Main Office + Hallway 1 School Ownership + Hallway 2 School Ownership + Stairwell 1 Surveillance Cameras + Stairwell 2 Surveillance Cameras + Cafeteria Vandalism + School Entrance Student Work Displayed	
Disorder	Graffiti Indoor	School Entrance Graffiti + Hallway 1 Graffiti + Hallway 2 Graffiti + Stairwell Graffiti + Stairwell 2 Graffiti + Cafeteria Graffiti	
	Graffiti Outdoor	Physical Layout Graffiti + Playing Fields Graffiti + Staff Parking Lot Graffiti	
	Property Damage Indoor	School Entrance Vandalism + Hallway 1 Vandalism + Hallway 2 Vandalism + Stairwell 1 School Ownership + Stairwell 2 School Ownership + Cafeteria School Ownership	
	Property Damage Outdoor	Entrance to School Grounds Property Damage + Physical Layout Vandalism + Playing Fields Vandalism + Staff Parking Lot Vandalism	
	Trash Outdoor	Entrance to School Grounds Trash + School Entrance Trash + Physical Layout Trash + Playing Fields Trash + Staff Parking Lot Trash	
	Trash Indoor	Hallway 1 Trash + Hallway 2 Trash + Stairwell 1 Trash + Stairwell 2 Trash + Cafeteria Trash	
	Damage	Physical Layout Broken Windows + Physical Layout Windows with Bars + Physical Layout Doors with Bars	
		Drugs	Physical Layout Alcohol Bottles + Playing Fields Alcohol Bottles + Staff Parking Lot Alcohol Bottles + Physical Layout Drug Paraphernalia + Playing Fields Drug Paraphernalia + Staff Parking Lot Drug Paraphernalia
		Cigarette Butts Outdoor	Physical Layout Tobacco Products + Playing Fields Tobacco Products + Staff Parking Lot Tobacco Products
		Negative Behavioral Expectations Outdoor	Physical Layout Negative Behavioral Expectations of Students
Surveillance	Broken Lights Indoor	Hallway 1 Broken Lights + Hallway 2 Broken Lights + Stairwell 1 Broken Lights + Stairwell 2 Broken Lights	
	Surveillance Cameras Indoor	Hallway 1 Surveillance Cameras + Hallway 2 Surveillance Cameras + Stairwell 1 Vandalism + Stairwell 2 Vandalism + Cafeteria Surveillance Cameras	
	Surveillance Cameras Outdoor	Entrance to School Grounds Surveillance Cameras + School Entrance Surveillance Cameras + Physical Layout Surveillance Cameras + Playing Fields Surveillance Cameras + Staff Parking Lot Surveillance Cameras	
	Negative Behavioral Expectations Indoor	School Entrance Negative Behavioral Expectations of Students + Hallway 1 Negative Behavioral Expectations of Students + Hallway 2 Negative Behavioral Expectations of Students + Cafeteria Negative Behavioral Expectations of Students	
	Ownership Outdoor	Entrance to School Grounds School Ownership + Physical Layout School Ownership + Playing Fields School Ownership + Staff Parking Lot School Ownership	

*In instances where schools did not have stairwells, additional hallways were used as a substitute

Procedures

In February 2019, Dr. Sarah Lindstrom Johnson, one of the original creators of the SAfETy tool (Bradshaw et al., 2015), trained four members of the research project team about the SAfETy instrument and how to use it. This training over the course of two and a half days and consisted of a four-hour didactic session on the first day, followed by twelve hours of on-site practice at two rural elementary and junior high schools.

During the on-site training, all observers first spent several hours watching the lead observer collect data and discussed the reasoning for applying codes. Thereafter, each observer independently assessed the school environment using worksheets with a subset of 55 items from the SAfETy tool, and then came together to evaluate their scores compared to the lead observer/trainer.

By the end of the second day of applied training, all observers had reached or exceeded the 80 percent inter-rater reliability threshold compared to the trainer. While actively collecting data, the four trained observers independently completed the SAfETy assessment at the 40 participating schools. In addition, the research manager completed a recalibration assessment with each of the other three observers once during the data collection process to confirm the stability of inter-rater reliability.

The recalibration worksheet consisted of 65 items from the SAfETy tool, and again raters had to reach above 80 percent agreement. All recalibrations met the 80 percent reliability threshold, with agreement between observers for three recalibration checks at 81.5 percent, 84.6 percent, and 87.7 percent.

In March 2019, the Maryland Safe and Supportive Schools (MDS3) suite of questionnaires was used to assess climate at baseline in all 40 schools. Surveys were

programmed in Qualtrics by the research team, and electronic links were shared via email to students, teachers, and parents at each school. The parent survey was available in either English or Spanish, but no parents completed it the Spanish version. Schools played a part in how each survey was distributed and administered. For example, teachers oversaw the administration of the student surveys during class either in the computer lab or using tablets in the classroom. Staff surveys were distributed by school administrators who used email to share the survey link with all school employees. School administrators also assisted in the distribution of the parent/caregiver online survey link using their school communication systems. Parent and student surveys were anonymous. Staff surveys were collected confidentially, with numeric identification numbers added after data collection for data security.

The survey was made available to participants for approximately three weeks and it was estimated that the parent and student surveys took approximately 15 minutes to complete, and staff surveys took approximately 25 minutes to complete. Reminders were sent out periodically via email to encourage participants to complete the survey. Every school who had at least 70 percent of their teachers/staff complete the survey received a \$200 Amazon gift card for their school; 12 schools surpassed the 70 percent response rate. Across schools, response rates ranged from 11.3 percent to 83.9 percent. Across the 40 schools, there were a total of 1214 staff who received surveys, and 644 completed them, yielding an overall staff-level response rate of 56.1 percent.

Planned Analysis

A series of descriptive univariate statistics, tests of bivariate associations, and then regression analyses, will be used to address the research questions. For example,

reviewing responses from the MDS3 will begin with examining absolute values of the overall scores on categories and sub-categories, followed by comparisons across stakeholder groups (i.e., how do parent responses compare to students' responses, and how do staff responses compare to student responses?). Differences will be considered by school types (i.e., are scores higher or lower at high schools or elementary schools). Data from the SAfETy tool will also be analyzed by category and sub-category to determine consistencies and inconsistencies across schools, including which categories were rated highest and lowest.

Thereafter, analyses will examine correlations between the SAfETy and the MDS3, starting with the overall scores, and then exploring associations between subscale scores, presented in a correlation matrix. Finally, multiple regression analyses will examine the association between SAfETy and MDS3 while accounting for school characteristics as covariates in the regression models.

CHAPTER FOUR: RESULTS

This chapter first presents data about the School Assessment for Environmental Typology (SAfETy), followed by data from the Maryland Safe and Supportive (MDS3) School Climate Survey Suite. The chapter concludes with analyses exploring the associations between these two measures.

The School Assessment for Environmental Typology (SAfETy)

The SAfETy tool was conceptually designed to measure “broad aspects of the school environment: school ownership (e.g., murals, positive behavioral expectations), disorder (e.g., litter, graffiti, alcohol paraphernalia), and surveillance (e.g., school police officers, surveillance cameras). The overall structure of the SAfETy was modeled in large part after the parallel NIfETy neighborhood measure” (Bradshaw et al., 2015). But, thus far, the SAfETy tool has only been deployed in non-rural school settings (i.e., urban and suburban schools).

As part of our sample, four research assistants, trained by SAfETy developer Dr. Sarah Lindstrom Johnson, independently completed the SAfETy assessments at 40 rural schools throughout Idaho. The following tables provide a breakdown of factors, indicators, and variable computations used, sub scale scores for the SAfETy tool, a breakdown of SAfETy components, and sub scale percent scores for the SAfETy tool by school level, including both the current sample and prior samples that are reported in the literature.

SAfETy Results

As discussed previously, Bradshaw et al. (2015) and Bottiani et al. (2019) are examples of recent studies that have used the SAfETy tool to assess the physical environments of suburban and urban schools, but to date the tool has not been widely used in schools located in rural communities. The following subsections will be used to report out characteristics of the physical environment of rural schools and how rural schools compare with other non-rural schools.

Characteristics of Physical Environments of Rural Schools

As shown in Table 4.1, the scores, as captured by the SAfETy tool related to disorder, such as trash indoor ($M = .15$, $SD = .36$), drugs ($M = .23$, $SD = .66$), broken lights indoor ($M = .55$, $SD = .78$), cigarette butts outdoor ($M = .83$, $SD = 1.28$), and negative behavior expectations outdoor ($M = .93$, $SD = .89$) all have low-frequency scores. As it relates to surveillance, Table 5.1 shows that rural schools were found to have surveillance cameras indoor ($M = 9.25$, $SD = 7.13$), surveillance cameras outdoor ($M = 11.15$, $SD = 7.78$), and signs of ownership outdoor (e.g., benches with school logo, banners, flags, signs) ($M = 2.50$, $SD = 1.68$).

Finally, as it relates to appearance, rural schools rated middle-of-the-road on most indicators, including appearance outdoor ($M = 5.00$, $SD = 2.22$) that had a range from 0-9, landscaping outdoor ($M = 3.20$, $SD = 1.59$) that had a range from 0-6, and visibility indoor/outdoor ($M = 3.38$, $SD = 2.12$) that had a range from 0-6 as well. Indicators such as illumination indoor ($M = 10.90$, $SD = 2.33$) and appearance outdoor ($M = 12.80$, $SD = 3.45$) reported higher-frequency scores.

Table 4.1 Breakdown of SAFETY Components

40 rural Idaho schools from RK-12 sample		N	Mean	SD	Kurtosis	Skew
<i>Appearance</i>		40				
1	Appearance Outdoor	40	1.975	1.05	-1.10	-.51
2	Appearance Indoor	40	3.450	1.01	3.32	-1.97
3	Landscaping Outdoor	40	1.100	.87	-1.68	-.20
4	Visibility Indoor/Outdoor	40	1.150	.89	-1.71	-.31
5	Illumination Indoor	40	2.650	.70	4.97	-2.22
6	Ownership Indoor	40	.975	1.10	4.59	1.89
<i>Disorder</i>		40				
1	Graffiti Indoor	40	.675	.80	.38	.99
2	Graffiti Outdoor	40	1.200	.80	-.19	.28
3	Property Damage Indoor	40	1.900	1.50	-1.51	.13
4	Property Damage Outdoor	40	2.225	.86	-.21	-.46
5	Trash Outdoor	40	1.100	1.01	-.67	.58
6	Trash Indoor	40	.150	.36	2.26	2.04
7	Damage	40	.375	.49	-1.81	.54
8	Drugs	40	.125	.34	3.74	2.36
9	Cigarette Butts Outdoor	40	.525	.77	-.28	1.01
10	Negative Behavioral Expectations Outdoor	40	.625	.49	-1.81	-.54
11	Broken Lights Indoor	40	.550	.75	1.68	1.36
<i>Surveillance</i>		40				
1	Surveillance Cameras Indoor	40	5.400	4.24	6.92	2.03
2	Surveillance Cameras Outdoor	40	11.150	7.78	1.73	.99
3	Negative Behavioral Expectations Indoor	40	1.350	1.00	-1.08	.03
4	Ownership Outdoor	40	2.125	1.11	-.39	-.26

As shown in Table 4.2, the SAFETY tool was used to produce subscale percent scores by school level. Comparing against data from non-rural middle and high schools (Bottiani et al., 2019), the characteristics of the physical environment in rural schools is more similar than different to urban or suburban schools.

For example, there is very little variation in appearance frequencies between rural elementary ($M = 6.79$, $SD = 1.72$) and secondary ($M = 7.08$, $SD = 1.51$) schools compared to non-rural high ($M = 6.25$, $SD = 1.07$) and middle ($M = 7.37$, $SD = 1.10$) schools. And, while non-rural high schools ($M = 2.21$, $SD = .985$) has the highest frequency score for disorder, rural secondary schools, ($M = 1.43$, $SD = .64$), non-rural middle schools ($M = 1.42$, $SD = .622$) and rural elementary schools ($M = 1.31$, $SD = .61$) were all nearly identical.

In addition, rural secondary schools ($M = 7.13$, $SD = 3.49$) have higher surveillance scores than non-rural high ($M = 6.41$, $SD = 3.51$) and middle ($M = 6.06$, $SD = 2.89$) schools.

Table 4.2 Subscale Percent Scores for the SAfETy Tool by Level

	All Rural Elementary Schools			Rural Schools with Secondary			Non-Rural High Schools			Non-Rural Middle Schools		
	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD
Appearance	22	6.79	1.72	18	7.08	1.51	57	6.25	1.07	40	7.37	1.10
Disorder	22	1.31	.61	18	1.43	.64	57	2.21	.985	40	1.42	.622
Surveillance	22	5.25	2.76	18	7.13	3.49	57	6.41	3.51	40	6.06	2.89

Maryland Safe and Supportive (MDS3) School Climate Surveys

The MDS3 surveys were administered to students, school staff, and parents or guardians of students enrolled at the school. Items were grouped into nine categories, including 1) *student expectations*, 2) *academic emphasis*, 3) *connectedness*, 4) *family involvement*, 5) *order and discipline*, 6) *fairness*, 7) *school resources*, 8) *physical disorder*, and 9) *safety and violence* (Bottiani et al., 2019). Although these categories were consistent across all three respondent groups, the wording of items and number of items varied slightly across the three surveys. The student survey included 65 items, the staff survey included 53 items, and the parent survey included 44 items. In addition, respondents were asked questions related to their demographics, which will be examined first before item-level survey responses will be explained.

Demographic Characteristics of Respondents

Because three schools only served students in grades lower than grade 3 (the youngest age at which the climate surveys can be administered), data were available at 37 schools. At those 37 schools, a total of 6,610 students completed the climate survey.

Demographic characteristics of respondents are shown in Table 4.3. Of those, there were

slightly more girls (49.9%) than boys (49.7%) who responded, with 64% attending grades 4 through 7. Of those students who completed the survey, nearly 73% were white.

Table 4.3 Demographic Characteristics of Student Climate Survey Respondents in 2019

	<i>N</i>	%
Gender		
Male	3285	49.7%
Female	3301	49.9%
(response missing)	24	0.4%
Grade		
3	257	3.9%
4	976	14.8%
5	1536	23.2%
6	1002	15.2%
7	715	10.8%
8	641	9.7%
9	378	5.7%
10	376	5.7%
11	481	7.3%
12	211	3.2%
(response missing)	37	0.6%
Race/ethnicity		
White	4817	72.9%
Not white	1702	25.7%
(response missing)	91	1.4%
Grades on last report card		
Mostly A's	3115	47.1%
Mostly B's	1565	23.7%
Mostly C's	546	8.3%
Mostly D's	156	2.4%
Mostly F's	97	1.5%
(response missing)	28	0.4%
How far did mother go in school?		
Did not graduate from high school	433	6.6%
Graduated from high school	996	15.1%
Attended some college	738	11.2%
Graduated from college	2091	31.6%
Not sure/don't know/would rather not answer	1612	24.4%
(response missing)	740	11.2%
How far did father go in school?		
Did not graduate from high school	452	6.8%
Graduated from high school	1064	16.1%
Attended some college	571	8.6%
Graduated from college	1910	28.9%
Not sure/don't know/would rather not answer	1863	28.2%
(response missing)	750	11.3%

Note: Total number of students responding = 6,610, within 37 schools. Number of student respondents at each school ranged from 19 to 501; Mean number per school = 178.7, standard deviation = 127.0.

As shown in Table 4.4, the parent survey had 1,611 responses and were completed by far more females (85.2%) than males (11.9%). More than 50% of parents stated that they had either graduated from college or completed an advanced degree. When describing their children, more than 85% of parent respondents said the child earned mostly A's and B's in school.

Table 4.4 Demographic Characteristics of Parent Climate Survey Respondents in 2019

	<i>N</i>	<i>%</i>
<i>Information about parent respondent</i>		
Parent gender		
Male	192	11.9
Female	1373	85.2
Prefer not to answer	38	2.4
(response missing)	8	.5
Parent highest level of education		
Did not finish high school	22	1.4
Graduated from high school or equivalent (GED)	222	13.8
Some college	474	29.4
Graduated from college	690	42.8
Completed an advanced degree (e.g. Masters, PhD, MD, JD)	197	12.2
(response missing)	6	.4
<i>Information about the student being described by parent</i>		
Student gender		
Male	815	50.6
Female	729	45.3
Prefer not to answer	51	3.2
(response missing)	16	1.0
Student race/ethnicity		
White	1376	85.4
Not white	138	8.6
Prefer not to answer	96	6.0
(response missing)	1	.1
Student's grades on last report card		
Mostly A's	1050	65.2
Mostly B's	342	21.2
Mostly C's	139	8.6
Mostly D's	32	2.0
Mostly F's	11	.7
(response missing)	37	2.3
Student grade in school		
K	143	8.9
1	161	10.0
2	179	11.1
3	142	8.8
4	145	9.0
5	133	8.3
6	124	7.7
7	143	8.9
8	136	8.4
9	65	4.0
10	85	5.3
11	74	4.6
12	54	3.4
(response missing)	27	1.7

Note: Total number of parents responding = 1611, within 39 schools. Number of parent respondents at each school ranged from 12 to 159; Mean number per school = 41.3, standard deviation = 32.9

Of the 681 total school staff who completed the climate survey, nearly 63% identified as teachers (see Table 4.5). The majority were women (83.3%) and more than 32% stated they were 41-50 years of age.

Table 4.5 Demographic Characteristics of Staff Climate Survey Respondents in 2019

	<i>N</i>	<i>%</i>
Gender		
Male	94	13.8%
Female	567	83.3%
Prefer not to answer	13	1.9%
(response missing)	7	1.0%
Age		
20-30 years	82	12.0%
31-40 years	145	21.3%
41-50 years	220	32.3%
51-60 years	160	23.5%
> 60 years	56	8.2%
Prefer not to answer	17	2.5%
(response missing)	1	0.1%
School role		
Teacher	427	62.7%
Other role	248	36.4%
(response missing)	6	.9%

Note: Total number of staff = 681, within 40 schools. Mean number of staff per school = 17.0, standard deviation = 8.0.

Item Level Survey Responses, Scale Scores, and Psychometric Characteristics

The next set of tables explores item-level responses on the survey, by respondent groups. In addition, summary statistics are presented for the overall scale scores for each group of respondents (students, parents, and staff). All survey items used a Likert-type scale, with responses ranging from zero = strongly disagree to 3 = strongly agree. To compute the score for each subscale, scores on the component items (i.e., see listings below in Table 4.4) were summed and then divided by the number of items, yielding an average across all items within a subscale. Several items were reverse-coded prior to computing summary scores, as noted in tables below.

Students

In all, more than 6,000 students in 37 rural schools responded to the climate survey. Students used a Likert Scale, zero being strongly disagree to 3 being strongly agree, with the exception of one category that was negatively stated, or reverse-coded, to rate their responses to each question. Table 4.6 shows the wording and responses for each item. Students generally responded positively to questions related to *academic emphasis* ($M = 2.45$, $SD = 0.50$), followed by *safety and violence* ($M = 2.06$, $SD = 0.72$), *connectedness* ($M = 2.03$, $SD = 0.60$), *student expectations* ($M = 2.02$, $SD = 0.66$). Scores were low on *physical disorder* ($M = 1.09$, $SD = 0.58$), for which lower scores indicate less perceived physical disorder, a better outcome.

As shown in Table 4.4, the results indicate that students generally gave moderate scores to items on the scales for *family involvement* ($M = 1.83$, $SD = 0.44$), *order and discipline* ($M = 1.84$, $SD = 0.52$), *fairness* ($M = 1.86$, $SD = 0.66$), and *school resources* ($M = 1.99$, $SD = 0.66$). Specifically, some of the lower scores were noted for statements such as: ‘Parents or guardians often come to my school to help out’ under *family involvement* ($M = 1.49$, $SD = 0.99$), and the statement ‘My teachers ask me about my culture and what it means to me’ under *fairness* ($M = 1.33$, $SD = 0.95$).

Each category on the student survey had a Cronbach’s Alpha ranging from .705 (physical disorder) to .935 (connectedness), suggesting internal consistency is acceptable across categories (Tavakol & Dennick, 2011).

