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ORIGINAL PAPER

A systems framework for understanding social settings

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Abstract In this paper, we argue that attempts to change social settings have been hindered by lack of theoretical advances in understanding key aspects of social settings and how they work in a dynamic system. We present a systems framework for understanding youths' social settings. We focus on three aspects of settings that represent intervention targets: *social processes* (i.e., patterns of transactions between two or more people or groups of people), *resources* (i.e., human, economic, physical, temporal resources), and *organization of resources* (i.e., how resources are arranged and allocated). We postulate that these setting aspects are in dynamic transaction with each other, resulting in *setting outcomes*. Discussion focuses on the implications of our theoretical framework for setting intervention.

Keywords Systems theory · Social settings · Promotion · Prevention

In this paper, we present a systems framework for understanding social settings for youth. At their best, these settings provide youth with meaningful relationships with adults and peers, structured activities, access to resources, and opportunities for academic, social, and emotional learning and identity development. Our framework was formulated with setting intervention as the ultimate goal; and as such, we focus on describing aspects of settings that represent targets for intervention. Although improving settings has the potential to affect large numbers of youth across numerous developmental outcomes, improving the daily social processes within settings has infrequently been a target of intervention efforts. This paper is motivated by the conviction that intervention efforts would be strengthened by having a stronger framework for understanding how settings function.

For this Special Issue of the American Journal for Community Psychology, we foreground work in community psychology but also incorporate work from systems theory, organizational studies, education, youth development, sociology, and anthropology. Articulating a framework for understanding and changing social settings has been a goal for community psychologists since its origins (Bennett et al., 1966; Rappapport, 1977), but the field's understanding of social settings has been encumbered by an abiding focus on individuals as the unit of analysis (Seidman & Rappaport, 1986). We have a rich body of work focused on studying individuals: conceptualizing and measuring individual-level outcomes, modeling the predictors of individual-level outcomes, and complex statistical analyses of the trajectories of individual-level change.

In contrast, relatively little research has focused on setting-level change. We have little empirical understanding of the natural life and development of settings, much less ways to intentionally change settings. Recent research reviews of schools and community programs have focused largely on identifying the features of settings that are associated with positive youth outcomes. Comprehensive literature reviews by the National Research Council and the Institute of Medicine (Eccles & Gootman, 2002) identified features of community programs that have been associated with positive youth development outcomes. They suggest that development-enhancing settings provide youth with

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physical and psychological safety, supportive relationships, appropriate structure, opportunities for belonging and skill building, positive social norms, and support for efficacy and mattering. With regard to schools, the Wingspread Declaration (2004) argued that school connection is the super-ordinate attribute associated with positive youth experiences in schools. While identifying the features of positive youth settings was important work, these prior reviews stopped short of explicating how youth settings function and how to improve poorly functioning settings.

In this paper we seek to extend prior work by using a systems approach to understand social settings (see, for example, Kelly, Ryan, Altman & Stelzner, 2000; von Bertalanffy, 1957). We begin by laying out a framework that describes important aspects of settings and how those aspects are inter-related in a system. Next, we turn to an in-depth discussion of our framework, using examples of research on class size in three different locales. Lastly, we consider the limitations of this framework and future directions for theory and empirical research.

Our discussion of social settings focuses largely on schools and community-based organizations, but the setting aspects in our framework also apply to other youth settings such as homes, peer groups, and neighborhoods. Because of our interest in preventive and promotive interventions, schools and community-based organizations are opportune places to focus our framework. These settings have a clear physical location and boundaries, and they serve large numbers of youth in successive cohorts. Defining the boundaries of homes and peer groups can be more difficult given complex family structures in which youth live in several homes and move through various peer groups. Delineating neighborhood boundaries also is a matter of considerable debate and can depend on the particular research question or intervention (Sampson, Morenoff, & Gannon-Rowley, 2002).

A systems framework for understanding social settings

Because our interest in social settings is motivated by the goal of setting intervention, we focus on describing aspects of settings that can be targets of intervention. We conceptualize social settings as systems consisting of *social processes* (i.e., transactions between two or more groups of people), *resources* (i.e., human, economic, physical, temporal), and the *organization of resources* (i.e., how resources are arranged or allocated). While all three aspects are important, we place *social processes* at center stage because the daily interactions between youth and adults and among groups of youth are key influences on both individual- and setting-level outcomes.

