

# Systems View of School Climate: a Theoretical Framework for Research

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**Abstract** School climate has been widely examined through both empirical and theoretical means. However, there is little conceptual consensus underlying the landscape of this literature, offering inconsistent guidance for research examining this important construct. In order to best assist the efforts of developing causal models that describe how school climate functions, we propose the Systems View of School Climate (SVSC). This theoretical framework was formed by deconstructing prior models and empirical research on school climate into themes and highlighting their implicit assumptions. Using the SVSC to synthesize this existing literature, school climate is defined as the affective and cognitive perceptions regarding social interactions, relationships, values, and beliefs held by students, teachers, administrators, and staff within a school. School climate is situated within Ecological Systems Theory (Bronfenbrenner 1989) to guide future research in this domain and help specify levels of research or analysis, thereby providing utility as a theoretical framework for future causal models. The SVSC provides a roadmap for research by demarcating school climate from related constructs, suggesting related contextual and structural constructs, and delineating proximal and distal systems which may shape the nature of school climate.

**Keywords** School climate · Theoretical framework · Ecological Systems Theory

School climate has caught the attention of the US Department of Education as a construct of critical importance (U.S. Department of Education 2014). The government has put forth guidelines on the need to foster school climates that are positive, respectful, and safe. These recommendations are drawn from a substantial research base on school climate (e.g.,

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Mitchell et al. 2009; Gottfredson et al. 2005). School climate is described through theoretical constructs, operational definitions, and taxonomies, and used as a predictor or outcome variable in a vast number of empirical studies. However, a closer examination of this literature reveals some conceptual and theoretical confusion. Notably, there is still a need for a clear, comprehensive, and overarching framework for the study of school climate in order to guide future empirical research. Upon examination, conceptual conflicts are apparent, such that definitions and taxonomies within the same study appear at odds. For example, school climate is described as a complex construct (Anderson 1982) yet is often measured as a unidimensional factor (e.g., Fedewa and Ahn 2011). In addition, there are a lack of consistent conceptual or empirical approaches to school climate. This definitional confusion prevents coherent understanding of school climate, with shifting boundaries of what comprises this construct and little agreement guiding measurement or models. Moreover, there is little extant guidance on the factors that may potentially relate to school climate. Added to the mix is the fact that similar constructs are often confounded with school climate, such as school belongingness and connectedness, school culture, classroom climate, attachment to school, and teacher support (Cohen et al. 2009; Goddard et al. 2000; Hoy and Hannum 1997; Kuperminc et al. 1997; Libbey 2004; Niehaus et al. 2012; Spellings, M. US Department of Education 2008).

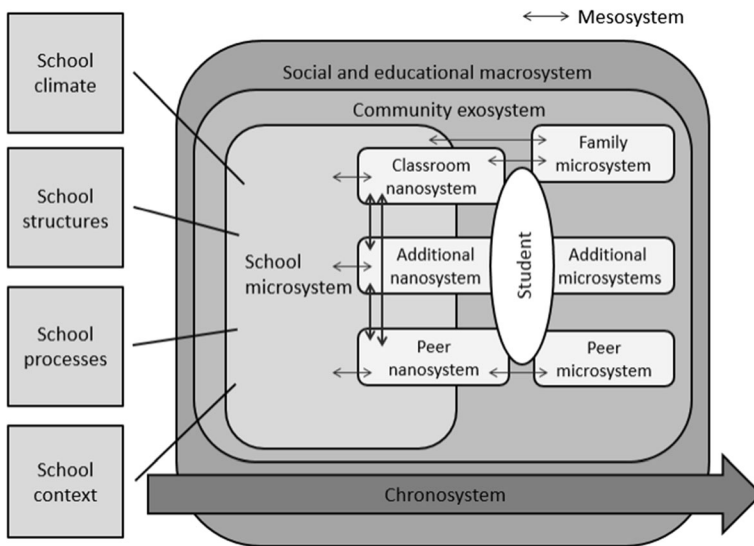
Causal models, definitions, and taxonomies of school climate abound (e.g., Anderson 1982; Hoy 1990; Haynes et al. 1993; Cohen et al. 2009; Steffgen et al. 2013; Thapa et al. 2013). Because empirical research, particularly measurement and conceptualizations of analyses, employs these causal models and definitions as a base, this abundance of conceptual approaches has resulted in empirical findings that are at times contradictory. Complex literatures can benefit from organizational structure provided by theoretical frameworks. Therefore, we propose a theoretical framework for school climate: *Systems View of School Climate* (SVSC). The purpose of this theoretical framework is to guide future research and provide a broadly applicable framework for school climate research. Toward this end, we situate the SVSC within a systems-based theoretical framework, drawing from *Ecological Systems Theory* (EST; Bronfenbrenner 1989, 1992). This comprehensive framework places individuals or students at the center of a series of nested and interactive contexts that work synergistically to support or detract from students' experiences in school.

We draw from both EST and themes in prior research on school climate to organize and structure existing models and definitions of school climate (Table 1). Figure 1 depicts the SVSC. Characteristics of developing students as they engage in the academic and social aspects of their immediate contexts (*microsystems*) exist within broader systems in the SVSC model. *Nanosystems* comprise a new component that is an adaptation of traditional EST developed for the current theoretical framework and provide guidance for examining interactions between subsystems within individual schools. That is, nanosystems are nested groups within microsystems and are unique to schools. Some examples of nanosystems are peer groups, sports teams, and academic tracks. We extend the role of interactions between microsystems from traditional EST (*mesosystem*) to include interactions between contexts in multiple systems, enabling a richer understanding of the processes by which school climate may operate. Finally, we also describe broader factors that may assist in identifying influences on school climate (*exosystems*, *macrosystems*, and *chronosystems*). This articulation of nested structures surrounding school climate serves to guide the formulation of causal models and to identify *ecological niches* or the unique contexts that best serve particular students.

Our primary goal is the development of a theoretical framework for school climate that better reflects the patterns of perceptions that work in concert to form school climate.

**Table 1** Themes in school climate models

Model	Physical environment	Teaching and instruction	Safety and discipline	Leadership	Relationships	Shared beliefs
Anderson (1982) <i>Literature synthesis</i>	Physical and material variables in the school		Patterns and rules of interacting	Patterns and rules of operating	Social system through patterns and rules of interacting	Norms; belief systems; values; meanings of persons
Hoy (1990); Hoy and Hannum (1997) <i>Organizational effectiveness tradition</i>				Collegial leadership; resource support; principal influence	Family and community; institutional integrity; teacher affiliation	Academic emphasis
Haynes et al. (1993) <i>School effectiveness tradition</i>	Shared resources; school building appearance		Order and discipline	Collaborative decision-making; principal caring and sensitivity	Parent involvement; parent, community, school relationships; student interpersonal and student-teacher relationships	Fairness; achievement motivation and focus; dedication to student learning; staff focus
Creemers and Reezigt (1999) <i>School effectiveness tradition</i>	School building appearance and maintenance	Expectations for teacher behavior and student outcomes	Orderly environment		Social interactions	
Cohen et al. (2009) <i>Literature synthesis</i>		Data-driven decision making; professional development	Physical safety; socio-emotional safety	Vision, accessibility, and support	School and community collaboration; respect for diversity	Morale and connectedness
Thapa et al. (2013) <i>Literature synthesis</i>	Physical layout and surroundings; resources and supplies	Norms, goals, and values for teaching and learning; social, emotional, civic, ethical education	Safety; rules and norms		Student interpersonal relationships and student-teacher relationships	Connectedness and engagement



**Fig. 1** Systems view of school climate

As such, the framework is intended to inform the conceptualization of subsequent causal models by demarcating school climate from related constructs and to suggest related contextual and structural constructs that may shape the nature of school climate. We first describe EST as the source of our overarching framework for school climate and briefly describe the SVSC. Next, we propose a definition of school climate by synthesizing themes and prior definitions and briefly contrast it with related constructs, including school context, school structure, school processes, and school culture. In detailing the tenets of our framework, we describe how it can be used to guide the development of causal models. Accordingly, we demonstrate the utility of the SVSC by examining two representative causal models of school climate within our framework. We also provide evidence of research utility by explaining how existing measurement tools used in the school climate literature may be improved through the use of the SVSC.