Table 4.6 Item-Level Survey Responses and Psychometric Characteristics for Student Survey Scales and Component Items

	N	Mean	SD	Kurtosis	Skew	α^1
<i>Student Expectations Scale</i>						
1 My teachers make me feel good about myself	6,576	2.02	0.66	0.05	-0.61	.836
2 My teachers tell me when I do a good job	6,561	2.12	0.73	0.77	-0.74	.618
3 I enjoy learning at this school	6,545	2.14	0.75	0.33	-0.68	.497
4 I like coming to school	6,527	2.00	0.89	-0.15	-0.70	.743
5 I like this school	6,525	1.73	0.98	-0.85	-0.37	.643
	6,465	2.11	0.91	0.03	-0.88	.704
<i>Academic Emphasis Scale</i>						
1 My teachers believe that I can do well in school	6,561	2.45	0.50	2.43	-1.21	.837
2 I believe I can do well in school	6,534	2.43	0.65	1.47	-1.06	.699
3 My teachers encourage me to work hard in my classes	6,529	2.34	0.75	1.06	-1.10	.555
4 My teachers always want me to do my best	6,512	2.35	0.72	0.89	-0.99	.670
5 It is important to finish high school	6,515	2.51	0.65	2.03	-1.32	.708
6 Teachers believe all students can do well if they try	6,493	2.66	0.61	4.74	-2.05	.408
	6,510	2.43	0.68	1.45	-1.14	.646
<i>Connectedness Scale</i>						
1 At this school, I feel like I belong	6,570	2.03	0.60	0.39	-0.59	.935
2 At this school, I feel close to people	6,510	1.97	0.89	-0.27	-0.64	.721
3 At this school, I feel like I am part of this school	6,500	2.00	0.86	-0.18	-0.64	.591
4 At this school, students like one another	6,498	2.01	0.91	-0.38	-0.65	.738
5 At this school, students help one another	6,486	1.80	0.86	-0.38	0.44	.652
6 At this school, students trust one another	6,483	1.97	0.82	0.05	-0.62	.711
7 At this school, students trust one another	6,519	1.79	0.84	-0.34	-0.40	.686
8 At this school, students respect one another	6,511	1.71	0.86	-0.53	-0.29	.688
9 At this school, my teachers care about me	6,506	2.24	0.79	0.76	-0.99	.725
10 At this school, my teachers notice when I am not there	6,487	2.15	0.82	0.20	-0.81	.610
11 At this school, my teachers listen to me when I have something to say	6,479	2.16	0.80	0.40	-0.84	.693
12 At this school, teachers respect the students	6,533	2.26	0.77	0.73	-0.95	.697
13 At this school, students trust the teachers	6,504	2.08	0.84	-0.11	-0.69	.736
14 At this school, students respect the teachers	6,514	1.90	0.87	-0.42	-0.47	.635
15 At this school, staff get along well	6,470	2.30	0.71	1.26	-0.97	.566
15 Students and staff feel pride in this school	6,488	2.17	0.81	0.48	-0.88	.709
<i>Family Involvement Scale</i>						
1 My parent(s) or guardian(s) feels welcome at this school	6,398	1.83	0.44	0.78	0.55	.758
2 If I do something bad at school, my parent(s) or guardian(s) hears about it	6,340	2.03	0.77	0.72	-0.92	.568
	6,328	2.31	0.75	1.05	-1.06	.353

3	When I do something good at school, my parent(s) or guardian(s) usually hears about it	6,326	1.85	0.99	-0.91	-0.42	.581
4	The school tries to involve parents or guardians	6,298	1.98	0.85	-0.22	-0.59	.629
5	Parents or guardians often come to my school to help out	6,295	1.49	0.99	-1.02	0.01	.511
Order and Discipline Scale		6,406	1.84	0.52	0.35	-0.42	.788
1	It is easy for teachers at my school to control the students	6,356	1.66	0.84	-0.48	-0.25	.439
2	*Students disobey the rules	6,343	1.39	0.85	-0.57	0.15	.249
3	Students listen to the teachers	6,332	1.84	0.77	0.13	-0.51	.606
4	Teachers can handle students who disrupt class	6,345	1.98	0.84	-0.02	-0.64	.509
5	There are clear rules about student behavior	6,329	2.27	0.76	0.76	-0.96	.545
6	*Misbehaving students get away with it	6,296	1.76	0.98	-0.93	-0.31	.354
7	Students get along well with each other	6,336	1.83	0.81	-0.01	-0.54	.519
8	Students are rewarded for positive behavior	6,339	1.77	0.94	-0.75	-0.34	.504
9	Everyone knows what the school rules are	6,352	2.10	0.84	-0.02	-0.73	.528
Fairness Scale		6,229	1.86	0.66	0.09	-0.47	.861
1	At this school, students of all races are treated fairly	6,193	2.34	0.82	0.98	-1.21	.535
2	At this school, all students are treated equally, regardless of whether their parents are rich or poor	6,192	2.14	0.92	-0.13	-0.86	.592
3	At this school, boys and girls are treated equally	6,172	2.09	0.93	-0.24	-0.80	.585
4	The school provides instructional materials that reflect my culture, ethnicity, and identity	6,046	1.91	0.89	-0.34	-0.58	.611
5	My teachers ask me about my culture and what it means to me	6,091	1.33	0.95	-0.88	0.22	.605
6	My teachers highlight things about my culture in class that have made me feel proud	6,071	1.44	0.97	-0.97	0.09	.656
7	My teachers provide opportunities for me to learn about the points-of-view of people from different races and cultures	6,085	1.90	0.91	-0.40	-0.59	.668
8	My teachers encourage me to do assignments or reports on people from diverse races and cultures	6,071	1.71	0.96	-0.85	-0.29	.613
School Resources Scale		6,215	1.99	0.66	0.36	-0.64	.836
1	The school has programs to deal with violence and conflict between students	6,136	1.85	0.93	-0.64	-0.44	.543
2	Teachers at this school help students with their problems	6,159	2.12	0.84	0.21	-0.81	.729
3	Students who need help for their problems are able to get help through school	6,144	2.03	0.99	-0.43	-0.78	.720
4	There is someone at school who I can talk to about personal problems	6,153	1.96	0.84	-0.10	-0.59	.555
5	Students have enough school supplies	6,151	1.92	0.89	-0.26	-0.62	.541
Physical Disorder Scale		6,127	1.09	0.58	0.15	0.35	.705
1	There are often broken windows, doors, or desks in this school	6,107	0.82	0.92	-0.12	0.91	.355
2	*The bathrooms in this school are clean	6,082	1.26	1.02	-1.01	0.31	.558
3	*The school is usually clean and well-maintained	6,072	1.25	0.91	-0.57	0.43	.626
4	*The temperature in this school is comfortable all year round	6,081	0.91	0.79	0.55	0.81	.470
5	Vandalism of school property is a problem at this school	6,024	1.32	0.97	-0.91	0.26	.151
6	*This school has a bright and pleasant appearance	6,037	1.00	0.87	-0.09	0.69	.552
Safety and Violence Scale		6,121	2.06	0.72	0.10	-0.66	.864
1	I feel safe at this school	6,087	2.16	0.85	0.34	-0.92	.709
2	I feel safe going to and from this school	6,070	2.23	0.80	0.79	-1.00	.666
3	Students at this school try to stop bullying	6,058	1.79	0.97	-0.81	-0.39	.651
4	Adults at this school try to stop bullying	6,066	2.17	0.90	0.17	-0.95	.698
5	Adults are doing enough to stop/prevent bullying	6,057	1.93	0.97	-0.72	-0.55	.707

Note: Response options are 0 = strongly disagree, 1 = disagree, 2 = agree, 3 = strongly agree.

* Item is reverse-scored before creating scaled score.

1. Alpha is coefficient alpha for subscale scores, or item-to-total coefficient for each item, within subscales.

Parents

Collectively, more than 1,600 parents in 39 rural schools responded to the climate survey. As shown in Table 4.7, among parents who completed the climate survey, the most-favorable rating were for *student expectations* ($M = 2.80$, $SD = 0.35$), including ‘It is important for my child to try hard in school’ ($M = 2.88$, $SD = 0.33$) and ‘It is important for my child to attend school every day’ ($M = 2.72$, $SD = 0.49$). Parents also positively rated *fairness* ($M = 2.11$, $SD = 0.66$), *academic emphasis* ($M = 2.12$, $SD = 0.67$), *family involvement* ($M = 2.07$, $SD = 0.65$), and *physical disorder* ($M = 0.76$, $SD = 0.52$), which was reverse coded.

Within those categories, parents felt most strongly about ‘The school responds to my phone calls, messages, or emails’ ($M = 2.30$, $SD = 0.70$) under *family involvement*, ‘At this school, students of all races are treated fairly’ ($M = 2.28$, $SD = 0.71$) under *fairness*, and ‘I feel welcome at this school’ ($M = 2.26$, $SD = 0.75$) under *family involvement*.

Parents were more less-favorable about perceptions on items related to *school resources* ($M = 1.72$, $SD = 0.60$) and *community* ($M = 1.82$, $SD = 0.76$). For example, within school resources, parents scored ‘This school has enough programs that address students’ emotional and social development’ ($M = 1.55$, $SD = 0.83$), and ‘My child has enough after-school programs to improve academic performance’ ($M = 1.60$, $SD = 0.82$), lower than many other items.

Similar to the student survey, internal consistency is good, with Cronbach’s Alpha ranging from .785 (*physical disorder*) to .951 (*family involvement*), except for *student expectations* (.551).

Table 4.7 Item-Level Survey Responses and Psychometric Characteristics for Parent Survey Scales and Component Items

	N	Mean	SD	Kurtosis	Skew	α^1
Student Expectations Scale						
	1611	2.80	0.35	1.69	-1.60	.551
1	1611	2.72	0.49	2.07	-1.55	.411
2	1607	2.88	0.33	4.44	-2.45	.411
Academic Emphasis Scale						
	1610	2.12	0.67	0.55	-0.71	.862
1	1604	2.04	0.77	0.28	-0.64	.784
2	1607	2.11	0.75	0.52	-0.70	.813
3	1594	2.23	0.73	0.53	-0.79	.625
Connectedness Scale						
	1605	2.18	0.76	0.52	0.90	.812
1	1602	2.20	0.83	0.38	-0.92	.683
2	1600	2.16	0.82	0.30	-0.84	.683
Family Involvement Scale						
	1609	2.07	0.65	-0.11	-0.47	.951
1	1607	2.26	0.75	0.53	-0.86	.760
2	1570	2.02	0.77	0.29	-0.62	.619
3	1600	1.61	0.88	-0.70	-0.08	.728
4	1599	1.97	0.83	-0.32	-0.48	.833
5	1597	2.03	0.82	-0.20	-0.55	.800
6	1599	2.20	0.80	0.52	-0.90	.797
7	1601	2.10	0.82	0.00	-0.69	.780
8	1593	2.23	0.75	0.69	-0.86	.717
9	1595	2.14	0.85	0.08	-0.81	.808
10	1574	2.05	0.87	-0.04	-0.73	.591
11	1587	2.30	0.70	1.13	-0.93	.752
12	1573	1.94	0.87	-0.33	-0.55	.827
13	1584	2.07	0.89	0.01	-0.82	.802
Order and Discipline Scale						
	1578	1.89	0.61	0.26	-0.48	.793
1	1570	2.08	0.72	0.72	-0.68	.649
2	1574	2.10	0.74	0.48	-0.67	.636
3	1539	1.47	0.82	-0.56	-0.29	.566
4	1555	1.90	0.77	-0.05	-0.43	.652
Fairness Scale						
	1578	2.11	0.66	0.36	-0.59	.907
1	1552	2.28	0.71	0.92	-0.89	.715
2	1566	2.16	0.77	0.31	-0.74	.809
3	1555	1.96	0.88	-0.15	-0.66	.789
4	1552	2.07	0.81	0.41	-0.79	.827
5	1513	2.08	0.71	0.86	-0.70	.700
School Resources Scale						
	1577	1.72	0.60	0.13	-0.11	.877
1	1513	1.65	0.79	-0.38	-0.17	.621
2	1561	1.95	0.73	0.42	-0.55	.523
3	1516	1.81	0.78	-0.01	-0.45	.669
4	1556	1.79	0.82	-0.31	-0.36	.646
5	1538	1.66	0.81	-0.39	-0.24	.724
6	1512	1.60	0.82	-0.45	-0.21	.655
7	1519	1.55	0.83	-0.52	-0.15	.730
Physical Disorder Scale						
	1562	0.76	0.52	0.08	0.27	.785
1	1533	0.69	0.64	1.09	0.71	.622
2	1552	0.74	0.66	1.01	0.72	.624
3	1538	0.69	0.63	0.70	0.62	.514
4	1543	0.88	0.71	0.16	0.50	.610
Safety and Violence Scale						
	1558	1.98	0.65	0.25	-0.45	.858
1	1553	2.16	0.71	1.00	-0.78	.710
2	1551	2.23	0.63	1.17	-0.63	.580
3	1523	1.86	0.85	-0.11	-0.60	.787
4	1498	1.63	0.86	-0.55	-0.28	.764

Note: Response options are 0 = strongly disagree, 1 = disagree, 2 = agree, 3 = strongly agree.

* Item is reverse-scored before creating scaled score.

1. Alpha is coefficient alpha for subscale scores, or item-to-total coefficient for each item, within subscales.

Staff

More than 680 teachers from all 40 schools completed the climate survey. As shown in Table 4.8 overall, staff acknowledged the important role of the school and the teachers to teach and prepare students, as reflected in the *student expectations* category (2.46, SD = 0.49). For example, staff felt strongly that ‘Teachers at this school feel responsible for their students’ academic success’ (M = 2.56, SD = 0.55) as well as ‘This school does a good job educating students’ (M = 2.36, SD = 0.55).

Staff did not feel as strongly about *school resources* (M = 1.78, SD = 0.44). For example, two statements with lower ratings included ‘This schools has programs that address substance use among students (M = 1.37, SD = 0.69) and ‘This school has programs that address violence and conflict between students’ (M = 1.61, SD = 0.70). *Safety and violence* (M = 1.94, SD = 0.49) and *order and discipline* (M = 1.91, SD = 0.51) are two categories that were also less favorable among staff.

Similar to the student and parent surveys, the staff survey showed good internal consistency with Cronbach’s Alphas ranging from .611 (*safety and violence*) to .930 (*connectedness*).

Table 4.8 Item-Level Survey Responses and Psychometric Characteristics for Staff Survey Scales and Component Items

	N	Mean	SD	Kurtosis	Skew	α^1
Student Expectations Scale						
1 Teachers at this school feel responsible for their students' academic success	677	2.46	0.49	0.20	-0.49	.720
2 This school does a good job educating students	677	2.36	0.55	-0.49	-0.14	.563
Academic Emphasis Scale						
1 Teachers at this school encourage students to take challenging classes	678	2.27	0.50	-0.13	-0.31	.761
2 Teachers at this school set high standards for their teaching	662	2.11	0.60	0.23	-0.17	.549
3 Adults at this school believe that all students can do well if they try	676	2.34	0.61	-0.44	-0.37	.666
3 Adults at this school believe that all students can do well if they try	676	2.36	0.61	0.01	-0.51	.564
Connectedness Scale						
1 At this school - I feel like I belong	678	2.19	0.47	-0.09	-0.28	.930
2 At this school - Students get along well with each other	677	2.30	0.68	0.40	-0.71	.726
3 At this school - Students feel that adults are 'on their side'	673	2.00	0.49	1.51	-0.08	.437
4 At this school - My ideas are listened to and used	674	2.05	0.53	1.29	-0.12	.507
5 At this school - Teachers/staff care about students	672	2.02	0.73	0.46	-0.57	.720
6 At this school - Students get along well with adults	675	2.52	0.51	-1.63	-0.22	.610
7 At this school - I feel satisfied with the recognition I get for doing a good job	674	2.16	0.52	0.24	0.19	.543
8 At this school - This school inspires me to do the very best at my job	676	2.03	0.77	0.26	-0.62	.700
9 At this school - The staff get along well	677	2.22	0.72	0.36	-0.68	.697
10 At this school - There is a feeling of trust and confidence among the staff	677	2.17	0.67	0.59	-0.57	.754
11 At this school - The staff are willing to help each other out	676	1.97	0.78	-0.30	-0.40	.789
12 At this school - The staff respect each other	678	2.34	0.65	0.47	-0.71	.730
21 People at this school care about me as a person	678	2.19	0.70	0.06	-0.54	.783
22 The people who work at this school feel pride in the school and its students	676	2.30	0.64	0.79	-0.68	.701
22 The people who work at this school feel pride in the school and its students	675	2.33	0.63	0.10	-0.54	.658
Family Involvement Scale						
1 Parents and guardians are welcome at this school	675	2.14	0.46	-0.07	0.01	.790
2 If a student does something bad at school, their parents or guardians are informed	675	2.44	0.55	-0.27	-0.35	.543
3 When a student does something good at school, their parents or guardians are usually informed	671	2.15	0.61	0.23	-0.25	.581
4 This school tries to involve parents and guardians	667	1.80	0.67	-0.36	0.01	.628
5 I have enough opportunity to talk with parents and guardians about students' progress or problems	672	2.21	0.62	0.50	-0.40	.681
5 I have enough opportunity to talk with parents and guardians about students' progress or problems	662	2.08	0.66	0.62	-0.46	.427
Order and Discipline Scale						
1 There is an orderly atmosphere for learning	675	1.91	0.51	0.05	0.08	.842
2 The school rules are consistently enforced	670	2.12	0.58	0.87	-0.24	.628
3 Teachers can handle students who disrupt class	670	1.68	0.81	-0.42	-0.19	.723
4 Rules and expectations for students' behavior are clearly communicated	667	1.93	0.56	0.96	-0.29	.501
5 Student discipline and behavior problems are handled effectively	669	2.00	0.75	-0.22	-0.38	.679
6 Students are rewarded for positive behavior	666	1.71	0.74	-0.07	-0.30	.727
6 Students are rewarded for positive behavior	669	2.00	0.66	0.09	-0.26	.483
Fairness Scale						
1 At this school, all students are treated equally, regardless of whether their parents are rich or poor	674	2.12	0.52	0.54	-0.29	.849
2 This school encourages all students to enroll in challenging courses regardless of their race, ethnicity, or nationality	672	2.26	0.75	0.76	-0.93	.586
3 This school provides instructional materials that reflect students' culture, ethnicity and identity	655	2.18	0.64	0.60	-0.46	.636
4 This school fosters an appreciation of student diversity and respect for each other	657	1.88	0.66	0.30	-0.30	.626
5 This school emphasizes showing respect for all students' cultural beliefs and practices	669	2.14	0.59	0.93	-0.30	.745
5 This school emphasizes showing respect for all students' cultural beliefs and practices	671	2.16	0.62	0.43	-0.34	.734
School Resources Scale						
1 This school has programs that address violence and conflict between students	663	1.78	0.44	0.39	0.05	.767
2 The adults at this school feel responsible for students' social and emotional development	659	1.61	0.70	-0.30	0.07	.503
3 *My ability to do my job is limited by inadequate supplies or materials	659	2.03	0.59	0.23	-0.10	.426
4 This school provides students with healthy food choices	659	1.78	0.78	0.00	-0.47	.220
5 This school provides adequate health services for students	656	1.95	0.76	0.09	-0.48	.487
6 This school has programs/services to help students with suspected emotional or behavioral problems	654	1.65	0.74	-0.23	-0.17	.543
7 This school has programs/services to help students with suspected learning disabilities	658	1.71	0.75	-0.13	-0.30	.603
8 This school has programs that address substance use among students	661	2.12	0.62	2.07	-0.70	.509
8 This school has programs that address substance use among students	641	1.37	0.69	-0.18	0.09	.488
Physical Disorder Scale						
1 There are a lot of broken windows, doors, or desks at this school	637	0.85	0.45	-0.11	0.21	.714
2 *The school building is clean and well-maintained	636	0.47	0.67	1.10	1.28	.397
3 *The temperature in this school is comfortable all year round	635	0.82	0.82	0.57	0.94	.543
4 Vandalism of school property is a problem at this school	637	1.28	0.87	-0.57	0.29	.444
5 *This school has a bright and pleasant appearance	636	0.76	0.75	0.24	0.76	.258
6 *I know what to do if there is an emergency at my school	636	1.00	0.79	0.31	0.66	.604
7 *This school is a supportive and inviting environment to work in	637	0.79	0.59	1.98	0.60	.343
7 *This school is a supportive and inviting environment to work in	633	0.79	0.65	1.32	0.69	.393
Safety and Violence Scale						
	636	1.94	0.49	1.09	-0.41	.611

Comparison of Climate Survey Results Across Stakeholder Groups

Table 4.9 presents summary results for the survey scales, side-by-side for the three stakeholder groups. The data for this table was aggregated by calculating the mean at each school for each climate sub-scale (i.e., student expectations), for each of the three survey stakeholder groups (i.e., students, parents, and staff). Then, within stakeholder groups, a mean-of-means was calculated at the school level. For example, the average parent score on the *student expectations* subscale was averaged across the 39 schools at which the parent survey was administered. Those means and accompanying standard deviation are presented in the table. In addition, one-way ANOVAs compared whether the school-level mean of means was different across the three stakeholder groups. Finally, Post-hoc comparisons were conducted to determine which groups are different. Using a Games-Howell test, pairwise comparisons were run to see if there were significant differences among students and parents, staff and students, and staff and parents.