Because of our intervention goals, we also are interested in *setting outcomes* defined as how well the setting is functioning at a particular point in time. In interventions, change in setting outcomes indicates improvement in the setting's functioning. Setting outcomes can be youths' and adults' subjective experiences of the setting (i.e., as providing opportunities to build skills and support for their sense of belonging, efficacy and mattering), and less subjective outcomes such as youths' achievement in the setting. Setting outcomes can be assessed at the setting-level through observation or at the individual-level through self-reports or assessments that are aggregated to represent a setting-level construct (see later discussion regarding when an index appropriately represents a setting-level construct). In certain instances, setting outcomes can be social processes assessed at a particular point in time. For example, many youth programs seek to improve youths' engagement with others in program activities. While youth engagement is a social process, it can also be a setting outcome in so far as it represents how well the setting is functioning at a particular point in time. Note that we refer to ''outcome'' as an indicator of a setting's functioning at a moment in time, but we do not define outcome as a static end-state. Rather, we consider outcomes to be aspects of a system and, as such, are constantly changing and evolving.

Figure 1 presents a diagram of our framework. As in any system, influences among setting concepts are bi-directional and transactional. In Fig. 1, however, we use unidirectional arrows to reflect how altering social processes can operate as a lever, stimulating change in setting outcomes. Changes in resources and the organization of resources also can operate as levers, stimulating change in social processes and hence setting outcomes. While community psychologists often seek to directly alter social

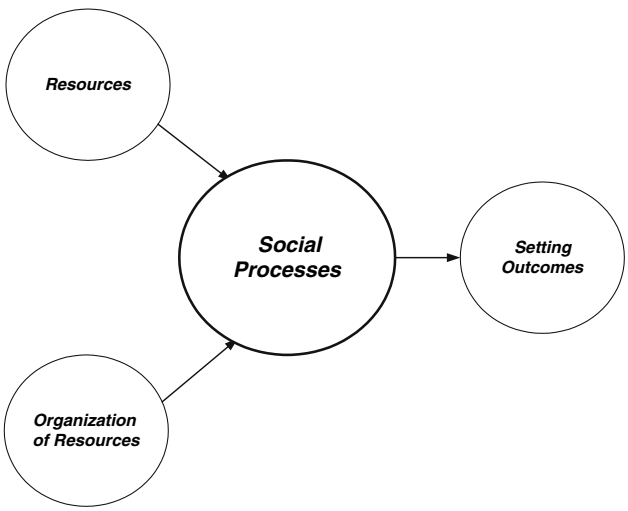

Fig. 1 Theoretical framework for understanding social settings

processes, policymakers lean towards regulating resources. The organization of resources may serve as a lever for policymakers and community psychologists. By our estimation, however, changing resources or their organization is unlikely to substantially change setting outcomes unless daily social processes also are altered.

Social processes

We begin by focusing on *social processes* because they directly influence how youth and adults experience settings and are therefore critical for improving setting outcomes. In doing so, we follow in the tradition of Bronfenbrenner who argued that *proximal processes* (i.e., interactions between people and their *immediate* environments) were the primary mechanisms influencing human development (Bronfenbrenner & Morris, 1998). In education, Fullan (2001) and Cohen, Raudenbush, and Ball (2003) similarly argue that resources themselves are insufficient to change student achievement; rather social processes such as instruction and role relationships must be altered in order to trigger significant educational change. Take instruction as an example. The presence of qualified teachers and high quality curricular materials is important for youth learning, but it is the instructional interactions between teachers and students (and their use of curricular materials in those interactions) that create students' engagement and learning in the classroom (Cohen et al., 2003).

Our conceptualization of social processes draws heavily from Altman and Rogoff's (1987) description of transactional worldviews. First, we define social processes as the ongoing transactions between two or more people or groups, such as teacher and youth, staff and youth, and different groups of youth, in a setting. These transactions include the social interactions between groups, their communication and feedback loops, and contingencies associated with their interactions. Second, social processes are shaped by individuals' roles within the setting. For example, the relationships between an adult and youth in a classroom are largely defined by the adult's role as a teacher and youths' roles as students. Third, social processes have a temporal quality that involves a constant stream of action, wherein transactions are repeated, behaviors are recalibrated based on feedback, and patterns are reinforced over time. Fourth, social processes are relational units, not existing solely ''in the heads'' of either party but rather in their inter-relationships (Seidman, 1990). As such, social processes cannot be wholly captured by individuals' perceptions about social processes. Social processes are mediated psychologically in that individuals interpret and make meaning of these processes, but social processes exist in the social and temporal space among individuals.