## Ecological Systems Theory

Ecological Systems Theory (EST; Bronfenbrenner 1989) is a core element of our proposed framework. EST describes human development as a joint function of the person in context and emphasizes the interactive, reciprocal effects of the characteristics of the individual and the multiple contexts in which development occurs (Bronfenbrenner 1992), rather than treating contexts as variables that predict development. The environmental contexts around the individual are nested and interactive. Systems range from proximal to distal, starting with the direct influences of the microsystem, then moving to interactions in the mesosystem, indirect influences of the exosystem, social and cultural norms of the macrosystem, and finally maturation and other time-based events in the chronosystem. Table 2 provides descriptions of each system in EST. Individual characteristics remain salient in EST, whereby they shape interactions between the person and other individuals and opportunities present in the

**Table 2** Terminology from Ecological Systems Theory

Term	Description
Microsystem	Contexts directly experienced by the student, such as family or school
Mesosystem	Interactions between microsystems
Nanosystem	Proposed system within the microsystem, consisting of structures such as classrooms in schools
Exosystem	Contexts that are experienced indirectly by the student, such as parents' workplaces
Macrosystem	Beliefs, policies, and normative influences of the community and culture
Chronosystem	Time, including biological maturation, life events, and the era in which a student lives
Ecological niche	Contexts that best fit the unique needs of the individual

environment (Bronfenbrenner 1989). Individuals have selective, active orientations toward their environments that emerge through development and become more complex over time.

Microsystems are contexts that are experienced directly by a student, such as the family or school. The microsystem provides, prohibits, encourages, or restricts opportunities for intellectual and social development through progressively more complex interactions in the environment (Bronfenbrenner 1989). Related to microsystems are mesosystems, which describe interactions between microsystems. Mesosystems are a critical part of EST, as reciprocal interactions within and between systems are a fundamental assumption of the theory (Bronfenbrenner 1992). Exosystems and macrosystems are distal influences on an individual's environment. Exosystems are experienced indirectly as the links between settings in which an individual does not have any direct participation and their immediate environments, such as a parent's workplace and the home microsystem. The macrosystem consists of beliefs, policies, and normative influences of a given community and culture and provides constraints within which microsystems and exosystems operate. Finally, the chronosystem is the dimension of time, including changes within the student such as biological maturation, the timing of life events, and external experiences which change the context in which the individual develops.

Applied to school climate, the school is the microsystem in which school climate is created through the combined perceptions of its members. The levels of conflict or cooperation among teachers and students, academic expectations for students, and the sense of collaboration between teachers are all examples of contributing factors to the formation of school climate in the microsystem (Haynes et al. 1997; Juvonen 2007). Each of these examples is grounded in the daily experiences of members of the school community that are unique to each school; however, their interpretations and perceptions of these events are the source of school climate. The mesosystem is at work when two microsystems interact, such as during a parent-teacher conference when the combined messages from the teacher and family influence a student's engagement and effort on academic tasks (Galindo and Sheldon 2012). Through the mesosystem, two microsystems may be mutually reinforcing, such as when the family and school staff share similar beliefs and behavioral expectations, or discordant, leaving a child to negotiate between microsystems that are at odds (Spencer 1999). Factors within the exosystem should be considered as potential influences on school climate through the opportunities and constraints provided by the school. For example, a student is expected to abide by policies developed by the local board of education (Marino 2011) or may benefit from a parent-teacher association that is effective at providing additional resources for the school (Bower and Griffin 2011). The chronosystem may also shape how characteristics of the school are perceived by its members; for example, a school community may feel less safe after a high-profile school

shooting (Hong and Eamon 2012). An additional concept within EST that makes it a powerful choice for developing a school climate theoretical framework is *ecological niche*, a context that uniquely meets the needs of students with particular characteristics (Bronfenbrenner 1992). For example, a child with average intelligence and a child with cognitive delays may benefit from different levels of support in the same classroom (Firmender et al. 2013; Schofield 2010).

The suitability of EST for the base of a school climate theoretical framework is apparent in the proximal and distal levels that may relate to school climate (see Fig. 1). EST is specifically aimed at providing a structure for understanding complex relations. School climate is a multifaceted construct, such that climate may respond iteratively to the characteristics of the student body, the beliefs and behaviors of adults in a school, the local community (McCoy et al. 2013), and policies at the school, district, state, and national levels (Thapa et al. 2013).

A graphical depiction of the SVSC is provided in Fig. 1. Much like prior visual depictions of EST (e.g., Leonard 2011; Parsons 2008; Strayhorn 2010), our theoretical framework begins as a series of systems nested inside each other (see Table 2 for EST definitions). The individual student is the smallest unit at the center, and moving to the outside of the model, the social and educational macrosystem forms the largest container with the exosystem placed inside the macrosystem. From this point forward, our visual model diverges from prior representations of EST in order to best illustrate how school climate functions within these nested contexts. The right side of the figure contains two microsystems (family and peers) that are proposed to interact with the school microsystem. Family and peer microsystems overlap the individual, representing direct relationships of the student in these systems. The school microsystem is positioned on the left side of the figure, but it does not overlap the student. Instead, we posit that relations between the student and school may be facilitated through more proximal nanosystems, such as classrooms, extracurricular activities, and informal peer groups. The student interacts directly with these nanosystems that form a bridge between the individual and the school (three horizontal boxes stacked between the school and individual). With the addition of the nanosystems, the mesosystem now contains added interactions between nanosystems and between nanosystems and microsystems. The mesosystem is symbolized by double-headed arrows between multiple systems. Finally, the chronosystem runs through the model as a large directional arrow showing the passage of time and the events that occur at all levels of our nested, interacting systems. From the standpoint of our theoretical framework, causal models of school climate should consider that each level has the potential to contribute to aggregated perceptions of school climate, which is depicted as a characteristic of the microsystem. The subjective and collective school climate is rooted in these objective realities at the base of the SVSC.

## Deconstructing School Climate

Having provided a description of how EST serves as the backbone of our theoretical framework of school climate and a description of the SVSC, we turn our attention to a review of existing models, theories, and definitions of school climate. Critically, not all researchers have specified whether they are putting forth definitions, taxonomies, or models of school climate, a problem that contributes to conceptual confusion. Definitions of constructs delineate what the construct is and what it is not. In contrast, taxonomies categorize the variables within the

model (e.g., Anderson 1982; Cohen et al. 2009; Hoy and Hannum 1997). Causal models, or research theories, propose to explain causal mechanisms of influence and are tasked with generating testable hypotheses. In the overview that follows and in formulating our theoretical framework, our goal is to identify assumptions implicitly made in the extant school climate literature, deconstruct existing definitions and theories to highlight key themes, and use the SVSC to identify key factors which are missing from existing definitions and models. Themes identified within existing literature on school climate are provided in Table 1: physical resources and environment, teaching and instruction, safety and discipline, leadership, relationships, and shared beliefs and values.