As shown in Figure 4.9 perceptions of *student expectations* were higher among parents (M = 2.81, SD = .35), followed by staff (M = 2.45, SD = .49), and students (M = 2.11, SD = .67), statistically significant differences ($p < .001$). For this variable, there were significant differences between each pairs of students vs. parents, students vs. staff, and parents vs. staff ($p < .001$).

With regard to *academic emphasis*, significant differences ($p < .001$) also were noted among stakeholder groups. The highest absolute scores were given by students (M = 2.51, SD = .50) reflecting agreement with statements that their teachers believe in them and praise them when they do a good job. Scores were lower for staff (M = 2.27, SD =

.24) and parents ($M = 2.11$, $SD = .32$). Significant differences were present between students and parents and students and staff ($p < .001$).

Perceptions of *family involvement* were significantly ($p < .001$) higher among staff ($M = 2.14$, $SD = .19$), followed by parents ($M = 2.06$, $SD = .29$) and were the lowest among students ($M = 1.80$, $SD = .13$). Post-hoc comparisons also showed significant differences among students and parents and students and staff ($p < .001$).

Significant differences ($p = .003$) were also identified among stakeholder groups as it relates to perceptions of *fairness*. Staff ($M = 2.12$, $SD = .22$) and parents ($M = 2.10$, $SD = .30$) had the highest scores, followed by students ($M = 1.93$, $SD = .23$) who appear to have much lower perceptions of *fairness* at their schools. Significant differences were also found between students and parents ($p = .026$) and students and staff ($p = .001$).

As it relates to *school resources*, significant differences ($p < .001$) were present. For example, the highest absolute scores were given by students ($M = 2.06$, $SD = .26$), followed by parents ($M = 1.76$, $SD = .19$) and staff ($M = 1.67$, $SD = .23$). The pairings of students vs. parent and students vs. staff were significantly different ($p < .001$).

With this variable being reverse-coded, perceptions of *physical disorder* were significant. The highest absolute scores were given by parents ($M = 0.77$, $SD = .26$), followed by staff ($M = 0.84$, $SD = .25$), and students ($M = 1.02$, $SD = .22$). There were also significant differences between the pairings of students and parents ($p < .001$) and students and staff ($p = .003$).

Finally, among stakeholder groups, perceptions of *safety and violence* among students ($M = 2.14$, $SD = .28$), parents ($M = 1.95$, $SD = .26$) and staff ($M = 1.93$, $SD =$

.26) were significant ($p < .001$), as were the pairings of students and parents ($p = .009$) and students and staff ($p = .002$).

Table 4.9 Scale-Level Summary for Climate Subscales, by Stakeholder Group

Scale-level Summary for School-level Climate Survey Scales, by Stakeholder Group

	Student		Parent		Staff		F	p	p-values for Post-hoc comparisons		
	(N = 37)		(N = 39)		(N = 40)				Student vs Parent	Student vs Staff	Parent vs Staff
	Mean	SD	Mean	SD	Mean	SD					
Student Expectations	2.11	.26	2.81	.08	2.45	.25	105.80	<.001	<.001	<.001	<.001
Academic Emphasis	2.51	.16	2.11	.32	2.27	.24	23.61	<.001	<.001	<.001	.046
Connectedness	2.11	.25	2.15	.31	2.20	.24	0.91	.404	.842	.316	.737
Family Involvement	1.80	.13	2.06	.29	2.14	.19	25.01	<.001	<.001	<.001	.329
Order and Discipline	1.91	.22	1.88	.29	1.89	.24	0.18	.835	.830	.894	.984
Fairness	1.93	.23	2.10	.30	2.12	.22	6.21	.003	.026	.001	.892
School Resources	2.06	.26	1.67	.23	1.76	.19	29.12	<.001	<.001	<.001	.150
Physical Disorder	1.02	.22	0.77	.26	0.84	.25	10.78	<.001	<.001	.003	.446
Safety and Violence	2.14	.28	1.95	.26	1.93	.26	7.53	<.001	.009	.002	.938

Note: Response options are 0 = strongly disagree, 1 = disagree, 2 = agree, 3 = strongly agree.

One-way ANOVA accounted for difference in number of schools.

Post-hoc test applied was the Games-Howell Test

Bar Charts for Climate Survey Subscales, by Stakeholder Group

To visually display the relative differences among stakeholder groups on each of the eight climate survey subscales, bar charts 4.1 through 4.9 are presented below. Each of these figures includes data previously presented numerically in Table 4.9, which feature one-way ANOVAs that account for differences in the number of schools. Additionally, they also feature Post-hoc comparisons using a Games-Howell test to determine whether there were significant differences between students and parents, staff and students, and staff and parents.

In Figure 4.1, parents ($M = 2.81$, $SD = .08$) had the most favorable response to *student expectations*, followed by staff ($M = 2.45$, $SD = .25$) and students ($M = 2.11$, $SD = .26$). Significant differences existed between students vs. parents, students vs. staff, and parents vs. staff ($p < .001$).

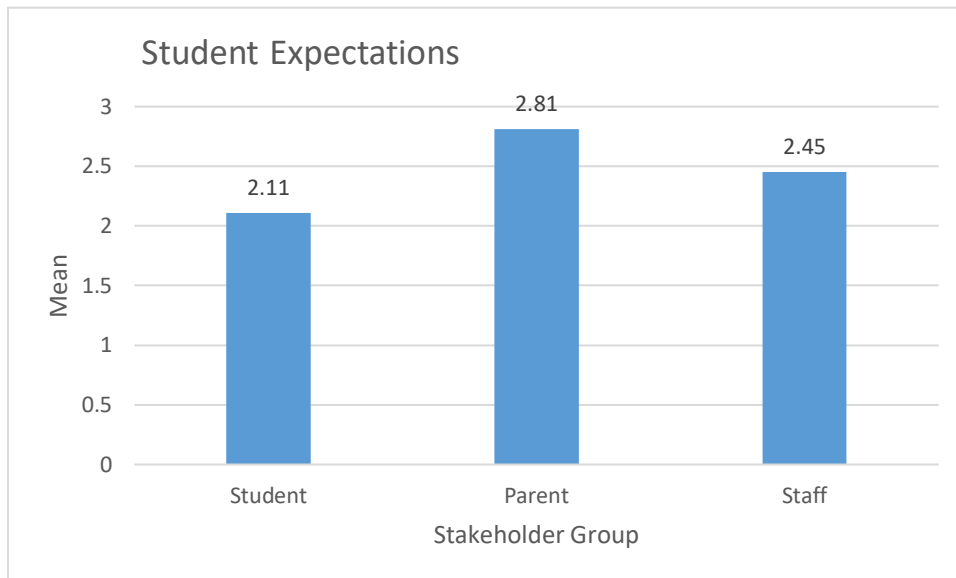


Figure 4.1 Student Expectations Subscale, by Stakeholder Group

As shown in Figure 4.2, students responded more positively about their perceptions of *academic emphasis* at their school ($M = 2.51$, $SD = .16$) relative to other groups, with lower averages among staff ($M = 2.27$, $SD = .24$) and parents ($M = 2.11$, $SD = .32$). Significant differences were present between students and parents, and students and staff ($p < .001$).

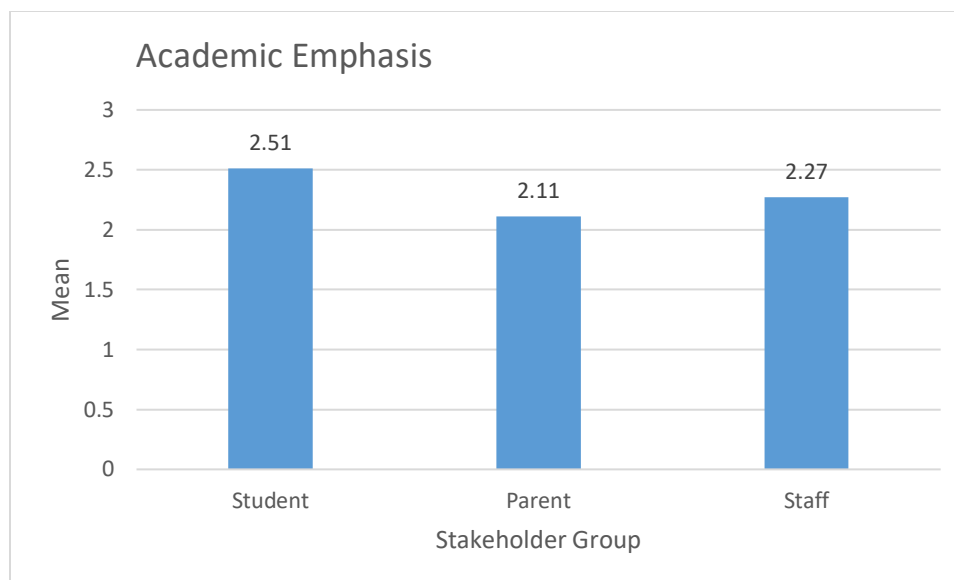


Figure 4.2 Academic Emphasis Subscale, by Stakeholder Group

As shown in Figure 4.3, scores among stakeholder groups for the *connectedness* subscale were not statistically significant ($p=.404$).

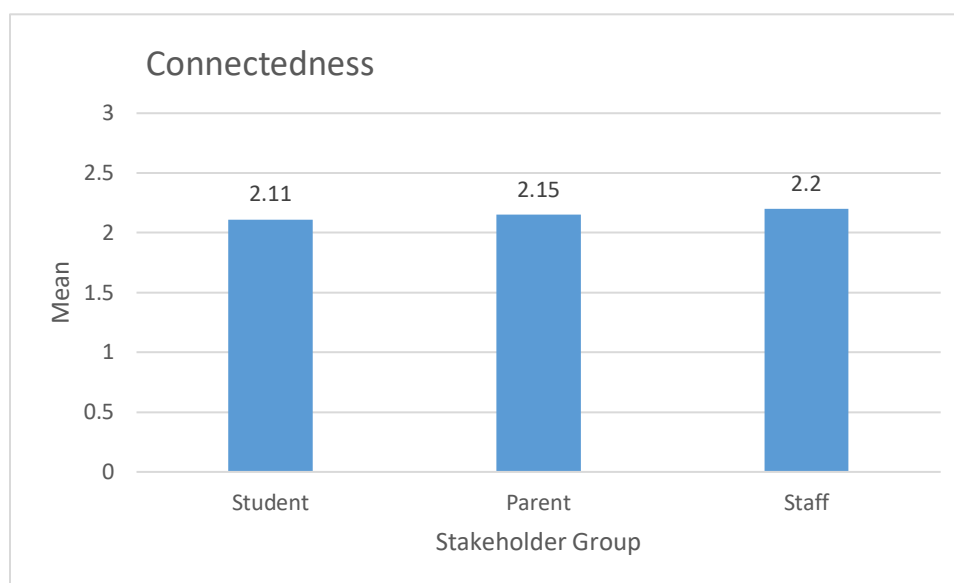


Figure 4.3 Connectedness Subscale, by Stakeholder Group

With regard to *family involvement*, (see Figure 4.4), perceptions that family and parents were involved at school were highest among staff ($M = 2.14$, $SD = .19$), followed by parents ($M = 2.06$, $SD = .29$), relative to students ($M = 1.80$, $SD = .13$). Post-hoc

comparisons showed significant differences exist among students and parents and students and staff ($p < .001$).

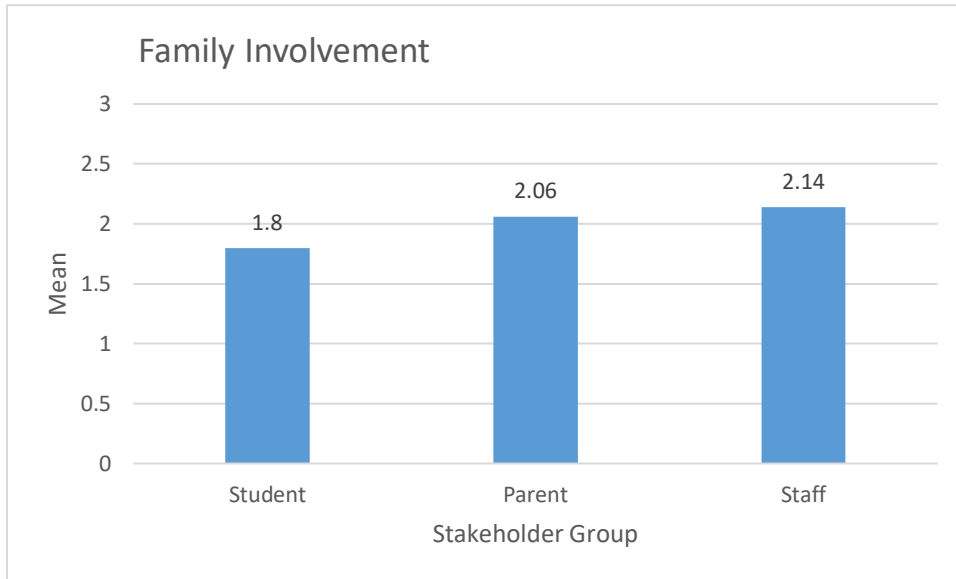


Figure 4.4 Family Involvement Subscale, by Stakeholder Group

The subscale for *order and discipline* includes items such as ‘Students are rewarded for positive behavior’ and is a key construct for examining school safety-related outcomes. Higher scores are considered to be better. There were no statistically significant differences among the three stakeholder groups ($p = .835$).

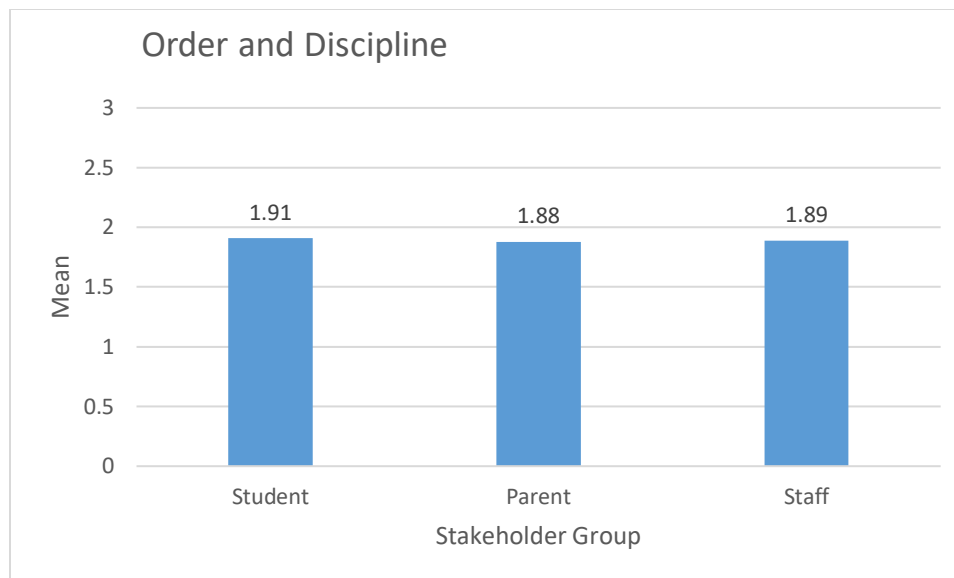


Figure 4.5 Order and Discipline Subscale, by Stakeholder Group

As shown in Figure 4.6, perceptions of *fairness* ($p = .003$) at school were higher among staff ($M = 2.12$, $SD = .22$) and parents ($M = 2.10$, $SD = .30$), compared to students ($M = 1.93$, $SD = .23$). Significant differences were found between students and parents ($p = .026$) and students and staff ($p = .001$).

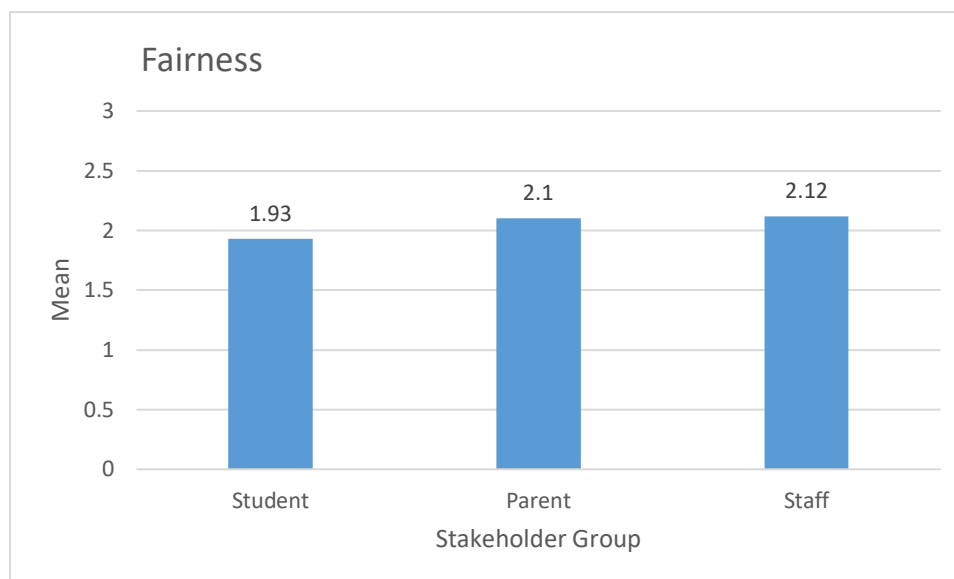


Figure 4.6 Fairness Subscale, by Stakeholder Group

The results in Figure 4.7 illustrate that perceptions of *school resources* are significantly higher among students ($M = 2.06$, $SD = .26$), relative to staff ($M = 1.76$, $SD = .23$) and parents ($M = 1.67$, $SD = .19$), differences that were statistically significant ($p < .001$). Items in this scale include wording such as ‘Teachers at this school help students’ with their problems’ and ‘Students who need help for their problems are able to get help through school’. The differences between students vs. parent and students vs. staff were statistically significant ($p < .001$).