As Rogoff articulates in her later work, settings have multiple social processes (Rogoff & Angelillo, 2002). These processes can be overlapping, directing behaviors in a particular direction. The culture of a setting consists of multiple social processes that create reinforcing and repetitive messages that are elaborated over time (Super & Harkness, 1999). Across their K-12 schooling, for example, youths' interactions with teachers and peers are fairly routinized, embedded as they are in schools' daily, weekly, and annual schedules. Multiple social processes also means that different groups of youth can experience different social processes in the same setting. For example, teacher-student transactions may differ across male and female students (Bigler, 1995) and across Asian American, African American, and White American students (Tseng, Chao, & Padmawidjaja, 2006).

The concept of social processes overlaps with Seidman (1988)'s conceptualization of *social regularities*, which is defined as the patterning of relationships between two or more social units (i.e., groups, populations) over time and which can center on differences among social units in terms of power, roles, status, and resources. Social processes also overlap with cultural anthropologists' conceptualizations of certain aspects of activity settings, specifically the daily interactions, routines, and scripts for behavior in settings (Gallimore, Goldenberg, & Weisner, 1993; Weisner, 2002).

In Fig. 2a, we illustrate that social processes are manifested as norms, relationships, and participation in activities. They represent a preliminary set of social processes that theory, research, and observation suggest are associated with positive setting-level outcomes. Below, we describe each of these reflections of social processes in turn. Note, however, that these three constructs are overlapping. For example, social roles and social interactions are essential to each of these processes.

Norms

Norms reflect transactions between youths' beliefs and behaviors and those of others in the setting. Psychologists often study norms as the typical behaviors (or perceptions) in a setting, represented by the average of individuals' behaviors (or perceptions). For example, psychologists often operationalize school climate as the average of individuals' perceptions of the school, but some researchers argue for more careful methods of aggregating individual-level data to represent setting constructs (see Shinn, 2000 for a review). To the extent that school climate should represent students' shared perceptions of the school, then within-setting variance in perceptions should be small; and only after confirming small within-setting variance should

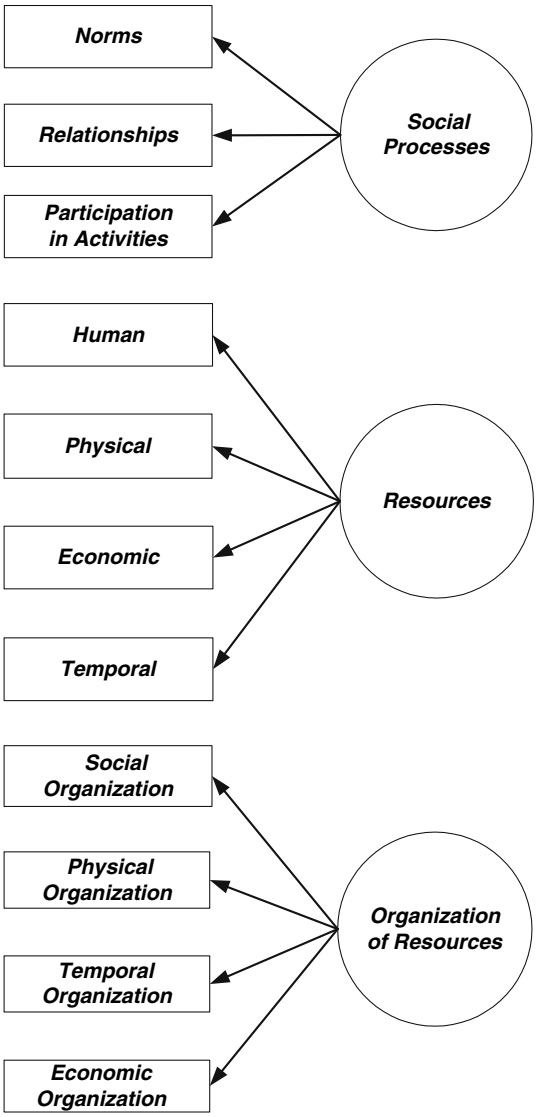

Fig. 2 (**a**) Social processes (**b**) Resources (**c**) Organization of Resources

researchers aggregate perception data to represent school climate (Chan, 1998).