## A Chaotic Conceptual Landscape

To date, school climate often has been used as an umbrella term to describe multiple constructs related to perceptions of acceptance, support, and safety in the school environment (Cohen et al. 2009; Goddard et al. 2000; Hoy and Hannum 1997; Kuperminc et al. 1997; Libbey 2004; Niehaus et al. 2012), a state of affairs that leads to difficulty interpreting and comparing findings across studies (Steffgen et al. 2013). Descriptions of school climate often start with metaphors such as the health (Hoy and Feldman 1999), spirit (Freiberg and Stein 1999), or personality (Halpin and Croft 1963; Richard et al. 2012) of a school. Beyond these metaphors, the components of climate included in prior research are relatively idiosyncratic. Previous descriptions of school climate form a virtual grab-bag of characteristics, such as teacher assignment patterns and leadership structure (Lee and Shute 2010), school maintenance and appearance (Esposito 1999; Kuperminc et al. 1997), overarching customs and values (Fan et al. 2011), academic emphasis (Goddard et al. 2000; Lee and Bryk 1989), fairness and clarity of rules (Gottfredson et al. 2005; Rodgers and Rose 2001; Welsh et al. 1999), and the relationships between staff, students, parents, and administration (Esposito 1999; Fan et al. 2011; Koth et al. 2008). When measuring school climate, some theorists rely heavily on the perspective of only one role group in a school (e.g., Hoy and Hannum 1997). In contrast, others consider shared beliefs across multiple role groups, such as teachers and students (Haynes et al. 1997). Additionally, there appears to be an implicit assumption toward including factors in the definition of school climate only if they are predictive of critically important outcomes such as students' academic achievement or school violence (Heck 2006; Mitchell et al. 2009; Richard et al. 2012; Whipple et al. 2010).

The lack of a shared understanding behind the meaning of "school climate" is problematic. Descriptions of school climate are not often grounded in common theoretical understandings, empirical investigations lack consistent guidance on the components of climate that must be measured to represent this construct, and school practitioners are left with little pragmatic guidance on how research might guide interventions in their schools. These issues emerge in part due to the confusion between existing definitions, taxonomies, and models. A closer examination of the guiding definitions and models of school climate helps to disentangle potential sources of this conceptual confusion. A definition should provide a concrete understanding of what school climate is and is not, provide boundaries for this construct, and potentially include a taxonomy of relevant variables. Building upon this definition of a construct, a theoretical framework provides a wider framework for situating school climate within a series of nested systems that guide the development of causal models.



An exhaustive synthesis of prior models is not our goal<sup>1</sup>; rather, prior models are useful in describing common lenses through which school climate has been viewed and in highlighting assumptions that may be implicit in these theories. The following section comprises an overview of the traditions, themes, and assumptions commonly found in school climate research.

## Traditions, Themes, and Assumptions

Research on school climate has arisen largely from three traditions: organizational, school effects, and psychological, each generating somewhat different definitions and models of school climate (Anderson 1982; Creemers and Reezigt 1999). Organizational literature is rooted in scholarship on the psychological climate of business organizations (Taguiri 1968). It describes the perceptions of members of the school and the effects on their behavior, most often measured through teachers' perceptions of the school environment (Halpin and Croft 1963; Hoy 1990). In contrast, scholars in the school effects research tradition view school climate as school-level characteristics within the wider *school culture* that differentiates effective and ineffective schools (Moos 1979; Stringfield et al. 2008). Finally, research from the psychological tradition has contributed instruments that measure the perceptions of students and teachers, often referencing a definition or model from another research tradition (e.g., Bear et al. 2011) but without explicitly testing a theoretical model.

Beyond the three major traditions of school climate, existing causal models, definitions, taxonomies, and conceptualizations of school climate each refer to various components included in a multifaceted construct of school climate. A closer examination of this extant literature reveals six broad themes (see Table 1) that are useful in describing how school climate has been conceptualized at a broad level: *shared beliefs and values, relationships and social interactions, safety, teaching and instruction, leadership, and physical environment*. By deconstructing these prior conceptualizations and drawing out themes, we highlight the fact that themes are sometimes inconsistently included across existing models and definitions. After reviewing these themes in the subsequent section, we use the SVSC to give structure to these themes by articulating which factors are a part of school climate itself and which are related, but not a part of, school climate. This distillation of themes was drawn from definitions, taxonomies, and models in prior literature and serves as a basis for our school climate definition and theoretical framework. Table 1 is not intended as an exhaustive list of every proposed component of school climate; rather, this table represents recurring factors that emerge across several definitions, taxonomies, and models. As we later describe, three of these themes are not part of school climate within the SVSC model, but may instead contribute to its development. Below, we begin with those most central to the essence of school climate.

Shared beliefs and values describe the dedication of staff, engagement of students, trust and respect among students and adults, high expectations for students and staff, and belief in the capacity of all students for success. Shared beliefs and values are at the core of school climate, shaping the expression of other variables within it. Two influential models of school climate highlight the role of beliefs and values in school climate. Hoy and Hannum (1997) describe academic emphasis, or the value placed on excellence in the academic realm, as an essential value of school staff that shapes school climate. Haynes et al. (1993) include similar values of

<sup>1</sup> Anderson (1982), Cohen et al. (2009), and Thapa et al. (2013) each provide thorough reviews of existing school climate research and detailed descriptions of widely used models.



achievement motivation and focus and dedication to student learning and include staff focus and fairness. In causal models, social norms and expectations based on student race are one way shared beliefs may be observed in school climate. For example, Black students experience less support, academic engagement, equity of opportunities, and caring in schools that have poor organizational health and staff burnout (Bottiani et al. 2014). Inequity stemming from race-based expectations is consistent with the Phenomenological Variant of Ecological Systems Theory (Spencer 1999), which demonstrates that Black students have adverse identity development in response to school environments that reinforce negative stereotypes. Academic emphasis is a shared value that predicts academic achievement and supports overall school effectiveness (Goddard et al. 2000; Lee and Bryk 1989).

The idea of relationships within the school is another central aspect of school climate. Relationships offer connection, support, affiliation, and belongingness. These qualities of relationships between people in different role groups in the school, including between students and staff, reflect the beliefs and values of its members and may influence the behaviors, decisions, and engagement patterns across role groups. As such, perceptions of relationships are a second major component of school climate. Variables related to relationships are almost universally included in school climate models and taxonomies. These include teacher affiliation (Hoy 1990), relationships across role groups within the school (Fraser and Walberg 2005; Haynes et al. 1993; Kuperminc et al. 1997; Steffgen et al. 2013; Thapa et al. 2013), relationships with parents and the community (Haynes et al. 1993; Hoy and Hannum 1997), the nature of interactions and the informal rules that govern them (Creemers and Reezigt 1999; Nielsen and Moos 1978; Welsh et al. 1999), and collaboration and cooperation (Rhodes et al. 2009).

Safety includes the sense of physical, social, and emotional safety. Perception of safety is the final component in our taxonomy of school climate, drawing from the beliefs and values of school members and guided by relationships between the school and the wider community. Much like relationships, safety and discipline are integral to conceptual and causal models of school climate. Frequently cited models describe rules, behavioral norms, the sense of order, physical and social-emotional safety, and the fairness with which discipline is used in schools (e.g., Cohen et al. 2009; Creemers and Reezigt 1999; Hoy 1990; Haynes et al. 1993; Thapa et al. 2013). The US Department of Education also highlights the importance of safety in school climate (2014). In causal models of school climate, safety and discipline have strong relationships with outcomes such as school violence (Steffgen et al. 2013) and bullying (Fedewa and Ahn 2011; Hong and Espelage 2012; Richard et al. 2012). Bullying and victimization may lead to a decrease in school engagement and academic achievement (Hong and Espelage 2012). Both direct and vicarious experiences of bullying can elicit fear and anxiety in students, which may diminish positive experiences of school climate. A school's response to bullying may also influence the perception of school climate for all students, including victims, bullies, and students who witness bullying by diminishing their perceptions of the relationships among students and of their beliefs in teachers to provide a safe environment (Barboza et al. 2009; Rivers et al. 2009). Rules and policies serve as part of the processes within the school, and perceptions of their effectiveness and fairness of application are central to school climate. When students perceived greater fairness and rule clarity, there is less delinquent behavior and student victimization in the school (Gottfredson et al. 2005).