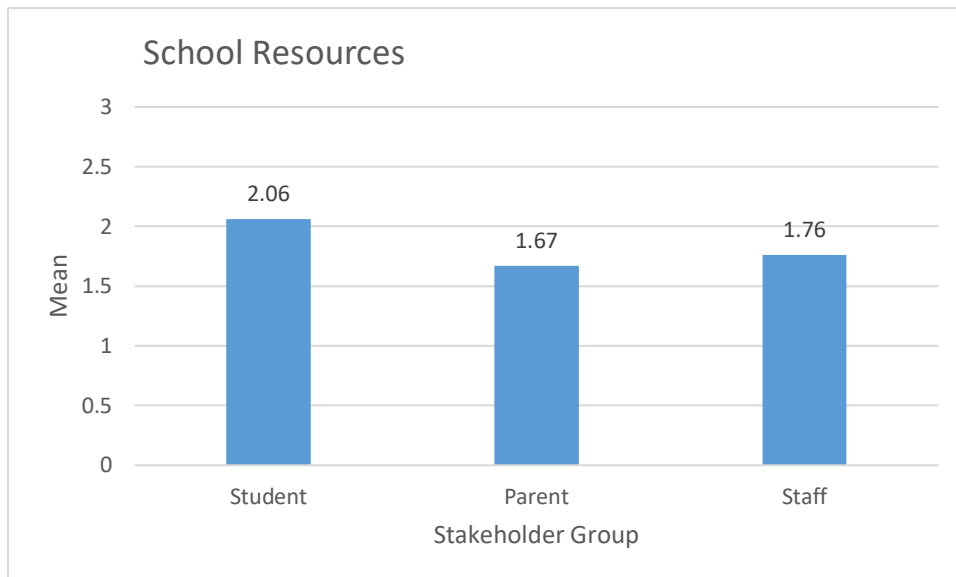


Figure 4.7 School Resources Subscale, by Stakeholder Group

For the *physical disorder* subscale, lower scores (i.e., less disorder) are a preferable. The absolute scores on this subscale were low among all groups; however, parents perceived the least disorder ($M = 0.77$, $SD = .84$), similar to staff ($M = 0.84$, $SD = .26$), whereas students perceived significantly more disorder ($p < .001$), although overall levels were still quite low ($M = 1.02$, $SD = .22$). Significant differences were found between students and parents ($p < .001$) and students and staff ($p = .003$).

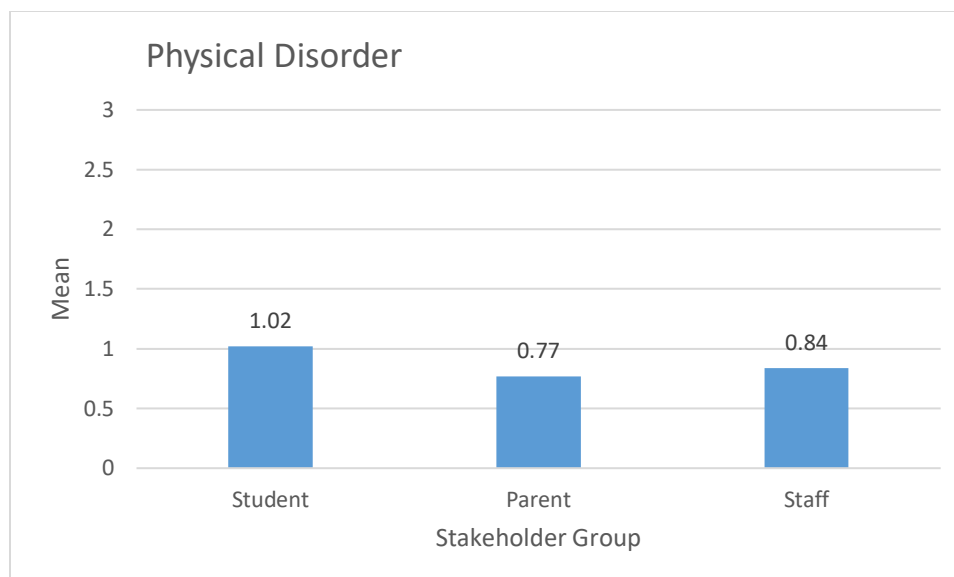


Figure 4.8 Physical Disorder Subscale, by Stakeholder Group

Lastly, the *safety and violence* subscale was examined. As shown in Figure 4.9, scores were highest among students ($M = 2.14$, $SD = .28$), relative to parents ($M = 1.95$, $SD = .26$) and staff ($M = 1.93$, $SD = .26$), a significant difference ($p < .001$). The differences between students and parents ($p = .009$) and students and staff ($p = .002$) were statistically significant.

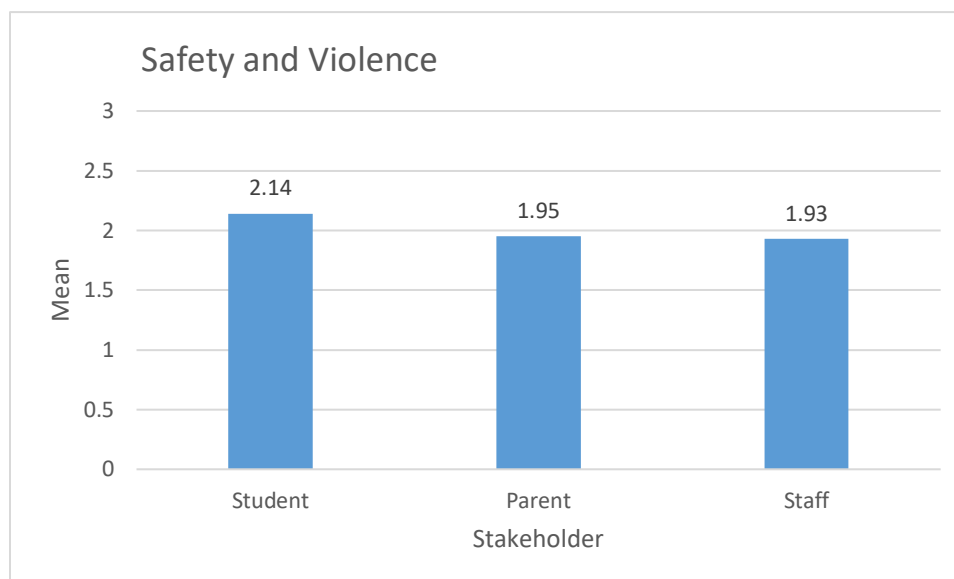


Figure 4.9 Safety and Violence Subscale, by Stakeholder Group

Climate Survey Items that are Parallel Across Stakeholder Groups

The prior comparisons considered broad subscales, which are derived from different numbers of contributing items for some topics, in addition to having some component items that are worded differently across groups, or which were not included for all groups. Therefore, there is not a perfectly parallel construction of each construct across the three stakeholder groups. For a more consistent comparison of perceptions across the three groups, contrasts were made at the item level. Table 4.9 presents climate survey items that are parallel across stakeholder groups. As before, response options range from 0 (strongly disagree) to 3 (strongly agree). One item is negatively stated and thus lower scores reflect a better outcome. As with stakeholder comparisons previously presented at the subscale level, a series of ANOVAs was conducted for each of the item-level comparisons. This approach considers differences in the mean-of-means for each item, compared at the school level, across stakeholder group. Additionally, Post-hoc comparisons were conducted to determine which groups are different. Using a Games-Howell test, pairwise comparisons were run to see whether there were significant differences among students and parents, staff and students, and staff and parents. Summary statistics are shown in Table 4.10.

Table 4.10 Item-Level Summary for Selected Climate Survey Items that are Parallel Across Stakeholder Groups

	Student (N = 37)		Parent (N = 39)		Staff (N = 40)		F	p	p-values for Post-hoc comparisons		
	Mean	SD	Mean	SD	Mean	SD			Student vs Parent	Student vs Staff	Parent vs Staff
Academic Emphasis											
Teachers at this school set high standards for their teaching	N/A	N/A	2.09	0.33	2.33	0.30	11.45	.001	-	-	-
Teachers believe that all students can do well if they try	2.50	0.20	2.24	0.28	2.40	0.25	10.09	<.001	<.001	.028	.124
Connectedness											
At this school, I feel like I belong	2.05	0.26	2.20	0.30	2.30	0.30	7.95	<.001	.181	<.001	.075
At this school, teachers care about their students	2.34	0.30	2.14	0.36	2.53	0.20	17.52	<.001	.031	.004	<.001
Family Involvement											
Parents and guardians are welcome at this school	2.27	0.24	2.22	0.28	2.43	0.20	8.20	<.001	.662	.006	<.001
If a student does something bad at school, their parents or guardians are informed	2.33	0.14	2.01	0.24	2.15	0.22	23.10	<.001	<.001	<.001	.033
When a student does something good at school, their parents or guardians are usually informed	1.92	0.30	1.61	0.30	1.80	0.28	11.70	<.001	<.001	.151	.009
This school tries to involve parents and guardians	2.05	0.28	1.96	0.37	2.20	0.28	6.19	.003	.433	.050	.004
Order and Discipline											
There is an orderly atmosphere for learning	N/A	N/A	2.06	0.34	2.11	0.24	0.72	.399	-	-	-
There are clearly defined rules and expectations for students' behavior	2.34	0.24	2.10	0.29	1.97	0.37	13.88	<.001	<.001	<.001	.216
*Misbehaving students get away with it	1.84	0.31	1.44	0.31	N/A	N/A	29.64	<.001	-	-	-
Students are rewarded for positive behavior	1.83	0.32	1.90	0.31	1.95	0.33	1.30	.277	.676	.257	.714
Fairness											
Students of all races are treated fairly	2.40	0.21	2.30	0.30	N/A	N/A	3.11	.082	-	-	-
This school provides instructional materials that reflect students' culture, ethnicity and identity	1.96	0.21	2.07	0.27	1.89	0.24	5.60	.005	.125	.355	.007
School Resources											
This school has programs that address violence and conflict between students	1.90	0.27	1.59	0.31	1.58	0.27	15.17	<.001	<.001	<.001	.998
Students have enough school supplies	2.04	0.27	1.95	0.24	N/A	N/A	2.06	.156	-	-	-
School provides adequate health services for students	1.98	0.32	1.78	0.32	1.61	0.35	12.17	<.001	.018	<.001	.073
Physical Disorder											
There are often broken windows, doors, or desks in this school	0.74	0.30	0.69	0.25	0.48	0.31	9.10	<.001	.658	<.001	.004
*The school is usually clean and well-maintained	0.86	0.23	0.78	0.30	0.83	0.45	0.55	.579	.391	.944	.804
*The temperature in this school is comfortable all year round	1.24	0.31	N/A	N/A	1.26	0.40	0.54	.817	-	-	-
Vandalism of school property is a problem at this school	1.18	0.30	0.68	0.20	0.70	0.35	34.47	<.001	<.001	<.001	.955
*This school has a bright and pleasant appearance	0.94	0.30	0.92	0.37	1.00	0.48	0.45	.638	.989	.744	.699
Safety and Violence											
Feel safe at this school	2.23	0.26	2.14	0.29	2.34	0.29	5.01	.008	.365	.176	.008
Feel safe going to and from this school	2.30	0.21	2.23	0.24	N/A	N/A	1.22	.273	-	-	-
Adults try to stop bullying	2.26	0.32	1.82	0.32	N/A	N/A	35.02	<.001	-	-	-
Adults are doing enough to stop or prevent bullying	2.04	0.34	1.60	0.31	1.68	0.29	22.01	<.001	<.001	<.001	.430

Note: Response options are 0 = strongly disagree, 1 = disagree, 2 = agree, 3 = strongly agree.

* Item is reverse-scored before creating scaled score.

One-way ANOVA accounted for difference in number of schools

Post-hoc test applied was Games-Howell Test

Two items were included within the construct of *academic emphasis*, and both showed significant differences among stakeholder groups. The item ‘Teachers at this school set high standards for their teaching’ was only administered to parents and staff,

with higher ratings given by staff ($M = 2.33$, $SD = 0.30$) than by parents ($M = 2.09$, $SD = 0.33$), a statistically significant difference ($p = .001$). In addition, perceptions varied for the statement “Teachers believe that all students can do well if they try,” with the highest scores among students ($M = 2.50$, $SD = 0.20$) and staff ($M = 2.40$, $SD = .25$), both of which were significantly higher than perceptions by parents ($M = 2.24$, $SD = .28$). The differences were statistically significant between student vs. parent ($p < .001$) and student vs. staff (.028).

For the construct of *connectedness*, two items had parallel construction across all three stakeholder groups, and both showed significant differences in perceptions. First, for the item “At this school I feel like I belong,” scores were significantly higher among staff ($M = 2.30$, $SD = .30$), followed by parents ($M = 2.20$, $SD = .20$) and students ($M = 2.05$, $SD = .26$). This statement was only significantly different between students and staff ($p < .001$).

Statistically significant differences ($p = < .001$) also exist in items related to *connectedness*. For example, when all three groups were given the statement ‘At this school, teachers care about their students’, staff ($M = 2.53$, $SD = .20$) felt most strongly about this, followed by students ($M = 2.34$, $SD = .30$) who also had mostly positive responses to this statement, and parents ($M = 2.14$, $SD = .36$), who, although they were lowest, still favored this statement. Significant differences also existed between students vs. parents ($p = .031$), students vs. parents ($p = .004$) and parent vs. staff ($p < .001$).

Within *family involvement*, staff ($M = 2.43$, $SD = .20$) believe that ‘Parents and guardians are welcome at this school’, but significantly less so by students ($M = 2.27$, $SD = .24$) and their parents ($M = 2.22$, $SD = .28$). Comparisons between students vs. staff (p

= .006) were significantly different. The statement ‘If a student does something bad at school, their parents or guardians are informed’ was most favorably received by students (M = 2.33, SD = .14), followed by staff (M = 2.15, SD = .22) and parents (M = 2.01, SD = .24). These perceptions were significantly different between students and parents ($p < .001$), students and staff ($p < .001$), and parents and staff ($p = .033$) all proved to be significantly different.

Next, the statement ‘When a student does something good at school, their parents or guardians are usually informed’ received the highest significant scores from students (M = 1.92, SD = .30), then staff (M = 1.80, SD = .28) and parents (M = 1.61, SD = .30). There are also significant differences between the pairings of students vs. parents ($p < .001$) and parents vs. staff ($p = .009$).

Additionally, staff (M = 2.20, SD = .28) responded more favorably to the statement ‘This school tries to involve parents and guardians’ than did students (M = 2.05, SD = .28) or parents (M = 1.96, SD = .37), with statistically significant ($p = .003$), differences. The differences were also significant between student vs. staff ($p = .050$) and parents vs. staff ($p = .004$).

There are two statements within *order and discipline* that show significant differences among the three stakeholder groups. The first, ‘There are clearly defined rules and expectations for student behaviors,’ which received the highest scores from students (M = 2.34, SD = .24), followed by parents (M = 2.10, SD = .29) and staff (M = 1.97, SD = .37). The comparisons between students vs. parents and students vs. staff ($p < .001$) were also found to be significantly different.

Similarly, parents ($M = 1.44$, $SD = .31$) had the highest scores when responding to the statement ‘Misbehaving students get away with it’, followed by students ($M = 1.84$, $SD = .31$). This item was not asked of staff.

Under *fairness*, there is only one significant item that differed by stakeholder group. Parents ($M = 2.07$, $SD = .27$) responded significantly higher to the statement ‘The school provides instructional materials that reflect students’ culture, ethnicity, and identity’, relative to responses from students ($M = 1.96$, $SD = .21$) and staff ($M = 1.89$, $SD = .24$). The difference between parent vs. staff was statistically significant ($p = .007$).

Two items within the construct of *school resources* showed significant results. The statement ‘This school has programs that address violence and conflict among students’ received the highest scores from students ($M = 1.90$, $SD = .27$), followed by parents ($M = 1.59$, $SD = .31$), and staff ($M = 1.58$, $SD = .27$). When considering pairwise comparisons, a significant difference exists between students and parents and students and staff ($p < .001$).

Next, students ($M = 1.98$, $SD = .32$) responded most favorably to the item ‘School provides adequate health services for students, with parents ($M = 1.78$, $SD = .32$) and staff ($M = 1.61$, $SD = .35$) responding less favorably. The comparisons between students vs. parents ($p = .018$) and student vs. staff ($p < .001$) were shown to be significantly different.

As it relates to the physical environment, a significant finding ($p = < .001$) was that staff ($M = .48$, $SD = .31$) agreed most with the statement ‘There are often broken windows, doors, or desks in this school’, followed by parents ($M = .69$, $SD = .25$) and

students ($M = .74$, $SD = .30$) within the *physical disorder* scale. A significant difference exists between student vs. staff ($p < .001$) and parents vs. staff ($p = .005$).

Also, under *physical disorder*, students ($M = 1.18$, $SD = .30$) produced the highest scores when given the statement ‘Vandalism of school property is a problem at this school’, followed by staff ($M = .70$, $SD = .35$) and parents ($M = .68$, $SD = .20$).

Comparisons between student vs. parent and student vs. staff ($p < .001$) were both significantly different.

Despite their collective agreement about the state of the school’s condition, staff ($M = 2.34$, $SD = .29$) agreed with the statement under *safety and violence* that ‘I feel safe at this school’, followed by students ($M = 2.29$, $SD = .26$) and parents ($M = 2.14$, $SD = .29$). Only a comparison between parents vs. staff ($p = .006$) were significantly different. Students ($M = 2.30$, $SD = .21$) and parents ($M = 2.23$, $SD = .24$) both affirmed that ‘I feel safe going to and from this school’ when asked on the survey.

Finally, in response to the statement ‘Adults are doing enough to stop or prevent bullying’, students ($M = 2.04$, $SD = .34$) had the highest scores, followed by staff ($M = 1.68$, $SD = .29$) and parents ($M = 1.60$, $SD = .31$). Significant differences exist between students vs. parents and students vs. staff ($p < .001$).

Summary of Multi-Variable, Multi-Level Linear Regression Models

The following tables provide summary results of multi-variable, multi-level linear regression models related to the each of the nine different climate subscales, across the three sets of stakeholders. Each of the tables includes the adjusted margins from the regression model, which represents the average score on that climate subscale for each subgroup, while controlling for all other variables in the model. As with all other climate

analyses, scores range from 0 (strongly disagree) to 3 (strongly agree). A variety of school demographic characteristics and individual-level respondent characteristics were included in the models. The school characteristics are the same as shown in Table 3.1, which presents information about schools in this study. The percentage of students eligible for free/reduced-priced lunch (FRPL), is used as a proxy for community-level poverty.

Due to the high number of demographic variables included in the model on the student tables, SAfETy scores were run as a separate model, but will be included in the analysis of each climate subscale.

Student Perceptions

Table 4.11 shows the summary results for the full multivariable model exploring differences in student perceptions of *student expectations* at their schools. Several variables were significantly different. At the school level, poverty was associated with climate, such that students attending higher-poverty schools perceived lower *student expectations*, as compared to students attending the lowest-poverty schools (i.e., those with <40% of students eligible for free/reduced-priced meals, the proxy for poverty), ($\gamma = -.153, p = .010$)

In addition, significant differences were noted by school level, with lower expectations perceived by students attending high school ($\gamma = -.329, p < .001$) and middle/high school ($\gamma = -.240, p < .001$), relative to students at elementary/middle schools. Perceptions of expectations were higher among female students, relative to males ($\gamma = .099, p < .001$), while race or ethnicity was not associated. Perceived expectations were

significantly and negatively associated with student grade, such that students in higher grades perceived lower expectations ($\gamma = -.056, p < .001$),

In examining how the physical environment of a school influences school climate, results indicate higher *appearance* scores on the SAfETy were associated with lower perceptions of *student expectations* ($\gamma = -.035, p = .011$), a result that is contradictory to what was hypothesized.

Table 4.11 Summary of Multi-Variable Multi-Level Linear Regression Model Predicting *Student Perceptions on the Student Expectations Climate Subscale in 2019*

Variables	Adjusted margin	95% CI	Regression results		
			coefficient	SE	<i>p</i>
<i>SCHOOL CHARACTERISTICS</i>					
School poverty					
FRPL <40% (referent)	2.10	2.03, 2.17			
FRPL 40-60%	2.03	1.97, 2.09	-.071	.046	.124
FRPL >60%	1.95	1.86, 2.04	-.153	.059	.010
Locale					
Fringe (referent)	2.03	1.94, 2.13			
Remote	2.05	1.99, 2.11	.021	.059	.715
Distant	2.01	1.94, 2.07	-.026	.062	.677
School level					
Elementary/middle (referent)	2.14	2.07, 2.20			
Middle/high	1.95	1.87, 2.03	-.189	.055	.001
High school only	1.88	1.76, 2.00	-.256	.078	.001
All grades	2.08	1.96, 2.20	-.058	.070	.407
<i>STUDENT CHARACTERISTICS</i>					
Gender					
Male (referent)	1.98	1.94, 2.02			
Female	2.08	2.04, 2.12	.099	.015	<.001
Race/ethnicity					
Non-Hispanic White (referent)	2.04	2.00, 2.08			
Student of color	2.02	1.97, 2.07	-.016	.018	.370
Grade (continuous)			-.056	.007	<.001
<i>SAFETY</i>					
Appearance			-.035	.014	.011
Disorder			-.043	.033	.191
Surveillance			-.007	.007	.361

Note: Adjusted margin represents the average score on the climate survey subscale (scores ranging from 0 to 3) for each group, controlling for all other variables in the model.