Henry, Cartland, Ruchcross, & Monahan (2004) argue that norms also entail approval or disapproval from others in the setting. For example, teachers can counter students' aggressive behavior through disapproving words or gestures, and peers can counter aggressive behavior by rejecting or avoiding play with aggressive youth. In their work on aggression, Henry and colleagues (2000) assessed classroom-level norms (i.e., norm salience) using a combination of teacher reports, peer reports, and independent observations. Classroom-level norms were computed as the within-classroom correlation between teacher reports of students' aggressiveness and peer-nominated rejection of classmates and the within-classroom correlation between observations of teacher reprimands and student aggression. In their analyses, they found that classroom norms discouraging aggression (both in terms of peer rejection and teacher reprimand) were associated with declines in individual-level aggression.

Norms are related to expectations in the setting. Although many psychologists study expectations as beliefs or attitudes ''in the head'' of individuals, Weinstein (2002) conceptualizes school and classroom expectations as social processes. She defines expectations as inclusive of teachers' expectations of their students, the teaching practices that extend from teachers' beliefs, and youths' understanding and experience of teachers' expectations and practices. Moreover, Weinstein defines expectations as ''entrenched beliefs about ability *over the course of a school career*,'' and notes the ways in which the beliefs are ''reinforced by institutional arrangements in the classroom, school, family, larger society'' (p. 7). Weinstein, thus, argues that expectations are reinforced over time and by other settings and broader social-ecological forces. Those forces include the incentives within schools, districts, states, and federal policy for teachers and students to reach for higher achievement in ways that are connected with instruction (Cohen et al., 2003; Fullan, 2001).

Relationships

Research on youth programs and schools often emphasize the importance of relationships between adults and youth for achieving setting outcomes (Eccles & Gootman, 2002; NRC & IOM, 2004). Warm, supportive relationships foster youths' sense of belonging, mattering, and engagement in the setting. Coming from a child development perspective, Pianta (2005) argues that relationships between teachers and students are the key way students develop positive outcomes. His conceptual model for teacher-student relationships suggests that relationships encompass reciprocal interactions between teachers and students and the communication and feedback loops that facilitate the smooth functioning and development of their relationships.

In addition to dyadic relationships, another way to consider relationships is in terms of social networks—that is, the broader web of relationships. Coming from a sociological perspective on youth programs, Jarrett, Sullivan, and Watkins (2005) suggest that youth programs help youth establish a stronger social network, connecting youth with non-familial adults who can provide them with an array of resources (including information, assistance, and exposure to adult worlds) and encouragement. In schools, reform efforts sometimes seek to build professional learning communities wherein teachers jointly examine how students are doing and collaboratively plan their lessons (Fullan, 2001).

Another way to examine relationships is in terms of power relationships. Power relationships between adults and youth are one of the central differences between youth organizing programs and other youth settings such as classrooms and youth development programs (Gambone, Klem, & Connell, 2002). In these latter settings, adults have greater decision-making power vis-à-vis youth. Ideally, teachers and staff structure relationships to be responsive to youths' desires and needs, but building youths' individual and collective power is not a central goal of these settings. In youth organizing programs, however, building youths' power is a central goal. Youth collectively decide on the issues they will address, critically analyze those issues, and develop and carry out political campaigns (Listen, 2003). Adults' roles are as knowledgeable partners, facilitators, or consultants for youths' activities; and adults focus on striking a balance between keeping youths' work on track and maximizing youth ownership (Larson, Walker & Pearce, 2005).

Participation in activities

Participation is defined as youths' and adults' involvement in the daily activities and routines in settings (Weisner, 2002). In the last ten years, there has been increasing interest in youths' engagement in after-school programs (Mahoney, Larson, & Eccles, 2005) and students' engagement in school (NRC & IOM, 2004) as intensive forms of youth participation. Our discussion of participation seeks to broaden attention from student/youth engagement to include both youths' *and* adults' engagement in setting activities. Too narrow a focus on students' and youths' engagement obscures the critical role of adults and how their engagement influences interactions around instruction or other activities. Engaged and energized teachers set higher expectations for students, and are more motivated to engage students around challenging curricula (Cohen et al., 2003; Fullan, 2001).