Teaching and instruction define not just the quality of instruction but also the professional development and opportunities for collaboration and professional growth for teachers. In the SVSC, these characteristics exist as part of the microsystem, may

relate to beliefs and values such as academic emphasis, and potentially influence the development of relationships. However, teaching and instruction are not part of the SVSC taxonomy of school climate as these factors are observable features of the microsystem, rather than constructs formed through combined perceptions. This is a contrast to some conceptual models that do, at times, include these variables in school climate (Cohen et al. 2009). Teachers' beliefs about their students are communicated through the standards they set, the care given to planning, and the opportunities for intellectual, personal, and social growth afforded by lessons; these qualities may drive the development of shared academic values and inform the development of relationships. Teachers build the social-emotional and instructional climate with their students over the course of the school year, making a reciprocal series of decisions that determine the discipline structure, level of student choice, emotional safety to take academic and social risks, expectations for cooperation and collaboration, norms for interactions between students and the teacher, and norms for interactions with other students (Hofman et al. 1999; Nielsen and Moos 1978). This process is dynamic, adapting as student enrollment in the class changes and as the teacher works to refine their instructional practices and relationships in response to student needs (McMahon et al. 2011).

Leadership defines the role of the principal and other leaders within the school, but it also includes advocating for the school within the community. Leadership is somewhat parallel to teaching and instruction in the taxonomy of school climate within the SVSC; leadership may influence the development of school climate within the microsystem, but is not part of the school climate construct. This is a contrast with organizational effectiveness models (e.g., Hoy 1990) and some school effectiveness models of school climate (e.g., Creemers and Reezigt 1999). Hoy and Hannum (1997) describe the exosystem as a source of instructional and classroom resources and describe intrusive involvement by parents, the community, or the school district administration as a potential hazard. Strong, collaborative relationships between administrators and teachers improve teacher and student perceptions of school climate (Rhodes et al. 2009). School leadership is central to managing the equitable distribution of resources and managing relationships with the wider community, serving as a school process and structural characteristic that may inform the development of school climate.

Physical environment describes the physical and structural features, maintenance, and resources of a school and is influenced by management of school leadership and by resources in the wider community. These factors may help shape perceptions of the school; however, we argue that these tangible, physical characteristics of the school are contextual components of the microsystem and may provide evidence of values and beliefs that are common to the school community rather than as a part of school climate itself. The physical presentation and maintenance of the school building may be directly observed and measured. Up-to-date displays of student work and achievements, evidence of school pride including banners or awards from sports teams, or common areas unmarred by graffiti and litter create an environment that communicates messages about the shared beliefs of a school regarding its value and purpose (Rigolon and Alloway 2011).

Three themes form the taxonomy of our theoretical framework: the shared beliefs and values of school members, perceptions of relationships, and the perception of social, emotional, and physical safety within the school. *Each theme is based on aggregated perceptions rather than individual perceptions.* Similarly, it is the perceptions that make up school climate, rather than objective measures related to these constructs. For example, a student's sense of

safety contributes to school climate, and this sense of safety may (or may not) relate to specific disciplinary incidents. As with any complex system, these perceptions are not formed in a vacuum. Instead, many characteristics of the school microsystem and more distal influences within families and the community have the potential to contribute to the development of school climate. This is the role of the teaching and instruction, leadership, and physical environment themes we found in prior models. These characteristics of the school may inform or reflect school climate, but they are related constructs more reflective of school context and processes.

Several common underlying assumptions emerge from our review of themes in school climate research. First, school climate has at times been described using perceptions from only one role group within the school, demonstrating the assumption that perceptions of one group adequately represents the perceptions of all school community members (Bevans et al. 2007; Hoy and Hannum 1997). Second, components of school climate may be selected or highlighted based on their relationships with outcomes such as achievement at the expense of other components (e.g., Goddard et al. 2000; Koth et al. 2008; Milam et al. 2010; Shin et al. 2009), and additionally, school climate in these studies is often measured as unidimensional rather than approached as a multidimensional construct. Third and potentially most problematic, however, is the mismatch between school climate definitions and taxonomies and the conflation of school climate with related constructs. These assumptions are discussed in more detail in the following section in which we elaborate on our broad theoretical framework.

## A Framework for School Climate Research

Research on school climate suffers from inconsistent definitions and taxonomies, and school climate has often been conflated with related characteristics such as school context, structures, and processes. In the preceding sections, we described common themes that emerged from research on school climate and highlighted the assumptions of common school climate models. Our proposed theoretical framework for school climate is based upon themes identified in prior research (Table 1). In this theoretical framework, we situate school climate within the school microsystem and identify an array of environmental factors that may contribute to its development (Fig. 1). We incorporate tenets from EST to describe a student at the center of nested, interconnected systems that may be relevant to the formation of school climate, building upon prior models of school climate that specify distal interactions. In the SVSC, we propose that causal models and definitions of school climate should clarify that the construct exists within the school microsystem; indeed, several existing models do this (Cohen et al. 2009; Creemers and Reezigt 1999; Haynes and Comer 1996; Hoy and Hannum 1997; Thapa et al. 2013). However, the formation of school climate is complex and may result from multiple influences at both proximal and distal levels of the system. Characteristics of students, teachers, and staff may be considered factors that relate to the internal development of school climate. Likewise, themes that are also situated in the microsystem but are, instead, part of the school context or school processes (leadership, instructional practices, and physical environment) may relate to perceptions of climate. Students' families, the community, other institutions, education policies, and social norms are included in the theoretical framework as variables and constructs to consider, and subsequent models may consider or examine as additional mechanisms of influence.

## Defining School Climate

A conceptual definition that clearly differentiates between components that are part of school climate and components that are not (yet may provide the stimulus for its formation) is an essential basis of the utility of the SVSC. Based on our review of themes and prior critiques of school climate research which confounds school climate with related constructs (e.g., Marsh et al. 2012), we propose the following definition: *school climate is composed of the affective and cognitive perceptions regarding social interactions, relationships, safety, values, and beliefs held by students, teachers, administrators, and staff within a school.* These perceptions are dynamic and malleable (Brault et al. 2014; Gottfredson et al. 2005) and use the school as a common referent (Marsh et al. 2012). Aggregated perceptions are at the heart of an organization's climate, and the subjective impressions of its members become the reality that climate seeks to describe (Steffgen et al. 2013).

Our definition of school climate must also clarify the factors that are not school climate. Thus, our proposed definition does not include categories of variables that describe the structural components of a school or the aggregate characteristics of its members (Johnson 2012; Marsh et al. 2012). These components may form a base from which perceptions are formed, but they are conceptually and empirically different than school climate. School structure describes the formal school organization such as its enrollment, whether it is public or private, urbanicity, teacher assignment patterns, curriculum, funding, physical layout, or class size. These variables are largely outside the control of individual schools (Brault et al. 2014; Gottfredson et al. 2005). Additionally, the contextual characteristics of a school, such as racial composition, should not be conflated with climate (Johnson 2012; Marsh et al. 2012). This is a common and problematic assumption across prior models and taxonomies that decreases their utility, notably through reduced construct validity in measurement and empirical research (Cohen et al. 2009; Hoy 1990; Thapa et al. 2013). Common contextual characteristics include gender, race and ethnicity, socio-economic status, achievement, incidences of bullying or interpersonal violence, attendance, or occurrences of teacher transfer (Lee and Bryk 1989; Moos 1979; Nielsen and Moos 1978). Aggregated characteristics of members of the school community, like school structure, may shape the environment (Moos 1979). Unlike group-level perceptions of school climate, however, these characteristics are unique to its individual members; instead of the school as the referent, the individual is the referent and each person has a "true score" for these characteristics (Gottfredson et al. 2005; Marsh et al. 2012).