FRPL = Free/Reduced-Priced Lunch, used as a proxy for community-level poverty.

N = 6,446 students in grades 3 to 12, within 37 schools.

In Table 4.12, several variables within this full multivariable model significantly predict student perceptions of *academic emphasis* at their schools. Similar to Table 4.9, poverty was associated with climate at the school level. For example, students who attend the highest-poverty schools ($\gamma = -.101$, $p = .007$) perceived lower *academic emphasis* as compared to those at the highest-poverty schools (i.e., those with <40% students eligible for free/reduced-priced meals).

Associations between climate and school level, gender, and race/ethnicity were also present. High school ($\gamma = -.155$, $p = .002$) and middle/high school ($\gamma = -.095$, $p = .007$) had lower perceptions of *academic emphasis* than students at the elementary/middle level. Perceptions of *academic emphasis* were lower among female students ($\gamma = -.040$, $p < .000$) than their male counterparts, while students of color ($\gamma = -.062$, $p < .001$) also reported lower perceptions of *academic emphasis* than non-Hispanic white students.

Much like in Table 4.9, higher *appearance* scores on the SAfETy were associated with lower perceptions of *academic emphasis* ($\gamma = -.028$, $p < .001$) as it relates to how the physical environment of a school influences school climate.

Table 4.12 Summary of Multi-Variable Multi-Level Linear Regression Model Predicting *Student Perceptions on the Academic Emphasis Climate Subscale in 2019*

Variables	Adjusted margin	95% CI	coefficient	SE	<i>p</i>
<i>SCHOOL CHARACTERISTICS</i>					
School poverty					
FRPL <40% (referent)	2.51	2.46, 2.55			
FRPL 40-60%	2.46	2.43, 2.50	-.043	.030	.147
FRPL >60%	2.40	2.35, 2.46	-.101	.037	.007
Locale					
Fringe (referent)	2.47	2.41, 2.53			
Remote	2.48	2.44, 2.52	.012	.037	.739
Distant	2.44	2.39, 2.48	-.031	.039	.431
School level					
Elementary/middle (referent)	2.52	2.48, 2.56			
Middle/high	2.42	2.38, 2.47	-.095	.035	.007
High school only	2.36	2.28, 2.44	-.155	.051	.002
All grades	2.48	3.00, 2.55	-.043	.045	.339
<i>STUDENT CHARACTERISTICS</i>					
Gender					
Male (referent)	2.44	2.41, 2.46			
Female	2.49	2.46, 2.51	-.040	.012	.000
Race/ethnicity					
Non-Hispanic White (referent)	2.48	2.45, 2.50			
Student of color	2.42	2.38, 2.45	-.062	.014	.000
Grade (continuous)					
<i>SAFETY</i>					
Appearance			-.028	.009	.001
Disorder			-.028	.020	.177
Surveillance			.000	.005	.861

Note: Adjusted margin represents the average score on the climate survey subscale (scores ranging from 0 to 3) for each group, controlling for all other variables in the model.

FRPL = Free/Reduced-Priced Lunch, used as a proxy for community-level poverty.

N = 6,432 students in grades 3 to 12, within 37 schools.

Table 4.13 shows a summary of results for the full multivariable model examining differences in student perceptions of *connectedness* at their schools. Much like the first two scales, several variables were significantly different. Poverty is associated with school climate, such that perceptions of connectedness were significantly lower at the higher-poverty schools (where >60% of students are eligible free/reduced priced meals) than at the lowest poverty schools ($\gamma = -.223$, $p < .001$), as well as lower at moderate-poverty schools (40-60% of students eligible) ($\gamma = -.112$, $p = .006$).

In addition, associations also exist between school level and climate. High school ($\gamma = -.271, p < .001$) and middle/high ($\gamma = -.187, p < .001$) students had the lowest perceptions of *connectedness*, relative to students at the elementary/middle level.

Much like student perceptions related to *student expectations* and *academic emphasis*, higher appearance scores on the SAfETy were associated with lower perceptions of *connectedness* ($\gamma = -.031, p = .010$).

Table 4.13 Summary of Multi-Variable Multi-Level Linear Regression Model Predicting *Student Perceptions* on the *Connectedness Climate Subscale* in 2019

Variables	Adjusted margin	95% CI	coefficient	SE	<i>p</i>
<i>SCHOOL CHARACTERISTICS</i>					
School poverty					
FRPL <40% (referent)	2.15	2.09, 2.21			
FRPL 40-60%	2.04	1.98, 2.09	-.112	.040	.006
FRPL >60%	1.93	1.85, 2.00	-.223	.051	.000
Locale					
Fringe (referent)	2.03	1.95, 2.12			
Remote	2.08	2.03, 2.13	.046	.051	.368
Distant	2.00	1.94, 2.06	-.033	.054	.537
School level					
Elementary/middle (referent)	2.15	2.10, 2.21			
Middle/high	1.97	1.90, 2.04	-.187	.048	.000
High school only	1.88	1.78, 1.99	-.271	.068	.000
All grades	2.06	1.95, 2.16	-.098	.061	.107
<i>STUDENT CHARACTERISTICS</i>					
Gender					
Male (referent)	2.04	2.00, 2.07			
Female	2.05	2.01, 2.09	.012	.013	.359
Race/ethnicity					
Non-Hispanic White (referent)	2.05	2.01, 2.08			
Student of color	2.03	1.99, 2.07	-.019	.016	.247
Grade (continuous)					
<i>SAfETy</i>					
Appearance			-.031	.012	.010
Disorder			-.030	.028	.294
Surveillance			-.005	.006	.400

Note: Adjusted margin represents the average score on the climate survey subscale (scores ranging from 0 to 3) for each group, controlling for all other variables in the model.

FRPL = Free/Reduced-Priced Lunch, used as a proxy for community-level poverty.

N = 6,442 students in grades 3 to 12, within 37 schools.

In Table 4.14, gender was the only statistically significant variable that related to *family involvement*, as females ($\gamma = -.059$, $p < .001$) did not feel as though their parents and family cared about or were as involved in their education compared to males.

None of the components of the SAfETy, including *appearance*, *disorder*, or *surveillance*, were significantly associated with student perceptions of family involvement.

Table 4.14 Summary of Multi-Variable Multi-Level Linear Regression Model Predicting *Student Perceptions on the Family Involvement Climate Subscale in 2019*

Variables	Adjusted margin	95% CI	coefficient	SE	<i>p</i>
<i>SCHOOL CHARACTERISTICS</i>					
School poverty					
FRPL <40% (referent)	1.82	1.79, 1.86			
FRPL 40-60%	1.81	1.78, 1.84	-.011	.024	.635
FRPL >60%	1.85	1.81, 1.90	.032	.029	.269
Locale					
Fringe (referent)	1.82	1.77, 1.90			
Remote	1.81	1.78, 1.84	-.011	.029	.711
Distant	1.85	1.81, 1.88	.024	.031	.439
School level					
Elementary/middle (referent)	1.81	1.78, 1.85			
Middle/high	1.83	1.80, 1.87	.022	.028	.438
High school only	1.89	1.82, 1.95	.075	.042	.074
All grades	1.75	1.68, 1.81	-.067	.037	.068
<i>STUDENT CHARACTERISTICS</i>					
Gender					
Male (referent)	1.85	1.83, 1.88			
Female	1.80	1.77, 1.82	-.059	.011	.000
Race/ethnicity					
Non-Hispanic White (referent)	1.82	1.80, 1.84			
Student of color	1.83	1.81, 1.86	.010	.013	.437
Grade (continuous)					
<i>SAfETy</i>					
Appearance			.010	.007	.159
Disorder			.014	.016	.369
Surveillance			.004	.004	.254

Note: Adjusted margin represents the average score on the climate survey subscale (scores ranging from 0 to 3) for each group, controlling for all other variables in the model.

FRPL = Free/Reduced-Priced Lunch, used as a proxy for community-level poverty.

N = 6,270 students in grades 3 to 12, within 37 schools.

In Table 4.15, school level appears to have the most significant effect on student perceptions of *order and discipline*. Elementary/middle students have the most positive perceptions, followed by middle/high ($\gamma = -.173, p < .001$) and high school ($\gamma = -.042, p < .001$) students. In addition, schools with 60 percent or more ($\gamma = -.136, p = .004$) students who received free and reduced-priced lunches is also shown to significantly influence student perceptions of *order and discipline*.

Also, on Table 4.13, schools with high scores related to the elements of *appearance* ($\gamma = -.026, p = .019$) on the SAfETy resulted in students having less favorable perceptions of *order and discipline* in a significant way at their school.

Table 4.15 Summary of Multi-Variable Multi-Level Linear Regression Model Predicting *Student Perceptions on the Order and Discipline Climate Subscale in 2019*

Variables	Adjusted margin	95% CI	coefficient	SE	<i>p</i>
<i>SCHOOL CHARACTERISTICS</i>					
School poverty					
FRPL <40% (referent)	1.90	1.85, 1.96			
FRPL 40-60%	1.86	1.81, 1.90	-.047	.038	.209
FRPL >60%	1.77	1.70, 1.84	-.136	.048	.004
Locale					
Fringe (referent)	1.85	1.77, 1.92			
Remote	1.88	1.83, 1.93	.036	.047	.450
Distant	1.81	1.75, 1.86	-.040	.050	.421
School level					
Elementary/middle (referent)	1.96	1.90, 2.01			
Middle/high	1.78	1.72, 1.85	-.173	.044	.000
High school only	1.65	1.55, 1.75	-.303	.063	.000
All grades	1.91	1.82, 2.01	-.042	.057	.457
<i>STUDENT CHARACTERISTICS</i>					
Gender					
Male (referent)	1.84	1.81, 1.87			
Female	1.86	1.82, 1.89	.017	.012	.162
Race/ethnicity					
Non-Hispanic White (referent)	1.85	1.82, 1.88			
Student of color	1.84	1.81, 1.88	-.006	.014	.675
Grade (continuous)					
<i>SAFETY</i>					
Appearance			-.026	.011	.019
Disorder			-.002	.027	.931
Surveillance			-.007	.006	.262

Note: Adjusted margin represents the average score on the climate survey subscale (scores ranging from 0 to 3) for each group, controlling for all other variables in the model.

FRPL = Free/Reduced-Priced Lunch, used as a proxy for community-level poverty.

N = 6,279 students in grades 3 to 12, within 37 schools.

As shown in Table 4.16, students of color ($\gamma = -.070, p < .001$) had significantly lower perceptions of *fairness* at school than did non-Hispanic white students. School level was also significantly associated with student perceptions of *fairness*, as high school ($\gamma = -.289, p < .001$) and middle/high ($\gamma = -.205, p < .001$) students did not respond on the survey as positively as elementary/middle students did.

As it relates to the SAFETY,, none of its components, including *appearance*, *disorder*, or *surveillance*, were significantly associated with student perceptions of fairness.

Table 4.16 Summary of Multi-Variable Multi-Level Linear Regression Model Predicting *Student Perceptions on the Fairness Climate Subscale in 2019*

Variables	Adjusted margin	95% CI	coefficient	SE	<i>p</i>
<i>SCHOOL CHARACTERISTICS</i>					
School poverty					
FRPL <40% (referent)	1.92	1.85, 1.98			
FRPL 40-60%	1.85	1.79, 1.90	-.071	.043	.104
FRPL >60%	1.84	1.76, 1.92	-.081	.055	.137
Locale					
Fringe (referent)	1.87	1.78, 1.95			
Remote	1.89	1.83, 1.94	.020	.054	.708
Distant	1.85	1.78, 1.91	-.020	.057	.732
School level					
Elementary/middle (referent)	1.98	1.92, 2.04			
Middle/high	1.77	1.70, 1.85	-.205	.051	.000
High school only	1.69	1.58, 1.81	-.289	.074	.000
All grades	1.96	1.85, 2.07	-.212	.066	.748
<i>STUDENT CHARACTERISTICS</i>					
Gender					
Male (referent)	1.88	1.84, 1.92			
Female	1.86	1.82, 1.90	-.019	.016	.232
Race/ethnicity					
Non-Hispanic White (referent)	1.89	1.85, 1.92			
Student of color	1.82	1.77, 1.86	-.070	.019	.000
Grade (continuous)					
<i>SAFETY</i>					
Appearance			-.024	.013	.059
Disorder			-.028	.030	.360
Surveillance			-.002	.007	.744

Note: Adjusted margin represents the average score on the climate survey subscale (scores ranging from 0 to 3) for each group, controlling for all other variables in the model.

FRPL = Free/Reduced-Priced Lunch, used as a proxy for community-level poverty.

N = 6,103 students in grades 3 to 12, within 37 schools.

The results in Table 4.17 indicate that school level is significantly associated with students' perceptions of *school resources* as middle/high ($\gamma = -.207$, $p = .001$) and high school ($\gamma = -.302$, $p = .001$) students had lower perceptions of school resources than

elementary students. Likewise, students of color ($\gamma = -.053$, $p = .005$) and schools with 60 percent or more ($\gamma = -.122$, $p = .025$) students who received free/reduced-priced lunches is also shown to be significantly associated with student perceptions of *school resources*.

Table 4.17 also shows that no components of the SAfETy are associated with perceptions of *school resources*.

Table 4.17 Summary of Multi-Variable Multi-Level Linear Regression Model Predicting *Student Perceptions on the School Resources Climate Subscale in 2019*

Variables	Adjusted margin	95% CI	coefficient	SE	<i>p</i>
<i>SCHOOL CHARACTERISTICS</i>					
School poverty					
FRPL <40% (referent)	2.05	1.99, 2.12			
FRPL 40-60%	1.99	1.94, 2.05	-.062	.043	.152
FRPL >60%	1.93	1.85, 2.01	-.122	.055	.025
Locale					
Fringe (referent)	1.96	1.87, 2.05			
Remote	2.04	1.99, 2.10	.082	.054	.130
Distant	1.95	1.89, 2.02	-.008	.057	.895
School level					
Elementary/middle (referent)	2.11	2.05, 2.17			
Middle/high	1.90	1.83, 1.98	-.207	.051	.000
High school only	1.81	1.69, 1.92	-.302	.073	.000
All grades	2.10	1.99, 2.21	-.009	.066	.894
<i>STUDENT CHARACTERISTICS</i>					
Gender					
Male (referent)	1.99	1.95, 2.03			
Female	2.00	1.97, 2.04	.013	.015	.402
Race/ethnicity					
Non-Hispanic White (referent)	2.01	1.97, 2.05			
Student of color	1.96	1.91, 2.00	-.053	.019	.005
Grade (continuous)					
<i>SAfETy</i>					
Appearance			-.018	.013	.153
Disorder			-.030	.030	.312
Surveillance			-.000	.007	.954

Note: Adjusted margin represents the average score on the climate survey subscale (scores ranging from 0 to 3) for each group, controlling for all other variables in the model.

FRPL = Free/Reduced-Priced Lunch, used as a proxy for community-level poverty.

N = 6,089 students in grades 3 to 12, within 37 schools.

When it comes to student perceptions of *physical disorder* in Table 4.18, variables such as school level, gender, and race were all significantly associated with student perceptions of *physical disorder*. For example, elementary students had the most positive perceptions of *physical disorder*, followed closely by middle/high school ($\gamma = .147$, $p = .046$) students and high school ($\gamma = .270$, $p = .008$) students.

Similarly, non-Hispanic white students indicated positive perceptions of *physical disorder*, as did students of color ($\gamma = .035$, $p < .001$). Female ($\gamma = -.068$, $p < .001$) students, on the other hand, had less favorable perceptions than male students.

None of the components of the SAfETy, including *appearance*, *disorder*, or *surveillance*, were significantly associated with student perceptions of *physical disorder*.

Table 4.18 Summary of Multi-Variable Multi-Level Linear Regression Model Predicting *Student Perceptions on the Physical Disorder Climate Subscale in 2019*

Variables	Adjusted margin	95% CI	coefficient	SE	<i>p</i>
<i>SCHOOL CHARACTERISTICS</i>					
School poverty					
FRPL <40% (referent)	.997	.901, 1.09			
FRPL 40-60%	1.07	.991, 1.16	.078	.064	.223
FRPL >60%	1.14	1.02, 1.26	.141	.082	.087
Locale					
Fringe (referent)	1.07	.938, 1.21			
Remote	1.08	.992, 1.16	.004	.082	.964
Distant	1.05	.953, 1.14	-.023	.086	.789
School level					
Elementary/middle (referent)	.978	.894, 1.06			
Middle/high	1.12	1.01, 1.24	.147	.074	.046
High school only	1.25	1.08, 1.42	.270	.102	.008
All grades	.963	.799, 1.13	-.015	.095	.873
<i>STUDENT CHARACTERISTICS</i>					
Gender					
Male (referent)	1.10	1.04, 1.16			
Female	1.03	.976, 1.09	-.068	.014	.000
Race/ethnicity					
Non-Hispanic White (referent)	1.06	1.00, 1.11			
Student of color	1.09	1.03, 1.15	.035	.006	.000
Grade (continuous)					
<i>SAFETY</i>					
Appearance			.002	.019	.920
Disorder			.032	.046	.484
Surveillance			-.007	.010	.470

Note: Adjusted margin represents the average score on the climate survey subscale (scores ranging from 0 to 3) for each group, controlling for all other variables in the model.

FRPL = Free/Reduced-Priced Lunch, used as a proxy for community-level poverty.

N = 6,003 students in grades 3 to 12, within 37 schools.

As shown in Table 4.19, school level and poverty are some of the only statistically significant variables associated with *safety and violence*. Elementary students had the most positive perceptions of *safety and violence*, followed by middle/high school ($\gamma = -.207$, $p = .001$) students and high school ($\gamma = -.274$, $p = .002$) students. In addition, schools with 60 percent or more ($\gamma = -.216$, $p = .001$) students who received free/reduced-priced lunches is also shown to be significantly associated with student perceptions of *safety and violence*.

As it relates to the *SAfETy* on Table 4.19, schools with high scores related to *appearance* ($\gamma = -.040$, $p = .011$) were significantly associated with lower perceptions of *safety and violence* among students.

Table 4.19 Summary of Multi-Variable Multi-Level Linear Regression Model Predicting *Student Perceptions on the Safety and Violence Climate Subscale in 2019*

Variables	Adjusted margin	95% CI	coefficient	SE	<i>p</i>
<i>SCHOOL CHARACTERISTICS</i>					
School poverty					
FRPL <40% (referent)	2.15	2.07, 2.23			
FRPL 40-60%	2.08	2.01, 2.15	-.072	.053	.168
FRPL >60%	1.94	1.84, 2.03	-.216	.066	.001
Locale					
Fringe (referent)	2.06	1.95, 2.17			
Remote	2.12	2.05, 2.19	.056	.066	.397
Distant	2.00	1.93, 2.08	-.060	.070	.388
School level					
Elementary/middle (referent)	2.18	2.11, 2.25			
Middle/high	1.97	1.88, 2.06	-.207	.061	.001
High school only	1.90	1.76, 2.04	-.274	.087	.002
All grades	2.16	2.03, 2.30	-.015	.079	.847
<i>STUDENT CHARACTERISTICS</i>					
Gender					
Male (referent)	2.07	2.02, 2.11			
Female	2.07	2.02, 2.12	.004	.017	.810
Race/ethnicity					
Non-Hispanic White (referent)	2.07	2.03, 2.12			
Student of color	2.06	2.00, 2.11	-.015	.021	.477
Grade (continuous)					
<i>SAfETy</i>					
Appearance			-.040	.016	.011
Disorder			-.057	.037	.122
Surveillance			.002	.008	.775

Note: Adjusted margin represents the average score on the climate survey subscale (scores ranging from 0 to 3) for each group, controlling for all other variables in the model.

FRPL = Free/Reduced-Priced Lunch, used as a proxy for community-level poverty.

N = 5,996 students in grades 3 to 12, within 37 schools.

Staff Perceptions

Tables 4.20 through 4.28 each present the result of a regression model predicting the staff climate subscale scores. Prior to running these models, exploration of the demographic variables was conducted... it was concluded that the ideal set of covariates to include in the model was school poverty, locale, and school level. Other demographic characteristics were not significantly associated with climate outcomes, and were thus omitted from the models for parsimony. In addition to the demographic variables, the three key predictor variables, SAfETy components of *appearance*, *disorder*, and *surveillance* are included in the models. These test the key research question as to whether aspects of the school physical environment are associated with climate perceptions.

Table 4.20 explores associations between predictor variables and *student expectations* as a climate subscale. Although staff perceptions about *student expectations* did not vary by school poverty, they did vary by other characteristics, such as being lower among staff at schools in distant rural locations ($\gamma = -.368$, $p = .027$) relative to fringe rural locations, and were also lower among staff at high schools ($\gamma = -.231$, $p = .040$) relative to those at elementary/middle schools. In addition, one element of the SAfETy was associated with staff reports of *student expectations*, whereby schools that had higher scores on *disorder* ($\gamma = -.106$, $p = .033$) showed lower expectations.

Table 4.20 Summary of Multi-Variable Multi-Level Linear Regression Model Predicting *Staff Perceptions on the Student Expectations Climate Subscale in 2019*

Variables	Adjusted margin	95% CI	Regression results		
			coefficient	SE	<i>p</i>
<i>SCHOOL CHARACTERISTICS</i>					
School poverty					
FRPL <40% (referent)	2.44				
FRPL 40-60%	2.51	-.072, .206	.067	.070	.347
FRPL >60%	2.35	-.269, .080	-.095	.089	.288
Locale					
Fringe (referent)	2.58				
Remote	2.46	-.278, .031	-.123	.079	.118
Distant	2.39	-.368, -.022	-.195	.088	.027
School level					
Elementary/middle (referent)	2.48				
Middle/high	2.41	-.221, .087	-.067	.079	.395
High school only	2.25	-.452, -.010	-.231	.113	.040
All grades	2.57	-.122, .294	.086	.106	.417
<i>SAfETy</i>					
Appearance			-.032	.020	.116
Disorder			-.106	.050	.033
Surveillance			-.006	.190	.549

Note: Adjusted margin represents the average score on the climate survey subscale (scores ranging from 0 to 3) for each group, controlling for all other variables in the model.

FRPL = Free/Reduced-Priced Lunch, used as a proxy for community-level poverty.

N = 681 staff in grades 3 to 12, within 40 schools.

Table 4.21 shows associations between predictors and staff perceptions of *academic emphasis* at their school. Overall, most predictors were non-significant, but there was a modest but statistically significant difference by locale, where those working in distant locations ($\gamma = -.188$, $p = .044$) perceived less *academic emphasis* than did staff in rural fringe schools. None of the components of the SAfETy, including *appearance*, *disorder*, or *surveillance*, were significantly associated with staff perceptions of *academic emphasis*.

Table 4.21 Summary of Multi-Variable Multi-Level Linear Regression Model Predicting *Staff Perceptions on the Academic Emphasis Climate Subscale in 2019*

Variables	Adjusted margin	95% CI	Regression results		
			coefficient	SE	<i>p</i>
<i>SCHOOL CHARACTERISTICS</i>					
School poverty					
FRPL <40% (referent)	2.28	2.16, 2.39			
FRPL 40-60%	2.31	2.23, 2.40	.035	.075	.643
FRPL >60%	2.16	2.03, 2.29	-.116	.094	.220
Locale					
Fringe (referent)	2.40	2.27, 2.54			
Remote	2.24	2.15, 2.34	-.160	.084	.056
Distant	2.22	2.11, 2.32	-.188	.094	.044
School level					
Elementary/middle (referent)	2.25	2.17, 2.34			
Middle/high	2.27	2.14, 2.41	.018	.083	.826
High school only	2.17	1.96, 2.38	-.087	.119	.464
All grades	2.42	2.22, 2.62	.164	.112	.145
<i>SAfETy</i>					
Appearance			-.025	.021	.253
Disorder			-.069	.053	.194
Surveillance			-.008	.011	.475

Note: Adjusted margin represents the average score on the climate survey subscale (scores ranging from 0 to 3) for each group, controlling for all other variables in the model.

FRPL = Free/Reduced-Priced Lunch, used as a proxy for community-level poverty.

N = 681 staff in grades 3 to 12, within 40 schools.

Table 4.22 presents associations with *connectedness*. There were significant differences by location, with less favorable perceptions among staff at remote schools versus rural fringe schools ($\gamma = -.188, p = .044$). No elements of the SAfETy were associated with *connectedness*.

Table 4.22 Summary of Multi-Variable Multi-Level Linear Regression Model Predicting *Staff Perceptions on the Connectedness Climate Subscale in 2019*

Variables	Adjusted margin	95% CI	Regression results		
			coefficient	SE	<i>p</i>
<i>SCHOOL CHARACTERISTICS</i>					
School poverty					
FRPL <40% (referent)	2.08	1.98, 2.18			
FRPL 40-60%	2.11	2.04, 2.18	.028	.063	.657
FRPL >60%	2.04	1.93, 2.15	-.039	.080	.629
Locale					
Fringe (referent)	2.17	2.05, 2.29			
Remote	2.08	2.00, 2.16	-.090	.072	.209
Distant	2.06	1.96, 2.15	-.112	.080	.161
School level					
Elementary/middle (referent)	2.08	2.01, 2.15			
Middle/high	2.09	1.98, 2.21	.013	.071	.849
High school only	1.99	1.81, 2.17	-.089	.101	.373
All grades	2.24	2.07, 2.41	.160	.160	.093
<i>SaFEty</i>					
Appearance			.004	.018	.816
Disorder			-.023	.045	.602
Surveillance			-.005	.009	.598

Note: Adjusted margin represents the average score on the climate survey subscale (scores ranging from 0 to 3) for each group, controlling for all other variables in the model.

FRPL = Free/Reduced-Priced Lunch, used as a proxy for community-level poverty.

N = 681 staff in grades 3 to 12, within 40 schools.

As shown in Table 4.23, several variables were associated with staff perceptions of *family involvement*. Staff at schools in rural fringe locations perceived the highest levels of family involvement, relative to which the perceptions of family involvement were significantly lower in distant rural locations ($\gamma = -.161$, $p = .003$) and remote rural locations ($\gamma = -.243$, $p < .001$). Perceptions were also lower among staff at the high school level ($\gamma = -.165$, $p = .029$), relative to elementary/middle schools. Appearance, disorder, and surveillance were not statistically associated with staff perceptions of *family involvement*.

Table 4.23 Summary of Multi-Variable Multi-Level Linear Regression Model Predicting *Staff Perceptions on the Family Involvement Climate Subscale in 2019*

Variables	Adjusted margin	95% CI	Regression results		
			coefficient	SE	<i>p</i>
<i>SCHOOL CHARACTERISTICS</i>					
School poverty					
FRPL <40% (referent)	2.11	2.03, 2.18			
FRPL 40-60%	2.15	2.10, 2.20	.043	.047	.358
FRPL >60%	2.12	2.05, 2.20	.017	.058	.771
Locale					
Fringe (referent)	2.30	2.22, 2.38			
Remote	2.05	2.00, 2.11	-.243	.048	.000
Distant	2.14	2.07, 2.20	-.161	.054	.003
School level					
Elementary/middle (referent)	2.15	2.11, 2.20			
Middle/high	2.07	1.99, 2.15	-.085	.051	.094
High school only	1.99	1.85, 2.39	-.165	.076	.029
All grades	2.27	2.14, 2.39	.114	.071	.106
<i>SAfETy</i>					
Appearance			.012	.013	.354
Disorder			-.017	.032	.590
Surveillance			-.006	.006	.343

Note: Adjusted margin represents the average score on the climate survey subscale (scores ranging from 0 to 3) for each group, controlling for all other variables in the model.

FRPL = Free/Reduced-Priced Lunch, used as a proxy for community-level poverty.

N = 681 staff in grades 3 to 12, within 40 schools.

With regard to the *order and discipline* climate subscale—a key variable hypothesized to be associated with safety-related elements of the school physical environment—there were several statistical associations (see Table 4.24). Relative to schools in rural fringe locations, perceived order and discipline was lower among schools in rural remote locations ($\gamma = -.241$, $p = .002$), and rural distant locations ($\gamma = -.242$, $p < .001$). Order and discipline was also significantly lower at high schools ($\gamma = -.251$, $p = .012$) relative to elementary/middle schools. None of the SAfETy components were associated with staff perceptions of *order and discipline* at their school.

Table 4.24 Summary of Multi-Variable Multi-Level Linear Regression Model Predicting *Staff Perceptions on the Order and Discipline Climate Subscale in 2019*

Variables	Adjusted margin	95% CI	Regression results		
			coefficient	SE	<i>p</i>
<i>SCHOOL CHARACTERISTICS</i>					
School poverty					
FRPL <40% (referent)	1.71	1.61, 1.81			
FRPL 40-60%	1.77	1.70, 1.84	.061	.063	.330
FRPL >60%	1.73	1.62, 1.83	.018	.078	.815
Locale					
Fringe (referent)	1.94	1.82, 2.05			
Remote	1.70	1.62, 1.77	-.241	.069	.000
Distant	1.69	1.60, 1.78	-.242	.077	.002
School level					
Elementary/middle (referent)	1.77	1.71, 1.84			
Middle/high	1.67	1.56, 1.78	-.107	.069	.121
High school only	1.52	1.35, 1.70	-.251	.010	.012
All grades	1.91	1.75, 2.08	.141	.094	.133
<i>SAfETy</i>					
Appearance			-.012	.018	.502
Disorder			-.020	.044	.644
Surveillance			.004	.009	.657

Note: Adjusted margin represents the average score on the climate survey subscale (scores ranging from 0 to 3) for each group, controlling for all other variables in the model.

FRPL = Free/Reduced-Priced Lunch, used as a proxy for community-level poverty.

N = 681 staff in grades 3 to 12, within 40 schools.

Table 4.25 shows associations with staff perceptions of *fairness*, which showed some associations with school level. Relative to elementary/middle schools, perceived fairness was lower among staff at high schools ($\gamma = -.217$, $p = .045$). However, perceived fairness scores were significantly higher among staff at schools serving all K-12 grades ($\gamma = .233$, $p = .021$). *Appearance*, *disorder*, and *surveillance* were not significantly associated with how staff view *fairness* at their schools.

Table 4.25 Summary of Multi-Variable Multi-Level Linear Regression Model Predicting *Staff* Perceptions on the *Fairness* Climate Subscale in 2019

Variables	Adjusted margin	95% CI	Regression results		
			coefficient	SE	<i>p</i>
<i>SCHOOL CHARACTERISTICS</i>					
School poverty					
FRPL <40% (referent)	2.06	1.95, 2.16			
FRPL 40-60%	2.14	2.06, 2.21	.082	.068	.223
FRPL >60%	2.17	2.05, 2.28	.113	.085	.182
Locale					
Fringe (referent)	2.21	2.09, 2.33			
Remote	2.09	2.01, 2.17	-.121	.074	.099
Distant	2.12	2.02, 2.22	-.090	.083	.276
School level					
Elementary/middle (referent)	2.14	2.07, 2.22			
Middle/high	2.03	1.91, 2.15	-.116	.075	.119
High school only	1.93	1.74, 2.12	-.217	.108	.045
All grades	2.38	2.20, 2.56	.233	.101	.021
<i>SAFETY</i>					
Appearance			-.002	.019	.906
Disorder			-.012	.047	.806
Surveillance			-.009	.010	.363

Note: Adjusted margin represents the average score on the climate survey subscale (scores ranging from 0 to 3) for each group, controlling for all other variables in the model.

FRPL = Free/Reduced-Priced Lunch, used as a proxy for community-level poverty.

N = 681 staff in grades 3 to 12, within 40 schools.

As it relates to staff perceptions of *school resources* in Table 4.26, schools that have higher student poverty levels (with 60 percent or more of their students eligible for free or reduced-priced lunch), reported having significantly more resources than lower-poverty schools (with less than percent 40 of their students eligible for free or reduced-price lunches), ($\gamma = .155$, $p = .022$). Staff at schools serving all grade levels reported higher availability of *school resources* where they work ($\gamma = .228$, $p = .005$), relative to elementary/middle schools. With regard to physical environment, at schools with higher scores on *appearance* ($\gamma = .047$, $p = .002$), staff reported more *school resources*. *Disorder* and *surveillance* were not statistically associated with staff perceptions of school resources.

Table 4.26 Summary of Multi-Variable Multi-Level Linear Regression Model Predicting *Staff Perceptions* on the *School Resources Climate Subscale* in 2019

Variables	Adjusted margin	95% CI	Regression results		
			coefficient	SE	<i>p</i>
<i>SCHOOL CHARACTERISTICS</i>					
School poverty					
FRPL <40% (referent)	1.72	1.64, 1.82			
FRPL 40-60%	1.76	1.70, 1.82	.033	.054	.545
FRPL >60%	1.88	1.79, 1.97	.155	.068	.022
Locale					
Fringe (referent)	1.85	1.76, 1.95			
Remote	1.75	1.68, 1.81	-.107	.058	.068
Distant	1.77	1.70, 1.85	-.083	.065	.204
School level					
Elementary/middle (referent)	1.78	1.73, 1.84			
Middle/high	1.70	1.61, 1.80	-.080	.059	.177
High school only	1.65	1.49, 1.80	-.139	.086	.108
All grades	2.01	1.87, 2.16	.228	.081	.005
<i>SAfETy</i>					
Appearance			.047	.015	.002
Disorder			.022	.038	.550
Surveillance			-.011	.008	.149

Note: Adjusted margin represents the average score on the climate survey subscale (scores ranging from 0 to 3) for each group, controlling for all other variables in the model.

FRPL = Free/Reduced-Priced Lunch, used as a proxy for community-level poverty.

N = 681 staff in grades 3 to 12, within 40 schools.

As shown in Table 4.27 no school characteristics were significantly associated with staff perceptions of *physical disorder* in their schools. However, there was a significant and negative association between the SAfETy component of *appearance* and staff perceptions of *physical disorder* ($\gamma = -.056, p < .001$), as was theoretically hypothesized.

Table 4.27 Summary of Multi-Variable Multi-Level Linear Regression Model Predicting *Staff Perceptions on the Physical Disorder Climate Subscale in 2019*

Variables	Adjusted margin	95% CI	Regression results		
			coefficient	SE	<i>p</i>
<i>SCHOOL CHARACTERISTICS</i>					
School poverty					
FRPL <40% (referent)	.922	.841, 1.00			
FRPL 40-60%	.890	.830, .948	-.033	.052	.523
FRPL >60%	.912	.823, 1.00	-.010	.065	.873
Locale					
Fringe (referent)	.862	.766, .958			
Remote	.937	.873, 1.00	.075	.058	.195
Distant	.882	.807, .956	.020	.065	.762
School level					
Elementary/middle (referent)	.900	.845, .956			
Middle/high	.915	.823, 1.01	.015	.057	.796
High school only	.939	.794, 1.08	.038	.082	.640
All grades	.855	.794, 1.08	.045	.077	.563
<i>SAfETy</i>					
Appearance			-.056	.015	.000
Disorder			.035	.036	.333
Surveillance			-.001	.008	.885

Note: Adjusted margin represents the average score on the climate survey subscale (scores ranging from 0 to 3) for each group, controlling for all other variables in the model.

FRPL = Free/Reduced-Priced Lunch, used as a proxy for community-level poverty.

N = 681 staff in grades 3 to 12, within 40 schools.

Lastly for the staff climate analyses, Table 4.28 presents associations with the *safety and violence* subscale. Perceptions did not vary by school demographic characteristics; however, at schools with higher scores on *appearance* ($\gamma = .052$, $p = .028$) staff reported higher perceptions of *safety and violence*.

Table 4.28 Summary of Multi-Variable Multi-Level Linear Regression Model Predicting *Staff Perceptions on the Safety and Violence Climate Subscale in 2019*

Variables	Adjusted margin	95% CI	Regression results		
			coefficient	SE	<i>p</i>
<i>SCHOOL CHARACTERISTICS</i>					
School poverty					
FRPL <40% (referent)	1.97	1.84, 2.10			
FRPL 40-60%	2.02	1.92, 2.12	.053	.082	.524
FRPL >60%	2.07	1.93, 2.21	.104	.104	.317
Locale					
Fringe (referent)	2.12	1.97, 2.27			
Remote	1.95	1.85, 2.05	-.169	.093	.069
Distant	2.05	1.94, 2.17	-.065	.103	.526
School level					
Elementary/middle (referent)	2.04	1.95, 2.12			
Middle/high	1.97	1.83, 2.12	-.061	.092	.502
High school only	1.99	1.76, 2.22	-.041	.131	.753
All grades	2.05	1.84, 2.27	.019	.123	.880
<i>SAfETy</i>					
Appearance			.052	.024	.028
Disorder			-.033	.058	.569
Surveillance			-.005	.012	.702

Note: Adjusted margin represents the average score on the climate survey subscale (scores ranging from 0 to 3) for each group, controlling for all other variables in the model.

FRPL = Free/Reduced-Priced Lunch, used as a proxy for community-level poverty.

N = 681 staff in grades 3 to 12, within 40 schools.

Parent Perceptions

Tables 4.29 through 4.37 each presents the result of a regression model predicting the nine *parent* climate subscale scores. Prior to running these models, exploration of the demographic variables was conducted and it was concluded that the ideal set of covariates to include in the model was school poverty, locale, and school level. This parallels the set of demographic controls in the models for students and for staff. In addition, the parent survey asked about characteristics of each parent respondent, as well as the student for whom they were considering the questions. A set of predictors was selected, including parent gender and education level, and student characteristics

including gender, race/ethnicity, grade in school, and typical academic performance. School demographic variables were entered into the models at level 2, and parent and student variables were entered at level one. In addition, the three key predictor variables, SAfETy components of *appearance*, *disorder*, and *surveillance* were included in the models, at level 2 (the school level). These three predictor variables test the key research question as to whether aspects of the school physical environment are associated with climate perceptions.

As shown in Table 4.29, parent perceptions of *student expectations* did not vary significantly by demographics, except for parents who preferred not to answer when asked about their child's race or ethnicity ($\gamma = -.093$, $p = .021$), which was lower than the referent, those with non-Hispanic white students. None of the SAfETy components were significantly associated with parent perceptions of *student expectations*.

Table 4.29 Summary of Multi-Variable Multi-Level Linear Regression Model Predicting *Parent Perceptions on the Student Expectations Climate Subscale* in 2019

Variables	Adjusted margin	95% CI	Regression results		
			coefficient	SE	<i>p</i>
<i>SCHOOL CHARACTERISTICS</i>					
School poverty					
FRPL <40% (referent)	2.79	2.74, 2.83			
FRPL 40-60%	2.80	2.77, 2.83	.014	.028	.616
FRPL >60%	2.86	2.81, 2.91	.071	.038	.060
Locale					
Fringe (referent)	2.80	2.75, 2.85			
Remote	2.82	2.78, 2.85	.011	.030	.716
Distant	2.80	2.76, 2.85	-.001	.037	.977
School level					
Elementary/middle (referent)	2.81	2.78, 2.85			
Middle/high	2.82	2.77, 2.89	.011	.038	.767
High school only	2.77	2.70, 2.85	-.037	.048	.441
All grades	2.82	2.75, 2.90	.013	.044	.771
<i>THEIR CHILD'S CHARACTERISTICS</i>					
Gender					
Male (referent)	2.81	2.79, 2.84			
Female	2.81	2.77, 2.84	.001	.018	.946
Prefer not to answer	2.69	2.56, 2.82	-.119	.067	.077
Race/ethnicity					
Non-Hispanic white (referent)	2.81	2.79, 2.83			
Student of color	2.87	2.81, 2.93	.057	.031	.067
Prefer not to answer	2.72	2.64, 2.79	-.093	.040	.021
Student academic marks					
Mostly A's (referent)	2.81	2.78, 2.83			
Mostly B's	2.81	2.77, 2.85	.004	.022	.862
Mostly C's	2.84	2.78, 2.90	.036	.032	.255
Mostly D's	2.80	2.68, 2.93	-.000	.062	.996
Mostly F's	2.88	2.67, 3.10	.079	.109	.468
Grade (continuous)					
<i>PARENT CHARACTERISTICS</i>					
Parent gender					
Male	2.79	2.74, 2.84			
Female	2.81	2.79, 2.83	.024	.027	.375
Prefer not to answer	2.77	2.63, 2.92	-.016	.079	.838
Parent education level					
Did not finish high school	2.76	2.61, 2.92			
Finished high school	2.77	2.74, 2.83	.023	.080	.775
Some college	2.80	2.76, 2.83	.033	.078	.669
Finished college	2.81	2.78, 2.84	.049	.078	.534
Advanced degree	2.86	2.81, 2.91	.095	.082	.245
<i>SAFETY</i>					
Appearance			-.012	.009	.176
Disorder			-.041	.021	.051
Surveillance			-.002	.004	.599

Note: Adjusted margin represents the average score on the climate survey subscale (scores ranging from 0 to 3) for each group, controlling for all other variables in the model.