**Components of School Climate** We turn now to a more detailed description of the three components in the SVSC definitions of school climate. Perceptions that form school climate are based on the social interactions and relationships, sense of physical and social-emotional safety, and the values and beliefs held by students, teachers, administrators, and/or staff within a school. These relationships are broadly recognized in prior school climate models, as detailed in Table 1. Social interactions among individuals and between role groups in the school and the social processes that underlie these interactions shape school climate (Johnson 2012; Koth et al. 2008). A sense of trust, cooperation, and openness that informs interactions among teachers or between teachers and students is one example of the nature of interactions in a positive school climate (Fraser and Walberg 2005; Haynes et al. 1997; Moos 1979; Rhodes et al. 2009). The degree to which support and encouragement are offered to students, whether by other students or teachers, administration, and staff, across diverse student groups may describe the degree of equity in the social processes within the school climate (Bottiani et al.

2014). Peer culture within the school is also central to its social processes, through social integration or inclusion, or through rejection and bullying (Kuperminc et al. 1997). Relationships are the products of social interactions (Koth et al. 2008). They develop within and between all role groups in a school (Esposito 1999; Fan et al. 2011; Hoy and Hannum 1997), and the strength and quality of relationships contribute to feelings of attachment, belonging, acceptance, and support (Payne et al. 2003; Rodgers and Rose 2001).

Shared beliefs and values are the final component of school climate (Fan et al. 2011; Koth et al. 2008; Moos 1979). Beliefs are rooted in perceptions of experiences, such as the character of instruction across multiple classrooms (Esposito 1999; Rhodes et al. 2009). These characteristics are described in somewhat narrow terms in prior models (Table 1), yet are essential to school climate. A central set of beliefs often described in school climate research revolves around rules, safety, and discipline. Students and teachers develop a sense of the clarity and fairness of rules, and students form opinions regarding the effectiveness and equity in the application of discipline (Gottfredson et al. 2005; Kuperminc et al. 1997; Rodgers and Rose 2001). Based on their perceptions and observations, students and teachers develop a sense of their safety within the school and of the parameters for acceptable behavior (Koth et al. 2008; Lee and Bryk 1989). Shared values often include expectations for success of all students, a commitment to protecting academic time, and an academic emphasis that is felt consistently across classrooms and groups of students (Esposito 1999; Hoy and Hannum 1997; Lee and Bryk 1989). Academic emphasis is a “general perspective of the importance of academics in a school” held across role groups (Goddard et al. 2000, p. 684). Students may develop a common belief that they are receiving a poor or high quality of education (Rodgers and Rose 2001), and teachers may give varying efforts toward protecting instructional time and carefully monitoring student progress (Hofman et al. 1999) based on their shared values toward education in the school.

The distinctions between various school characteristics within the school microsystem are central to a conceptually clear and empirically measurable definition of school climate. The school microsystem also includes school context through aggregated student and teacher demographic characteristics, and school structures through components such as its size, scheduling of students, or availability of courses are all important components of the school microsystem. School processes include formal systems or informal norms that govern teacher assignments, disciplinary hierarchies, or other decision-making processes. School context, structure, and processes may, in fact, be the objective basis of some perceptions that contribute to school climate. In contrast, school climate is defined distinctly as aggregated perceptions across members of a school community, based on their subjective interpretations of social interactions and relationships, sense of safety, and shared beliefs and values that describe the character of a school (Gottfredson et al. 2005; Marsh et al. 2012). Although these school climate components may be responsive to contextual variables such as the proportion of students in poverty or relate to important outcomes such as academic achievement or school violence, their inclusion in the SVSC is theoretically driven rather than based on empirical relationships.

## School Climate Theoretical Framework

In comparing the prior approaches to defining school climate, the need for a theoretical framework is apparent. At its base, school climate must be conceptualized as a perception

that is best understood through more than one group (e.g., students, teachers) within a school because school staff, administrators, teachers, and students contribute to the school climate through their combined subjective impressions. Perceptions of families are often considered a direct part of school climate (e.g., Haynes and Comer 1996); however, family members are not a part of the school microsystem as defined in EST and the SVSC. Therefore, family contribution to school climate exists in the mesosystem. Organizational climate models explicitly focused on the impressions of teachers (e.g., Bevans et al. 2007; Hoy and Hannum 1997), but studies based on other models also examine school climate based on surveys from a single role group, such as students (e.g., Kuperminc et al. 1997). Next, prior models conflate school climate with the related constructs of school structure and school context. This distinction matters theoretically and for measurement purposes (Marsh et al. 2012).

A multisystem view of school climate assists in providing structure for examination of causal models to detail complex relationships and mechanisms underlying the formation of school climate. Prior models of school climate may richly describe factors within the school, but many offer limited descriptions of the factors outside a school that influence school climate such as protecting staff from undue external influences (Hoy and Hannum 1997) or the role of educational policies and school reform efforts in shaping climate (Thapa et al. 2013). Specifically, descriptions of interactions between factors within the school, or interactions between the school and the outside environment, are relatively absent from prior models. The School Development Project model of school climate is the most inclusive of the role of families and the wider community (Haynes and Comer 1996). Efforts to understand or improve school climate that focus only *within* a school may have limited effect without considering the multiple, nested contexts and systems in which an individual school resides (Strayhorn 2010). Positive school climates within a school are likely nested in supportive environments (e.g., families supportive of school efforts, positive media reports about the school, adequate resources for academic programs). Conversely, a school with problematic school climate may be nested in environments that undermine its efforts to reform climate (e.g., neighborhood violence, families disengaged from the school, critical public discourse about the school); although these nested environments are not a part of school climate, identification of the role of these structures is a key strength of our theoretical framework.

The use of a modified EST framework provides a theoretical framework of school climate to identify *potential* relationships that are critical to understanding the mechanisms and processes that form school climate. In our theoretical framework, factors outside the school need to be considered as potential influences on the climate of the school also as they interact with individual characteristics of students. As specified in prior causal models (Goddard et al. 2000; Koth et al. 2008; Milam et al. 2010; Shin et al. 2009), school climate as a construct is situated within the school itself through the combined perceptions of its staff, teachers, and students. However, school climate is clearly distinguished from three other school-level constructs: structure, processes, and context. Our model also diverges from prior models by explicitly identifying multiple external factors that may influence school climate, such as policies, resources, beliefs, and norms of the community and public discourse about education. Rather than imposing claims of causality, our model provides a road map for researchers to systematically examine factors that may contribute to school climate.

We have already provided a description of the SVSC (graphically depicted in Fig. 1). In the sections that follow, we describe the levels of our theoretical framework based on the EST, starting with the school microsystem, because school climate is part of this system. Next, we



highlight the role of individual characteristics and demonstrate the need for an intermediate system between the individual and school microsystem (nanosystems). Interactions between microsystems and nanosystems are described through the mesosystem, followed by roles of more distal systems (exosystem, macrosystem, and chronosystem).