FRPL = Free/Reduced-Priced Lunch, used as a proxy for community-level poverty.

N = 1,611 parents within 39 schools.

In Table 4.30, multiple variables are significantly associated with parent perceptions of *academic emphasis*. Several school characteristics showed differences, including significantly lower parent perceptions of academic emphasis at the highest-poverty schools, relative the lowest-poverty schools ($\gamma = -.235$, $p = .026$). In addition, perceived academic emphasis was lower at high schools, relative to elementary/middle schools ($\gamma = -.261$, $p = .044$).

In terms of student characteristics, there were also associations with parents' perceptions of *academic emphasis*, including among parents who preferred not to answer for their student's gender ($\gamma = -.321$, $p = .005$) and their student's race/ethnicity ($\gamma = -.297$, $p < .001$). A linear trend was noticed for student academic marks, whereby parent perceptions of academic emphasis were significantly lower for students receiving marks less than "mostly As", and the adjusted margins showed that the mean scores on perceived academic emphasis decreased consistently with lower academic marks, from Mostly As to Mostly Fs, respectively, of 2.21, 2.10, 1.91, 1.52, and 1.32.

Parent education level was also significantly associated with parents' perceptions of *academic emphasis* in a positive way, with the more education a parent reported, the more favorable their perceptions.

None of the components of the SAFETY were significantly associated with parents' perceptions of *academic emphasis* at their child's school.

Table 4.30 Summary of Multi-Variable Multi-Level Linear Regression Model Predicting Parent Perceptions on the *Academic Emphasis Climate Subscale* in 2019

Variables	Adjusted margin	95% CI	Regression results		
			coefficient	SE	<i>p</i>
<i>SCHOOL CHARACTERISTICS</i>					
School poverty					
FRPL <40% (referent)	2.20	2.07, 2.32			
FRPL 40-60%	2.17	2.08, 2.27	-.026	.082	.749
FRPL >60%	1.96	1.82, 2.11	-.235	.105	.026
Locale					
Fringe (referent)	2.20	2.05, 2.35			
Remote	2.17	2.08, 2.27	-.027	.091	.767
Distant	2.04	1.92, 2.16	-.161	.103	.117
School level					
Elementary/middle (referent)	2.18	2.08, 2.27			
Middle/high	2.08	1.93, 2.22	-.101	.097	.298
High school only	1.91	1.70, 2.13	-.261	.130	.044
All grades	2.39	2.18, 2.59	.213	.119	.074
<i>THEIR CHILD'S CHARACTERISTICS</i>					
Gender					
Male (referent)	2.16	2.09, 2.23			
Female	2.14	2.07, 2.21	-.019	.030	.517
Prefer not to answer	1.84	1.61, 2.06	-.321	.113	.005
Race/ethnicity					
Non-Hispanic white (referent)	2.15	2.08, 2.21			
Student of color	2.27	2.16, 2.38	.125	.053	.019
Prefer not to answer	1.85	1.71, 1.99	-.297	.067	.000
Student academic marks					
Mostly A's (referent)	2.21	2.14, 2.27			
Mostly B's	2.10	2.02, 2.19	-.104	.037	.005
Mostly C's	1.91	1.80, 2.03	-.295	.054	.000
Mostly D's	1.52	1.31, 1.73	-.684	.105	.000
Mostly F's	1.32	.957, 1.68	-.891	.182	.000
Grade (continuous)					
<i>PARENT CHARACTERISTICS</i>					
Parent gender					
Male	2.15	2.05, 2.25			
Female	2.14	2.08, 2.21	-.004	.046	.921
Prefer not to answer	1.87	1.62, 2.12	-.276	.132	.037
Parent education level					
Did not finish high school	1.74	1.48, 2.00			
Finished high school	2.14	2.05, 2.24	.406	.135	.003
Some college	2.14	2.06, 2.22	.399	.132	.002
Finished college	2.13	2.06, 2.20	.394	.131	.003
Advanced degree	2.20	2.10, 2.30	.458	.137	.001
<i>SAfETy</i>					
Appearance			.005	.024	.824
Disorder			-.015	.059	.802
Surveillance			-.000	.012	.999

Note: Adjusted margin represents the average score on the climate survey subscale (scores ranging from 0 to 3) for each group, controlling for all other variables in the model.

FRPL = Free/Reduced-Priced Lunch, used as a proxy for community-level poverty.

N = 1,611 parents within 39 schools.

Variables associated with parent perceptions of *connectedness* are shown in Table 4.31. One demographic school characteristic, poverty, was associated with connectedness such that parents with children attending higher-poverty schools had significantly lower perceptions of *connectedness* ($\gamma = -.235, p = .029$). As with other climate scales, parents who preferred not to answer when asked about their child's gender or race/ethnicity reported lower *connectedness*.

Again, student academic performance was associated with connectedness, in a linear pattern, where the better a student performed, the more positive parents were about their ties to the school, with means from Mostly As to Mostly Fs declining consistently, from 2.29, 2.08, 1.81, 1.37, to .790.

With regard to the three components of the SAfETy, a significant association emerged: parents felt significantly more positive about feelings of *connectedness* when there was more surveillance ($\gamma = .005, p < .001$)

Table 4.31 Summary of Multi-Variable Multi-Level Linear Regression Model Predicting Parent Perceptions on the *Connectedness Climate Subscale* in 2019

Variables	Adjusted margin	95% CI	Regression results		
			coefficient	SE	<i>p</i>
<i>SCHOOL CHARACTERISTICS</i>					
School poverty					
FRPL <40% (referent)	2.27	2.14, 2.40			
FRPL 40-60%	2.17	2.07, 2.26	-.104	.083	.211
FRPL >60%	2.04	1.89, 2.61	-.235	.108	.029
Locale					
Fringe (referent)	2.25	2.10, 2.41			
Remote	2.18	2.08, 2.28	-.071	.093	.444
Distant	2.10	1.98, 2.22	-.153	.105	.147
School level					
Elementary/middle (referent)	2.19	2.09, 2.29			
Middle/high	2.10	1.95, 2.26	-.089	.101	.374
High school only	2.06	1.84, 2.28	-.130	.133	.330
All grades	2.40	2.19, 2.61	.205	.122	.094
<i>THEIR CHILD'S CHARACTERISTICS</i>					
Gender					
Male (referent)	2.19	2.12, 2.27			
Female	2.18	2.11, 2.26	-.009	.034	.787
Prefer not to answer	1.70	1.45, 1.95	-.492	.128	.000
Race/ethnicity					
Non-Hispanic white (referent)	2.19	2.12, 2.25			
Student of color	2.24	2.12, 2.37	.057	.060	.339
Prefer not to answer	1.89	1.73, 2.04	-.299	.076	.000
Student academic marks					
Mostly A's (referent)	2.29	2.22, 2.36			
Mostly B's	2.08	1.99, 2.17	-.207	.041	.000
Mostly C's	1.81	1.68, 1.93	-.482	.061	.000
Mostly D's	1.37	1.14, 1.61	-.920	.118	.000
Mostly F's	.790	.385, 1.19	-1.50	.206	.000
Grade (continuous)					
<i>PARENT CHARACTERISTICS</i>					
Parent gender					
Male	2.20	2.08, 2.31			
Female	2.18	2.11, 2.42	-.019	.052	.710
Prefer not to answer	2.02	1.74, 2.30	-.176	.150	.240
Parent education level					
Did not finish high school	1.81	1.51, 2.10			
Finished high school	2.11	2.01, 2.21	.303	.152	.047
Some college	2.17	2.09, 2.25	.362	.149	.015
Finished college	2.18	2.11, 2.26	.377	.148	.011
Advanced degree	2.27	2.16, 2.38	.466	.154	.003
<i>SaFeTy</i>					
Appearance			-.009	.060	.479
Disorder			-.043	.012	.698
Surveillance			.005	.278	.000

Note: Adjusted margin represents the average score on the climate survey subscale (scores ranging from 0 to 3) for each group, controlling for all other variables in the model.

FRPL = Free/Reduced-Priced Lunch, used as a proxy for community-level poverty.

N = 1,611 parents within 39 schools.

In Table 4.32, parent perceptions of *family involvement* are considered. Schools serving all grades K-12 had higher parent perceptions of family involvement, relative to elementary/middle schools ($\gamma = .248, p = .030$). With regard to student characteristics, again significantly lower scores were reported by parents who preferred not to answer about their child's gender ($\gamma = -.338, p = .002$), and their child's race or ethnicity ($\gamma = -.177, p = .007$). In addition, lower scores were reported by parents who did not want to report their own gender ($\gamma = -.379, p = .003$).

Again, the linear pattern of associations between student performance and climate perceptions was noted for this variable. With lower average student academic marks, parents perceived consistently lower involvement, ranging from Mostly As to Mostly Fs with means of 2.15, 2.03, 1.87, 1.58, and 1.30. In addition, parents with advanced degrees felt significantly more involved with the school ($\gamma = .275, p = .040$).

No components of the SAfETy were associated with parents' perceptions of *family involvement* at their child's school.

Table 4.32 Summary of Multi-Variable Multi-Level Linear Regression Model Predicting Parent Perceptions on the Family Involvement Climate Subscale in 2019

Variables	Adjusted margin	95% CI	Regression results		
			coefficient	SE	<i>p</i>
SCHOOL CHARACTERISTICS					
School poverty					
FRPL <40% (referent)	2.13	2.01, 2.25			
FRPL 40-60%	2.11	2.02, 2.20	-.021	.078	.791
FRPL >60%	1.95	1.81, 2.09	-.176	.100	.080
Locale					
Fringe (referent)	2.18	2.03, 2.32			
Remote	2.08	1.99, 2.18	-.095	.087	.274
Distant	2.01	1.90, 2.13	-.167	.098	.089
School level					
Elementary/middle (referent)	2.11	2.02, 2.21			
Middle/high	1.98	1.84, 2.13	-.133	.093	.153
High school only	1.91	1.71, 2.12	-.202	.124	.103
All grades	2.36	2.17, 2.56	.248	.114	.030
THEIR CHILD'S CHARACTERISTICS					
Gender					
Male (referent)	2.08	2.02, 2.15			
Female	2.11	2.04, 2.17	.024	.029	.421
Prefer not to answer	1.74	1.53, 1.96	-.338	.111	.002
Race/ethnicity					
Non-Hispanic white (referent)	2.09	2.02, 2.15			
Student of color	2.17	2.07, 2.28	.089	.051	.083
Prefer not to answer	1.91	1.77, 2.04	-.177	.066	.007
Student academic marks					
Mostly A's (referent)	2.15	2.09, 2.22			
Mostly B's	2.03	1.95, 2.11	-.123	.036	.001
Mostly C's	1.87	1.76, 1.98	-.280	.053	.000
Mostly D's	1.58	1.38, 1.79	-.569	.102	.000
Mostly F's	1.30	.955, 1.65	-.847	.178	.000
Grade (continuous)					
PARENT CHARACTERISTICS					
Parent gender					
Male	2.11	2.01, 2.21			
Female	2.09	2.03, 2.15	-.021	.045	.630
Prefer not to answer	1.73	1.49, 1.97	-.379	.129	.003
Parent education level					
Did not finish high school	1.87	1.62, 2.13			
Finished high school	2.08	1.99, 2.17	.208	.131	.113
Some college	2.05	1.98, 2.13	.181	.128	.158
Finished college	2.09	2.02, 2.16	.219	.128	.087
Advanced degree	2.15	2.05, 2.24	.275	.133	.040
SAFETY					
Appearance			.011	.029	.633
Disorder			-.005	.056	.933
Surveillance			-.006	.012	.597

Note: Adjusted margin represents the average score on the climate survey subscale (scores ranging from 0 to 3) for each group, controlling for all other variables in the model.

FRPL = Free/Reduced-Priced Lunch, used as a proxy for community-level poverty.

N = 1,611 parents within 39 schools.

Parent perceptions of *order and discipline* are shown in in Table 4.33 and showed several significant associations with predictor variables. Parents at rural remote schools had less favorable views of order and discipline, relative to parents at fringe rural schools ($\gamma = -.203, p = .041$). In addition, order and discipline was perceived to be lower at high schools relative to elementary/middle schools ($\gamma = -.279, p = .026$). Again, student academic marks were significantly associated with perceptions such that the better a student performed, the higher their parents scored on perceived *order and discipline*.

Similarly, parent education level also was significantly associated with how they feel about how their child's school is managed. Relative to parents who did not finish high school, scores were higher among those who finished college ($\gamma = .266, p = .034$) and those who have advanced degrees ($\gamma = .273, p = .038$).

Table 4.33 Summary of Multi-Variable Multi-Level Linear Regression Model Predicting *Parent Perceptions on the Order and Discipline Climate Subscale* in 2019

Variables	Adjusted margin	95% CI	Regression results		
			coefficient	SE	<i>p</i>
<i>SCHOOL CHARACTERISTICS</i>					
School poverty					
FRPL <40% (referent)	1.92	1.79, 2.04			
FRPL 40-60%	1.95	1.85, 2.04	.028	.080	.726
FRPL >60%	1.75	1.61, 1.89	-.164	.102	.107
Locale					
Fringe (referent)	2.03	1.88, 2.17			
Remote	1.89	1.79, 1.98	-.140	.087	.113
Distant	1.82	1.71, 1.94	-.203	.099	.041
School level					
Elementary/middle (referent)	1.94	1.85, 2.04			
Middle/high	1.83	1.69, 1.98	-.107	.094	.253
High school only	1.66	1.46, 1.87	-.279	.126	.026
All grades	2.14	1.94, 2.33	.194	.115	.093
<i>THEIR CHILD'S CHARACTERISTICS</i>					
Gender					
Male (referent)	1.91	1.84, 1.98			
Female	1.90	1.83, 1.97	-.009	.028	.756
Prefer not to answer	1.73	1.52, 1.95	-.178	.108	.100
Race/ethnicity					
Non-Hispanic white (referent)	1.91	1.85, 1.97			
Student of color	1.95	1.84, 2.06	.041	.049	.402
Prefer not to answer	1.69	1.56, 1.82	-.218	.063	.001
Student academic marks					
Mostly A's (referent)	1.94	1.88, 2.01			
Mostly B's	1.90	1.82, 1.98	-.044	.034	.198
Mostly C's	1.72	1.62, 1.83	-.216	.051	.000
Mostly D's	1.50	1.30, 1.69	-.443	.098	.000
Mostly F's	1.46	1.11, 1.82	-.480	.180	.000
Grade (continuous)					
<i>PARENT CHARACTERISTICS</i>					
Parent gender					
Male	1.98	1.88, 2.07			
Female	1.90	1.84, 1.96	-.076	.043	.079
Prefer not to answer	1.58	1.34, 1.81	-.398	.125	.001
Parent education level					
Did not finish high school	1.66	1.41, 1.91			
Finished high school	1.87	1.78, 1.96	.207	.129	.108
Some college	1.87	1.80, 1.95	.212	.126	.093
Finished college	1.93	1.86, 2.00	.266	.126	.034
Advanced degree	1.93	1.84, 2.03	.273	.131	.038
<i>SAFETY</i>					
Appearance			.016	.023	.484
Disorder			.040	.057	.482
Surveillance			-.007	.012	.578

Note: Adjusted margin represents the average score on the climate survey subscale (scores ranging from 0 to 3) for each group, controlling for all other variables in the model.

FRPL = Free/Reduced-Priced Lunch, used as a proxy for community-level poverty.

N = 1,611 parents within 39 schools.

In Table 4.34, associations with the climate subscale of *fairness* are presented, including poverty, given that parents who have students who attend the lowest poverty schools ($\gamma = -.240, p = .016$) had the least favorable responses to fairness. Schools that serve students at all grade levels ($\gamma = .263, p = .021$) had parents with more positive responses to *fairness*.

Parents who preferred not to answer ($\gamma = -.322, p < .001$) about their child's race or ethnicity had the lowest responses to perceptions of *fairness* at their child's school. These findings also indicate that student academic marks were significantly associated with perceptions such that the better a student performed, the more favorable their parents scored on the variable of fairness.

Finally, as with race or ethnicity, parents who preferred not to answer ($\gamma = -.558, p < .001$) scored the lowest on perceptions of *fairness*. No variables of the SAfETy, including appearance, disorder, and surveillance, were associated with perceptions of *fairness* among parents.

Table 4.34 Summary of Multi-Variable Multi-Level Linear Regression Model Predicting Parent Perceptions on the *Fairness Climate Subscale* in 2019

Variables	Adjusted margin	95% CI	Regression results		
			coefficient	SE	<i>p</i>
SCHOOL CHARACTERISTICS					
School poverty					
FRPL <40% (referent)	2.17	2.05, 2.29			
FRPL 40-60%	2.16	2.07, 2.25	-.011	.078	.891
FRPL >60%	1.93	1.79, 2.07	-.240	.100	.016
Locale					
Fringe (referent)	2.20	2.05, 2.34			
Remote	2.12	2.03, 2.22	-.074	.087	.391
Distant	2.05	1.93, 2.16	-.152	.098	.121
School level					
Elementary/middle (referent)	2.13	2.04, 2.22			
Middle/high	2.07	1.93, 2.21	-.058	.093	.531
High school only	1.94	1.74, 2.14	-.190	.124	.124
All grades	2.39	2.20, 2.59	.263	.113	.021
THEIR CHILD'S CHARACTERISTICS					
Gender					
Male (referent)	2.12	2.05, 2.18			
Female	2.13	2.06, 2.20	.011	.030	.705
Prefer not to answer	1.92	1.69, 2.15	.196	.116	.091
Race/ethnicity					
Non-Hispanic white (referent)	2.14	2.08, 2.21			
Student of color	2.05	1.94, 2.16	-.097	.053	.067
Prefer not to answer	1.82	1.68, 1.96	-.322	.068	.000
Student academic marks					
Mostly A's (referent)	2.17	2.11, 2.24			
Mostly B's	2.08	2.00, 2.16	-.094	.037	.011
Mostly C's	1.96	1.85, 2.08	-.208	.054	.000
Mostly D's	1.60	1.39, 1.81	-.575	.105	.000
Mostly F's	1.44	1.06, 1.82	-.729	.193	.000
Grade (continuous)					
PARENT CHARACTERISTICS					
Parent gender					
Male	2.16	2.06, 2.26			
Female	2.13	2.06, 2.19	-.038	.046	.407
Prefer not to answer	1.61	1.35, 1.86	-.558	.134	.000
Parent education level					
Did not finish high school	1.88	1.61, 2.14			
Finished high school	2.08	1.98, 2.17	.202	.138	.145
Some college	2.09	2.02, 2.17	.218	.135	.106
Finished college	2.14	2.07, 2.21	.264	.135	.050
Advanced degree	2.16	2.07, 2.26	.288	.141	.040
SAFETY					
Appearance			.004	.023	.871
Disorder			-.001	.056	.985
Surveillance			-.002	.012	.836

Note: Adjusted margin represents the average score on the climate survey subscale (scores ranging from 0 to 3) for each group, controlling for all other variables in the model.

FRPL = Free/Reduced-Priced Lunch, used as a proxy for community-level poverty.

N = 1,611 parents within 39 schools.

Table 4.35 shows associations with *school resources*. Perceptions varied by school characteristics, similar to other climate subscales. Differences were evident by locale and school level, with lower perceptions of resources among parents at schools in distant rural locations, relative to fringe rural locations ($\gamma = -.209$, $p = .017$), and more favorable perceptions of *school resources* among parents at K-12 schools relative to elementary/middle schools ($\gamma = .217$, $p = .032$).

Again, a linear trend was noted for student academic marks, with steadily declining perceptions of resources across marks from Mostly A to Mostly Fs, of 1.77, 1.69, 1.54, 1.35, and 0.98. Perceptions of school resources were lower among parents who identified as female ($\gamma = -.129$, $p = .005$) or who preferred not to disclose their gender ($\gamma = -.370$, $p = .004$), relative to male parents.

One component of the SAfETy was significantly associated with *school resources*, such that schools with higher score on appearance had higher parental perceptions of resources ($\gamma = .055$, $p = .006$).

Table 4.35 Summary of Multi-Variable Multi-Level Linear Regression Model Predicting Parent Perceptions on the *School Resources Climate Subscale* in 2019

Variables	Adjusted margin	95% CI	Regression results		
			coefficient	SE	<i>p</i>
<i>SCHOOL CHARACTERISTICS</i>					
School poverty					
FRPL <40% (referent)	1.76	1.66, 1.87			
FRPL 40-60%	1.73	1.65, 1.81	-.032	.069	.644
FRPL >60%	1.63	1.51, 1.75	-.136	.089	.129
Locale					
Fringe (referent)	1.81	1.68, 1.94			
Remote	1.75	1.67, 1.83	-.061	.077	.429
Distant	1.60	1.50, 1.71	-.209	.087	.017
School level					
Elementary/middle (referent)	1.70	1.62, 1.78			
Middle/high	1.72	1.59, 1.84	.014	.084	.866
High school only	1.68	1.50, 1.86	-.023	.111	.835
All grades	1.92	1.74, 2.09	.217	.101	.032
<i>THEIR CHILD'S CHARACTERISTICS</i>					
Gender					
Male (referent)	1.73	1.67, 1.79			
Female	1.73	1.67, 1.79	.006	.029	.831
Prefer not to answer	1.50	1.28, 1.72	-.228	.113	.044
Race/ethnicity					
Non-Hispanic white (referent)	1.73	1.68, 1.79			
Student of color	1.69	1.59, 1.80	-.040	.052	.438
Prefer not to answer	1.62	1.48, 1.75	-.115	.066	.083
Student academic marks					
Mostly A's (referent)	1.77	1.72, 1.83			
Mostly B's	1.69	1.62, 1.77	-.082	.036	.022
Mostly C's	1.54	1.44, 1.65	-.229	.053	.000
Mostly D's	1.35	1.14, 1.55	-.428	.102	.000
Mostly F's	.984	.615, 1.35	-.790	.188	.000
Grade (continuous)					
<i>PARENT CHARACTERISTICS</i>					
Parent gender					
Male	1.84	1.75, 1.94			
Female	1.71	1.66, 1.77	-.129	.045	.005
Prefer not to answer	1.47	1.23, 1.71	-.370	.130	.004
Parent education level					
Did not finish high school	1.85	1.58, 2.11			
Finished high school	1.78	1.69, 1.87	-.072	.138	.604
Some college	1.73	1.66, 1.80	-.119	.135	.377
Finished college	1.70	1.64, 1.77	-.146	.135	.279
Advanced degree	1.70	1.60, 1.79	-.152	.140	.277
<i>SAFETY</i>					
Appearance			.055	.020	.006
Disorder			.061	.050	.225
Surveillance			1.79	.010	.751

Note: Adjusted margin represents the average score on the climate survey subscale (scores ranging from 0 to 3) for each group, controlling for all other variables in the model.

FRPL = Free/Reduced-Priced Lunch, used as a proxy for community-level poverty.

N = 1,611 parents within 39 schools.

Table 4.36 presents results for *physical disorder*, the only climate subscale where lower scores are actually more-preferable outcomes. Perceptions of disorder were higher at moderate-poverty schools (i.e., those where 40-60 percent of their students are eligible for free or reduced priced lunches), relative to the lowest-poverty schools ($\gamma = .169$, $p = .013$). Perceptions of *physical disorder* were also significantly higher among parents of students attending high schools, relative to elementary/middle schools ($\gamma = .279$, $p = .009$). Where the prior climate subscales showed a relatively consistent and linear pattern across student marks, for this variable there was not such an association, with only one contrast being significant.

One element of the SAfETy was associated with perceived *physical disorder*, in the hypothesized direction. Higher scores for appearance were associated with lower perceptions of *physical disorder* ($\gamma = -.089$, $p < .001$),

Table 4.36 Summary of Multi-Variable Multi-Level Linear Regression Model Predicting Parent Perceptions on the *Physical Disorder Climate Subscale* in 2019

Variables	Adjusted margin	95% CI	Regression results		
			coefficient	SE	<i>p</i>
<i>SCHOOL CHARACTERISTICS</i>					
School poverty					
FRPL <40% (referent)	.628	.523, .733			
FRPL 40-60%	.797	.719, .876	.169	.068	.013
FRPL >60%	.755	.635, .875	.127	.087	.145
Locale					
Fringe (referent)	.664	.538, .789			
Remote	.788	.707, .868	.124	.076	.102
Distant	.722	.623, .822	.059	.085	.490
School level					
Elementary/middle (referent)	.687	.608, .767			
Middle/high	.794	.670, .918	.107	.080	.182
High school only	.966	.789, 1.14	.279	.107	.009
All grades	.612	.442, .782	-.075	.099	.445
<i>THEIR CHILD'S CHARACTERISTICS</i>					
Gender					
Male (referent)	.745	.688, .803			
Female	.727	.668, .785	-.019	.024	.442
Prefer not to answer	.854	.670, 1.04	.108	.093	.244
Race/ethnicity					
Non-Hispanic white (referent)	.740	.686, .793			
Student of color	.712	.620, .804	-.028	.042	.512
Prefer not to answer	.793	.679, .907	.053	.055	.328
Student academic marks					
Mostly A's (referent)	.728	.672, .783			
Mostly B's	.731	.663, .800	.003	.030	.907
Mostly C's	.828	.736, .921	.100	.049	.022
Mostly D's	.811	.643, .979	.083	.084	.323
Mostly F's	.879	.574, 1.18	.151	.155	.328
Grade (continuous)					
<i>PARENT CHARACTERISTICS</i>					
Parent gender					
Male	.759	.674, .843			
Female	.736	.683, .789	-.022	.039	.551
Prefer not to answer	.804	.602, 1.01	.046	.107	.671
Parent education level					
Did not finish high school	.858	.639, 1.08			
Finished high school	.696	.618, .774	-.162	.113	.153
Some college	.764	.700, .827	-.095	.111	.393
Finished college	.731	.672, .790	-.127	.111	.251
Advanced degree	.754	.673, .836	-.104	.115	.368
<i>SAFETY</i>					
Appearance			-.089	.020	.000
Disorder			.018	.489	.704
Surveillance			-.010	.010	.322

Note: Adjusted margin represents the average score on the climate survey subscale (scores ranging from 0 to 3) for each group, controlling for all other variables in the model.

FRPL = Free/Reduced-Priced Lunch, used as a proxy for community-level poverty.

Some items were reverse-scored before creating scaled score.

N = 1,611 parents within 39 schools.

Lastly, Table 4.37, presents results of the model exploring parents' perceptions of *safety and violence* at their child's school. Higher scores are a preferential outcome, reflecting higher perceptions of student safety. Results were fairly consistent with the patterns noted for other climate subscales. Perceived *safety and violence* was significantly lower at the highest-poverty schools, relative to the lowest-poverty schools ($\gamma = -.242$, $p = .016$). In addition, demographic patterns emerged, with lower perceptions among parents who preferred not to report their child's race or ethnicity ($\gamma = -.243$, $p = .001$), or their own gender ($\gamma = -.437$, $p = .002$). The previously-noted pattern of linear decline in climate perceptions by student marks was noted again, and in addition, there was an association with parent education, such that perceived student safety was higher among parents who finished college ($\gamma = .310$, $p = .030$) or held an advanced degree ($\gamma = .328$, $p = .027$), relative to those with less education.

Significant differences did not emerge for components of the SAfETy tool with parent perceptions of *safety and violence*.

Table 4.37 Summary of Multi-Variable Multi-Level Linear Regression Model Predicting Parent Perceptions on the *Safety and Violence Climate Subscale* in 2019

Variables	Adjusted margin	95% CI	Regression results		
			coefficient	SE	<i>p</i>
<i>SCHOOL CHARACTERISTICS</i>					
School poverty					
FRPL <40% (referent)	2.06	1.94, 2.18			
FRPL 40-60%	2.01	1.92, 2.10	-.053	.078	.501
FRPL >60%	1.82	1.68, 1.96	-.242	.101	.016
Locale					
Fringe (referent)	2.07	1.92, 2.21			
Remote	1.98	1.89, 2.08	-.084	.087	.332
Distant	1.92	1.81, 2.04	-.145	.099	.143
School level					
Elementary/middle (referent)	2.02	1.92, 2.11			
Middle/high	1.88	1.73, 2.02	-.138	.094	.141
High school only	1.86	1.65, 2.06	-.158	.125	.204
All grades	2.20	2.00, 2.40	.182	.114	.112
<i>THEIR CHILD'S CHARACTERISTICS</i>					
Gender					
Male (referent)	2.00	1.93, 2.07			
Female	1.98	1.91, 2.04	-.023	.031	.455
Prefer not to answer	1.88	1.64, 2.11	-.122	.119	.306
Race/ethnicity					
Non-Hispanic white (referent)	2.00	1.94, 2.06			
Student of color	2.01	1.90, 2.13	.017	.055	.757
Prefer not to answer	1.75	1.61, 1.90	-.243	.071	.001
Student academic marks					
Mostly A's (referent)	2.03	1.96, 2.09			
Mostly B's	1.97	1.89, 2.06	-.051	.038	.184
Mostly C's	1.83	1.72, 1.95	-.194	.056	.001
Mostly D's	1.56	1.35, 1.78	-.465	.108	.000
Mostly F's	1.53	1.14, 1.92	-.497	.199	.012
Grade (continuous)					
<i>PARENT CHARACTERISTICS</i>					
Parent gender					
Male	2.05	1.95, 2.15			
Female	1.99	1.92, 2.05	-.063	.049	.193
Prefer not to answer	1.61	1.35, 1.87	-.437	.138	.002
Parent education level					
Did not finish high school	1.71	1.43, 1.99			
Finished high school	1.90	1.81, 2.00	.190	.146	.193
Some college	1.96	1.88, 2.03	.246	.143	.084
Finished college	2.02	1.95, 2.09	.310	.143	.030
Advanced degree	2.04	1.94, 2.14	.328	.148	.027
<i>SAFETY</i>					
Appearance			.031	.023	.177
Disorder			-.011	.056	.850
Surveillance			.002	.012	.872

Note: Adjusted margin represents the average score on the climate survey subscale (scores ranging from 0 to 3) for each group, controlling for all other variables in the model.

FRPL = Free/Reduced-Priced Lunch, used as a proxy for community-level poverty.

N = 1,611 parents within 39 schools.

CHAPTER FIVE: SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

This chapter summarizes the research study. Included within this chapter is a summary of the research project, an analysis of the research findings, a discussion that explores the research findings, as well as conclusions, implications, and recommendations for future research.

Summary

The purpose of this study was to examine the relationship between a school's physical environment and key stakeholders' perceptions of school climate. The research questions are:

R₁ What are the characteristics of the physical environment in a sample of rural schools?

R₂ How are the characteristics of the physical environment in rural schools similar or different to what other research has documented about urban or suburban schools, using the same measurement approach, the SAfETy tool?

R₃ How are aspects of the physical environment at rural schools related to perceptions of school climate among school staff, students, and their parents?

A series of descriptive univariate statistics, tests of bivariate associations, and then regression analyses, will be used to address the research questions.

Analysis of Research Findings

After a thorough review of the results of the data collected for this study, three major findings were identified: (1) The physical environment of rural schools, especially

as it relates to appearance, has room for improvement; (2) the physical environment of both rural and non-rural schools share many similarities and few differences; and (3) several important associations between to the physical environment and school climate exist, particularly among students; however, several interesting patterns emerge among staff and parents.

Discussion of Research Findings

The findings of this study suggest that rural schools in Idaho do an effective job at preventing many of the issues related to disorder. Drug use, property damage (e.g., graffiti, broken windows, railings, etc.), and the presence of trash, both inside and outside of the school, were only observed at minimal levels in schools and do not appear to be prevalent characteristics of the physical environment of rural schools.

As for surveillance, while I cannot compare the presence of or number of surveillance cameras to other rural schools, given the novelty of this work in this area for the first time, it is clear that school resource officers are present and that cameras are visible, both indoor and outdoor, in rural schools. These findings would suggest that surveillance cameras and security officers are prominent fixtures of a school's physical environment, even in rural settings.

The results related to appearance indicate that schools can do more to improve items related to landscaping, illumination, visibility, ownership, and physical layout. Overall, schools in this study lacked high-frequency scores in any of these areas, pointing to a need for rural schools to evaluate these variables and address them to enhance the physical environment of their schools.

Comparison of Rural and Non-Rural Schools

The second research question of this study states: How are the characteristics of the physical environment in rural schools similar or different to what other research has documented about urban or suburban schools, using the same measurement approach, the SAFETY tool?

The major findings in this study related to the comparisons of the physical environment of rural schools using the SAFETY tool were: (1) rural and non-rural schools, and the make-up of their physical environments, appear similar, (2) rural secondary schools have the largest presence of the indicators of surveillance and non-rural high schools experience the highest frequencies of disorder, as determined by the SAFETY tool, and (3) although a comparison to non-rural elementary schools is not available, rural elementary schools score similar to secondary schools in all three factors of the SAFETY.

These findings are consistent with my experience working as a teacher and an administrator at both suburban and rural schools at every level. For example, while working at a suburban high school, I dealt with more issues related to drug use, cigarettes, graffiti, and property damage among students than I have while working in rural middle and elementary schools combined. I presently work at a rural elementary school that places a high priority on overall school safety. As a result, we have increased the number of security cameras around my school and have enhanced security measures related to access to the building within the last 12 months.

Overall, rural and non-rural schools share many of the same characteristics related to the physical environment of their schools, suggesting that schools, no matter their

location or access to resources, interact with the indicators of appearance, disorder, and surveillance in similar ways.

A School's Physical Environment and Its Association to School Climate

The final research question of this study states: How are aspects of the physical environment at rural schools related to perceptions of school climate among school staff, students, and their parents?

Staff

There were very few aspects of the physical environment at rural schools that were significantly associated with staff perceptions of school climate. However, when there was a higher score for appearance, staff had significantly more positive views of school resources and variables related to safety and violence at their school. In addition, the greater the presence of disorder, staff viewed student expectations less favorably.

A school that is maintained and well cared for help staff to feel as though they have the resources they need to succeed and are more likely to be safe at school. Conversely, a high frequency of disorder creates feelings of doubt and a lack of confidence in student expectations among staff.

Given these results, it is clear that aspects of the physical environment have a limited association with how staff perceive the school climate where they work.

Students

In six out of the nine subscales related to school climate (safety and violence, school resources, fairness, order and discipline, connectedness, academic emphasis, and student expectations), the higher the frequency of surveillance, the greater the association with negative perceptions of school climate among students. Among this stakeholder

group, only one subscale, family involvement, showed a positive association with surveillance.

The presence of security cameras and school resource officers may help to keep students safe while at school, but they do not contribute to a positive, healthy school climate among students in rural schools, especially as it relates to feelings of fairness, high expectations for students, and feelings of connectedness.

Security cameras, school resource officers, and signs of ownership both inside and outside school buildings are invaluable resources to school administrators and school office staff, as it assists them in monitoring school activities and keeping schools safe, but, consistent with research cited in chapter two, Sarah Lindstrom Johnson and her colleagues (2018) note "...research suggests students and faculty see physical characteristics, in particular school security officers and cameras, as important contributors to a safe school." However, in their study of urban schools, those two strategies did not significantly impact students' perceptions of risk or fear of crime (Johnson et al., 2018, p. 733). Perhaps more can be done by school staff to create more positive associations between items related to surveillance and school climate.

With that in mind, Mary Mitchell and her colleagues (2010) posit that schools that focus on improving relationships among stakeholders can perhaps help to counter any negative effects of a school building's appearance on climate perceptions.

Parents

Unlike their children--who reported negative associations between surveillance and feelings of connectedness--the higher the frequency of surveillance at school created

stronger feelings of connectedness among parents. The more their children were monitored at school, the more parents felt adults at the school cared about their child.

Very few aspects of the physical environment at rural schools significantly related to perceptions of school climate for parents, suggesting that, overall, most parents have very limited interaction with the physical environment of their child's school.

One notable difference between elementary and secondary school perceptions of school climate for parents were related to the academic performance of their child. For example, the more poorly a student performed academically in school, the more negatively parents perceived the climate at their child's school. And, as letter grades are not typically awarded at the elementary level, parents were more positive about perceptions related to their child's experiences in the lower grades. These findings are consistent with my experience as a high school English teacher for 10 years and as an elementary school principal for the past three years, both in rural communities. I frequently see a need for more parent volunteers, higher attendance at parent-teacher conferences and school family nights, more communication between parents and teachers, and better overall student attendance (significantly controlled and influenced by parents) at my school.

This study and others (Bradshaw et al., 2009; Bottiani et al., 2019) have shown that both the physical and social characteristics of the school environment significantly impact the way students and school staff perceive the climate of their school.

Conclusion

The purpose of this study was to examine the associations between the school environment and school climate in rural schools. Using the SAfETy tool, this study has

identified characteristics of the physical environment of rural schools, compared them to those found in urban and suburban schools and has also explained how components of the physical environment are related to perceptions of school climate among staff, students and parents.

The physical environment of rural schools in this study were found to have low frequencies related to disorder, moderate scores related to appearance, and were found to have interior and exterior surveillance cameras in place and school resource officers on site. These environments were also found to be very similar to those assessed, using the SAfETy tool, in some urban and suburban schools, with some small variations. And, when examining the association between the SAfETy and MDS3 climate scales, students' perceptions of school climate were associated with several aspects of the school's physical environment.

The findings in this study are new, informative, and set the stage for further work in schools located in remote communities. No research currently exists in rural schools using the SAfETy tool, and no study has examined the associations between the SAfETy and MDS3 in rural schools. These findings will serve as a baseline and a reference-point, for future research in this area. The findings of this study can also inform schools, both rural and non-rural, who are striving to improve aspects of their physical environment and school climate as it provides some new and informative results.

This research study concludes that a variety of important, urgent, and malleable associations exist between a rural school's physical environment and perceptions of school climate among students, staff, and parents. This research, and future research that

builds upon this work, will assist schools as they strive to transform, strengthen, and sustain positive school environments for all stakeholders.

Recommendations

While this study assessed 40 rural schools, including data from more than 6,000 students, nearly 700 school staff, and more than 1,600 parents, there were some limitations. In Idaho, there are more than 230 schools that are defined as rural, so my sample was only a portion of the rural schools in this state. Likewise, this study focused on rural schools in just one state – Idaho – but, could certainly be expanded in future research pursuits.

Much of the data collected for this study using the SAfETy tool was some of the only known data related to the physical environment of rural schools. While it is exciting to contribute some of the first data related to this area of research in rural schools and its associations with school climate, there is very little to compare the data to as it relates to these important components of rural schools.

My hope is that this research proves to be helpful for leaders of rural schools, state legislators and lawmakers who consider funding and policy for rural schools, and future researchers who will build upon this research to expand what we know about a school's physical environment and its associations with school climate.

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