**Proximal Structures** The school microsystem includes the pattern of activities, roles, and interpersonal interactions experienced by students and adults at school through direct contact or observation (Koth et al. 2008). This system encompasses school structures and processes, the aggregated characteristics of its members, and the perceptions that form school climate. School climate exists in the microsystem as a construction through the perceptions of the students, teachers, administrators, and staff within the school. It may be influenced by individuals and smaller, unique climates nested within the school (described in a later section as nanosystems), as well as by school-wide processes, school structures, and the aggregate characteristics of the students and adults in the school; however, school climate is conceptually separate from the aggregate or individual traits of people in the school, from the organizational characteristics that may be directly measured, and from latent variables that are not shared by all members of the school such as classroom climate. The expression of these school characteristics in any given school are considered within the context of both the exosystem and interacting microsystems (Bowen et al. 2008; Whipple et al. 2010) as shown by the mesosystem arrows in Fig. 1. The themes of beliefs and relationships are central within the school, but may also be formed by interactions between the school, family, and peer microsystems. In contrast to most models of school climate, we also note the potential contribution of the community through the exosystem and cultural norms and educational policies at the state and national levels as potentially relevant to the character of beliefs and relationships.

Individual characteristics shape interactions between the person and other individuals and opportunities present in the environment (Bronfenbrenner 1989). Applied to the SVSC, individual characteristics of students should be considered within causal models as potential influences on school climate. For example, LGBTQ students are at greater risk for experiencing a hostile school climate and for less social support from family, friends, and school staff to buffer them from negative experiences (Fedewa and Ahn 2011). The aggregate of these individual characteristics are part of the school context (Marsh et al. 2012; Moos 1979). They are relatively stable traits of the individuals, and they may be measured through a true score for which the referent is the individual. Salient characteristics include individual biological differences, psychological traits, and directive beliefs of individuals that contribute to forming the school climate and simultaneously influence an individual student's experiences in school. For example, ethnicity, race, and gender influence the interactions a student has in school with other students and teachers (Mason et al. 1994; Parsons 2008), and these interactions may help form the student's perception of school climate and achievement. These characteristics may be related to the differential response of individual students.

Similar to the Phenomenological Variant of Ecological Systems Theory (PVEST; Spencer 1999) and Lee and Shute (2010), our theoretical framework provides a conceptual map that might be useful to guide the formation of smaller causal models for individuals who experience dissonance in their home and school environments, especially when experiences are framed through individual characteristics. We view individual biological and psychological characteristics and the societal expectations based on race, ethnicity, and gender as central to the experiences of students in the school environment, and we suggest these differences cannot



be set aside or used selectively in research (Bronfenbrenner 1989). In support of this view, empirical research demonstrates that students respond differently to school climate based on individual characteristics such as race (Bottiani et al. 2014; Spencer 1999, Thapa et al. 2013) and sexual orientation (Fedewa and Ahn 2011).

The complex nature of the school environment necessitates an intermediate level between the school microsystem and individual in order to fully explain systematic interactions relating to school climate. Two students in the same school may experience the school setting differently based on their classroom experiences and other direct interactions, in addition to their individual characteristics (Kuperminc et al. 1997), a point that is not often noted in school climate research (Creemers and Reezigt 1999). The addition of nanosystems is necessary to identify and explain the differing experiences of students within a given school, beyond the influence of individual characteristics. This necessity is in part an element of schools organized by grades and into classrooms but also reflects the diverse range of academic programs, team and teaching structures, and tracking processes at work in many schools (Welner and Burris 2006). Other potential nanosystems include peer groups, such as cliques and crowds, and extracurricular activities, such as clubs and sports. These nanosystems affect the nature of interactions that individuals have with each other in the school environment. Our proposed nanosystem is the pattern of environments and relationships a student directly experiences during their school day, including compulsory and voluntary contexts. Classroom-level analysis also is characterized as reflecting a microsystem (Johnson 1994), but this cannot, in turn, be used to describe the school microsystem because each classroom has a unique combination of peers, teacher(s), physical structures, and delivery of curricula. Characterizing classrooms as microsystems is inconsistent with a tenet of EST which states systems are nested within each other based on scale (Bronfenbrenner 1989, 1992); classrooms and schools cannot simultaneously exist as microsystems. The SVSC resolves this by including nanosystems as subsystem to the school microsystem. A classroom within a school cannot be treated as a proxy for the school climate, as classroom climate and school climate are different but overlapping constructs (Hofman et al. 1999; Kuperminc et al. 1997; Van der Sijde 1988).

Moving outward, the mesosystem is the pattern of interactions between the school microsystem and its nanosystems as well as between the school microsystem and the family and neighborhood microsystems. By explicitly including mesosystems in causal models of school climate, researchers will have a framework for better understanding how interacting microsystems may influence the development of school climate within a school. As described previously, in addition to the interactions between microsystems as originally conceptualized in EST (Bronfenbrenner 1989), interactions in the SVSC occur both between nanosystems and between nanosystems and microsystems. Ideally, a healthy school climate in the school microsystem serves students by helping them use these interactions to respond to their unique stressors and talents (Bronfenbrenner 1992). For example, teachers facilitate interactions between the family and school microsystems if they observe a problem between students rooted in a neighborhood conflict and then engage both of the students' families to resolve the conflict. Strong adult relationships with students may connect a student to the broader community through explicit use of the mesosystem, and opportunities in multiple nanosystems or microsystems may offer protective opportunities for support or, conversely, reinforce patterns of degrading or rejecting relationships in the school (Swick and Williams 2006). In extant models of school climate and school climate as used in empirical research, these

interactions are generally not addressed, with the exception of parent involvement and less frequently community involvement or district policies (e.g., Cohen et al. 2009; Haynes et al. 1993).

**Distal Systems** School climate does not exist in distal systems; however, these systems may be considered as potential influences on its development through characteristics such as the norms of the wider community, financial resources, discourse regarding education, or historical events. In the SVSC, the exosystem consists of the contexts that members of a school experience indirectly through other people in the microsystem. For a student, an example of the exosystem is the vicarious experience of a parent's workplace. For a teacher, the exosystem may include indirect experience of students' neighborhoods (Hong and Eamon 2012; Mason et al. 1994). Although the influences of the exosystem are distal, they may have meaningful influences on school climate by providing a variety of possible supports or challenges to all schools, thereby affecting school climate. The macrosystem forms a cultural "blueprint" (Bronfenbrenner 1994) that influences the educational system, including factors such as its relative urbanicity, religious affiliations of students, economic levels within the larger community, the structure of a school system, and education policy at the state and national levels.

For example, education policies and movements have a profound effect on the nature of the school environment, as described by Cohen et al. (2009) and Thapa et al. (2013). These education policies may influence school climate through their effect on teaching and instruction or through beliefs that may develop based on prior student achievement. Although these policies and standards may be developed in the macrosystem, they are enacted at the microsystem and nanosystem levels. Characteristics of the macrosystem outside of education policy are not acknowledged in the extant literature on school climate or other school climate models, yet these macrosystem-level constructs may also fundamentally shape school climate. Macrosystem characteristics influence academic expectations and instruction, valuation and beliefs about education transmitted to students and teachers, and services or supports available to schools. Descriptions of the macrosystem are important because they may influence other systems and serve as a reminder for researchers to carefully generalize results from empirical studies within the bounds of other contexts with similar characteristics.

Time-relevant factors through the chronosystem are not explicitly addressed by other models of school climate. However, a more conscious integration of time in causal models of school climate will likely help to illuminate influences on school climate. At the individual level, the timing of life events can direct interactions and influence relationships. The chronosystem is also observed at a broad level, through the historical events and movements that influence the beliefs, priorities, and norms of the culture. The Great Depression, Civil Rights and Feminist Movements, or school shootings are examples of historical events that influence the character of nested systems in an ecological framework (Bronfenbrenner 1989, 1992).

### **Theoretical Utility of the SVSC**

In order to demonstrate the utility of the SVSC, we selected two prominent models to represent a theoretical or literature-based model that focuses on climate as a school-level characteristic. Both models are frequently cited and contain notable strengths, yet can be improved through application of the SVSC. As we describe below, both models discuss structural and contextual

factors as synonymous with school climate and inconsistently reference proximal and distal systems that may contribute to school climate. Additionally, we review four meta-analyses and research syntheses of school climate within the lens of the SVSC.

A model developed by Hoy and colleagues (Hoy 1990; Hoy and Feldman 1999; Hoy and Hannum 1997) is grounded in organizational effectiveness, and the Haynes and Comer (1996) model is based on school effectiveness research. Our themes of relationships, leadership, and beliefs are found in both models. Safety and discipline and physical environment are found only in the Haynes and Comer model (1996). Differences between these models also are apparent in the accounting of influences outside the school building. Although these models are broad, they do not integrate components of multiple theories, nor do they account for all of the systems contributing to school climate. The Comer School Development Project model was intended for a limited set of schools characterized by high poverty in urban settings (Comer and Haynes 1991) and could potentially then be viewed as applicable to schools within one particular macrosystem. The organizational health model of school climate (Hoy 1990) is based on school climate from the perspective of teachers and staff, rather than based on characteristics and perspectives of all members of the school community.

Hoy (Hoy 1990; Hoy and Feldman 1999; Hoy and Hannum 1997) applied an organizational health model to school climate by defining it in terms of healthy interpersonal dynamics. Within this framework, the theorists conceptualize school climate as the internal, relatively stable characteristics of a school that influence the behavior of its members and serve to distinguish one school from another. In this model, climate is conceptualized at three levels: technical and managerial levels as internal characteristics of climate, and an institutional level describing the connections between the school and community. The technical level is based on the basic function of a school as a place of learning through morale and academic emphasis, while the managerial level is concerned with basic school operations and leadership. These levels are a combination of school process, school structure, and school climate constructs, rather than clearly delineating the constructs and describing their relationships with each other.

Although Hoy conceptualizes school climate dominantly as a set of internal characteristics to the school, some of the characteristics may be influenced by more distal systems when viewed through SVSC. For example, sufficient resources are a management concern of the principal but also depend on funding priorities of local and state government. Two factors in the Hoy model extend beyond the school at the institutional level: principal influence and institutional integrity. When viewed within the SVSC, these factors are better described as part of the mesosystem that may influence school climate. Principal influence describes the principal's ability to advocate for resources, and institutional integrity refers to managing relationships to protect teachers "from unreasonable community and parental demands" (Hoy and Hannum 1997, p. 295). External factors were framed around the needs of a teacher dependent on adequate access to classroom supplies and instructional resources, protection from unreasonable demands from the local community and parents, and the needs of the principal to manage the school without intrusive oversight from superiors. Additional attention to the potential factors outside the school also merits attention, however. In addition to providing resources to the school or unwanted intrusion, the wider context of the school may be relevant to its organizational climate. Examples of this include school reform movements and policy norms within the macrosystem (Thapa et al. 2013) or educational background of its teachers through the exosystem (Cohen et al. 2009).

The Hoy model of organizational climate in schools is widely used in school climate research (e.g., Bevans et al. 2007; Goddard et al. 2000; Mitchell et al. 2009). This model is

limited, however, by its emphasis on the collective perception of teachers of school climate, as opposed to integrating perceptions of students and other adults in the school. This model's implicit assumption of collective perceptions is problematic, as teachers' and students' overall ratings of school climate may differ (Mitchell et al. 2009), and some of the characteristics identified within this model may only be relevant to adults rather than students to inform their perceptions of climate. Higgins-D'Alessandro and Guo (2009) found that, although teachers and students had some systematic differences in the ways that they perceived school culture (closely related to climate), there were similar patterns in their responses. In addition, school culture differed meaningfully between schools, regardless of whether teachers or students were the reporters. Thus, the utility of the model would increase substantially by including viewpoints of multiple stakeholders in the school community, as proposed by the SVSC.

In contrast with the Hoy and Hannum (1997) model, the school climate framework developed by Haynes and Comer (1996) was based on the school effectiveness research tradition. In the School Development Project, school climate is defined dominantly through interpersonal relationships and as components within the school that increase student success, often as a counter-balance to problematic home and neighborhood microsystems. Descriptions of interpersonal relationships form a strong foundation that may benefit from a more inclusive approach to the quality of relationships and interactions across all members of the school community. The School Development Project is a large-scale intervention model that views the school as residing within an extended learning environment that includes families and community members (Haynes et al. 1997). Intervening to develop a collaborative process between stakeholders in the school is a central component of this model (Haynes and Comer 1996). Shared beliefs and values include staff dedication to student learning, staff expectations of students, equity based on race and gender, and the achievement motivation of students. These examples are consistent with the SVSC.

As compared to other school climate models, a notable contribution of the School Development Project to school reform through school climate is its emphasis on two-way parent and community involvement to improve climate (Haynes and Comer 1996). Community involvement is described as including the immediate geographical area of the school and also a more distal community including corporations, philanthropic organizations, and governmental agencies that may support the school and inform perceptions of school climate, which is in line with the SVSC. However, similar to school climate models in general, the School Development Project includes the physical school building and the principal's role within the school as part of their intervention to improve climate (Haynes et al. 1997); instead, we argue that these components of the school are better characterized as school context and school process variables. This model was conceptualized as most relevant to urban, high-poverty schools rather than applying more widely to any school (Cook et al. 1999). Despite this original conception, the School Development Project has been widely used in empirical studies of school climate in contexts other than high-poverty, urban districts, and its originators have argued that its efficacy as an intervention based on this model cannot be judged in other types of schools (Comer and Haynes 1991; Cook et al. 1999; Cook et al. 2000; Kuperminc et al. 1997). Expanding the applicability of the School Development Project model of school climate through the SVSC increases its utility as a model to guide future research and its utility as an intervention model.

Organizational and school effectiveness models are rooted in different traditions. In practice, researchers cite both models in their descriptions of school climate and use instruments that were developed based on each model within the same empirical study. For example,

Mitchell et al. (2009) examined parallel models of teacher and student perceptions of overall school climate and academic emphasis. For teachers, classroom level factors (i.e., management and proportion of disruptive students) were more associated with climate ratings, but for students, school-level factors (i.e., student mobility, student-teacher ratios, and principal and teacher turnover) were more important for understanding their perceptions of climate. Results from Mitchell et al. (2009) were based on instruments from two different school climate models. Teacher ratings were obtained with the Organizational Health Inventory—School Version, and the student ratings were from the School Development Project—School Climate. These conflicting measurements of school climate represent a potential construct validity issue (Marsh 1994). Researchers also may use instruments that are not congruent with the theory cited in their conceptual frameworks, such as being based in school effectiveness theory and the School Development Project model, but measured with organizational health instruments (Rhodes et al. 2009).

In addition to model-based definitions and taxonomies of school climate, meta-analyses and systematic reviews also offer alternative approaches to conceptualizing school climate and could be improved through the application of the SVSC. These research syntheses offer a rich understanding of what has been done in the field. They also highlight the problematic nature of prior models and definitions as they attempt to derive a common understanding of school climate across disparate traditions. In addition to definitions, these reviews provide taxonomies that describe the components of school climate. Steffgen et al. (2013) describe school climate as school members' cognitive and emotional interpretations that form the subjective and objective reality of the school, and they use the taxonomy developed by Moos (1979) to describe the educational environment. The definition in Steffgen et al. (2013) is consistent with the definition provided by Cohen et al. (2009), which suggests that "school climate refers to the quality and character of school life. School climate is based on patterns of people's experiences of school life and reflects norms, goals, values, interpersonal relationships, teaching and learning practices, and organizational structures" (p. 182). Although individuals contribute to the school environment, Cohen et al. note that "school climate is more than individual experience: It is a group phenomenon that is larger than any one person's experiences" (2009, p. 182). Thapa et al. (2013) provides a definition quoted from the National School Climate Council. They further provide a taxonomy to describe five dimensions of school climate: safety, relationships and the interactions among people in the school, teaching and learning, the institutional environment such as physical environment and the availability of resources, and the school improvement processes, which entails the capacity of a school to implement change. School improvement efforts are based in EST, similar to our proposed theoretical framework, and emphasize trust in relationships between individuals, families, the school, and the broader community.

Across these synthesis-based models and taxonomies, we find much common ground with the SVSC, notably their emphasis on relationships, social interaction, and the sense of safety as a central basis for school climate. The SVSC may further improve these models and taxonomies by building on existing strengths, bolstering conceptual clarity of definitions and integrating a systems approach. Commonalities between our theoretical framework and existing causal models are most apparent in definitions of school climate, including language such as "values, goals, and norms" and "group phenomenon" (Cohen et al. 2009) and as "relational" and "cognitive or affective" (Steffgen et al. 2013) aspects of school climate that are entirely consistent with the SVSC. They diverge, however, by including components within their taxonomies that are more appropriately categorized as part of school context, structure, or

process. These include organizational dimensions such as school rules and security procedures that serve as school structures and processes (Cohen et al. 2009; Steffgen et al. 2013; Thapa et al. 2013), instructional quality and professional development that are part of school structure and processes (Cohen et al. 2009; Thapa et al. 2013), the physical structure and maintenance and resource availability that reflect school context and structures (Cohen et al. 2009; Thapa et al. 2013), and demographic characteristics of individuals in the school that are part of the school context (Anderson 1982).

## Implications of the SVSC

Measurement of school climate is hampered by the lack of clarity in definitions, models, and taxonomies, suffering from what Marsh (1994) describes as the jingle-jangle fallacy, in which scales that reflect the jingle fallacy measure a construct with the same name and are thereby assumed to reflect the same construct. This lack of clarity prevents experts in the field from developing consensus on the multiple meanings ascribed to school climate and a coherent understanding of its structure (Van Petegem et al. 2013). This limits comparisons of outcomes and effect sizes across studies and may be of particular relevance in meta-analyses that include school climate. In some cases, confounded definitions and measurement are not identified as a potential limitation (e.g., Fedewa and Ahn 2011), and in others, these issues are described and included as potential moderators (e.g., Steffgen et al. 2013). Across research methods, construct validity serves as a fundamental concern; Shadish et al. (2002) describe understanding constructs and measuring them as the “twin problems” of construct validity (p. 65). Through our delineations of school climate as a construct and its three-part taxonomy, the SVSC provides strong construct explication. The corresponding measurement of school climate, likewise, must match the construct to improve the quality of empirical research in the field (Shadish et al. 2002). Existing measures of school climate reflect the models and taxonomies upon which they are based. Kohl et al. (2013) provide a review of school climate instruments that are consistent with our systems-based approach.

**Improving School Climate Measurement** One goal of the SVSC model is to provide guidance on measurement of school climate and of the systems that support its development. Rather than operationalizing school climate as a single predictor or outcome variable, school climate is better conceptualized and measured as a multidimensional construct that draws from multiple perspectives (teachers, students, staff, etc.). School climate in causal models is part of the school microsystem, but it may not develop in isolation. Instead, models might examine its responsiveness to the individual characteristics of members of the school community and whether that leads to differential outcomes for students within groups such as students of color or LGBTQ identities. School climate may be sensitive to interactions through the mesosystem and the distal systems of the community, culture, and era. Individual and external variables should be either examined within models or measures as potential contributors to school climate development, or as mediators or moderators of how it is perceived.

We offer the following guidance for measurement of school climate: First, whenever possible, measurement of school climate should be based on the collective perceptions, reflecting the perspectives of students and adult members of the school community (Marsh



et al. 2012). Conducting studies of school climate in which all stakeholders in a school respond are time consuming, expensive, and logistically cumbersome. In addition, there is the problem of designing a measure of school climate with measurement invariance across stakeholder groups. Thus, although the ideal is to gather perceptions of school climate from multiple stakeholders, that may not always be practical or feasible. In order to gain perspectives from representatives of multiple stakeholders, researchers may want to make use of planned missing designs so that they can efficiently sample members of each group and have robust power to detect effects without expending extensive resources (Rhemtulla and Hancock 2016). The three themes in the SVSC taxonomy are based on aggregated perceptions rather than individual perceptions; it is these perceptions that must be measured, rather than objective criteria that are the basis of the perceptions. Parent perception may interact with student perception, but its influence may be through the mesosystem, rather than as direct part of school climate in the microsystem.

Next, instruments should focus on the constructs that are central to school climate and serve as a taxonomy for its measurement. These constructs are perceptions of social interactions and relationships within and across all role groups in the school, shared beliefs and values, and the sense of safety within the school. Additionally, constructs related to school climate within the microsystem may be essential to understanding school climate as it reflects the people in it through their aggregated characteristics (Johnson 1994; Marsh et al. 2012). School context, structures, and processes afford opportunities and barriers, sometimes differentially to groups of students, which may shape the development of school climate. The inclusion of nanosystems in the SVSC enriches the understanding of different groups in a school's microsystem. At the same time, researchers would not want or be able to presuppose the nanosystems a priori. Thus, a prudent research approach may be to extend a school climate survey with an open-response query to students about the group or groups to which they belong. Those responses could simultaneously enrich findings regarding the school climate survey results and inform future understanding of nanosystems within the SVSC framework.

Finally, schools are not isolated from the wider community (Fig. 1). Characteristics of distal systems and their interactions with the school microsystem are not a part of the school microsystem. They do, however, provide a context for better understanding the pathways through which school climate develops in the school microsystem or influences outcomes. Effective measurement of school climate may be supported by gathering additional data on distal systems if causal models are intended. This includes school-level data, such as the percentage of low income and identified gifted and special education students, magnet programs, and the number of disciplinary referrals, absences, and performance on state standardized tests (Niehaus et al. 2012).

Most causal models do not fully address the requirements of a systems-based model of school climate. Research based on those causal models often uses a somewhat one-dimensional measure of school climate as either a predictor (most commonly of academic achievement, e.g., Balfanz and Byrnes 2006; Esposito 1999; Kosciw et al. 2013; Sakiz et al. 2012) or as an outcome based on specific characteristics of the school such as student safety (Richard et al. 2012) or the race of students (Esposito 1999). The addition of the nanosystem, extension of the mesosystem, and conceptualization of remaining systems for school climate provide a theoretical model to guide future research; however, the distinctions between the microsystem and nanosystems require empirical testing, as this is only suggested by current studies (e.g., Kuperminc et al. 1997; Van der Sijde 1988).



## Conclusion

The SVSC was developed by deconstructing prior models and empirical research into themes and highlighting their implicit assumptions. A coherent conceptual definition of school climate is provided: School climate is composed of the affective and cognitive perceptions regarding social interactions, relationships, values, and beliefs held by students, teachers, administrators, and staff within a school. School climate is often conflated with related, yet substantively different constructs, such as school context, processes, and structure; although these constructs are part of the microsystem and may relate to school climate, they are conceptually and substantively different from school climate. Conceptual clarity in school climate is critical for construct validity and development of causal models. The SVSC provides this clarity through precise construct explication and differentiation from related constructs. Furthermore, the SVSC provides a systems-based framework to guide development of causal models and empirically test school climate as it relates to other constructs of central importance such as school safety and student achievement.

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