The activities, in which youth and adult participate, can be highly structured (e.g., instruction, skill-building activities) or relatively unstructured (e.g., ''free play'' during recess, socializing between classes). Unstructured activities have less fixed, institutionally-directed goals, but activities nevertheless serve particular functions such as providing youth with opportunities to socialize and play with their peers (and to allow teachers and staff with downtime). In contrast, participation in structured activities is directed toward more well-defined goals, such as youths' cognitive and social-emotional learning, skill-building and identity development. Youth and adult interactions are oriented around particular content areas. In schools, content is the subject matter and curricula. In youth programs, content includes sports, arts, and leadership. For example, apprenticeship activities for youth are structured to facilitate youths' learning of the concepts and skills for a specific craft, art form, trade, or discipline (Halpern, 2005). The documentary film, *Mad Hot Ballroom*, portrays a youth program that structures activities to train 5th graders in New York City public schools in ballroom dancing by creating a setting with high expectations and close relationships between students and teachers and between boys and girls as dance partners.

Resources and organization of resources

Figure 2b, c depict types of resources and how they are organized. Like social processes, these are culled from theory, research, and observation of the resources and organization of resources that are associated with positive setting outcomes. Each type of resource and ways it can be organized within settings is described briefly, but not in any presumed order of importance. In describing resources, we refer to the presence, characteristics, and quality of resources in settings. In describing organization of resources, we discuss how people, space, time, and money are organized or allocated in settings. We borrow from research on *capital*, specifically human, social, physical, and economic capital, used by sociologists, economists, and political scientists (Bourdieu, 1986). In addition, we consider time as a resource. While capital is defined often as resources that contribute to productivity for individuals, below we conceptualize capital in terms of resources present in settings and that facilitate productive setting activities and social processes.

Resources

The availability and quality of resources certainly matter for setting outcomes, but we and others have postulated that they are not sufficient in and of themselves for creating meaningful outcomes. For example, Cohen et al. (2003) argue that classroom resources like teacher knowledge and curricular materials are necessary, but only matter to the degree that they are used effectively in instruction.

When describing the *human resources* of a setting, we are referring to the individuals who inhabit the setting and the characteristics of these individuals. For example, human resources include teachers' and staff's level of education, training, and skills. It also includes youths' and adults' cultural values, beliefs, goals, and scripts that drive their behaviors in the setting (Cole, 1996; Weisner, 2002). Teacher training, credentialing, and professional development are common ways to try to improve human resources, but they are not strongly linked in and of themselves to

how teachers interact with youth (Pianta, 2005). This disconnect between human resources and social processes likely explains why professional development activities that provide one-time, off-site training to teachers or staff fail to change the interactions teachers or staff have with youth (Fullan, 2001; Weiss, 2005). It also suggests that policies that focus narrowly on teacher education, training, and certification may not change teachers' instructional and emotional interactions with students (Pianta, 2006).

We use the term *physical resources* to refer to the availability and quality of curricular materials, space, facilities, and buildings. National reports (GAO, 1995; NCES, 1999) over the past decade have drawn greater attention to the physical condition of schools, with the Government Accounting Office reporting that one-third of public schools required ''extensive repair or replacement.'' Physical conditions include the structural integrity of school buildings, and the quality of heating and cooling systems, lighting, ventilation, and plumbing. In some urban schools, availability of classroom space is important since overcrowding can force teachers to hold classes in storage closets, hallways, and bathrooms. Curricular materials and technology are important physical resources for instruction, but their presence and quality are unlikely to influence setting outcomes unless teachers are able to effectively use them in their instructional interactions (Cohen et al., 2003).

Policymakers frequently focus on altering *economic resources* such as per pupil or client expenditure. Economic resources also can be viewed as the means for securing other resources, such as new curricula, repairs to facilities, and more highly educated teachers. Economic resources (and the things they buy) are unlikely to change setting outcomes unless they effectively shift social processes in the setting. In classrooms, for example, resources alter student achievement to the extent that instructional processes are changed (Cohen et al., 2003). Increased fiscal resources can also alter social processes by alleviating stressors associated with scrambling around to make ends meet. For example, increased fiscal resources might enable school officials and youth program supervisors to engage in longer term budgetary planning.

Temporal resources, defined as the amount of available time, can place boundaries on social processes. In *Prisoner of Time*, the National Education Commission on Time and Learning (1994) argued that children's learning in the United States is limited by the 6–hour, 180-day calendar of U.S. schools. They posited that school reforms that set higher standards for achievement should be accompanied by increases in the amount of time youth spend in learning activities per day and per calendar year. They also argued for increases in teachers' time to prepare and plan their lessons, cooperate with other teachers and staff, and participate in professional development activities by extending the school day and the contract year for which teachers are paid.

Organization of resources

Organization of resources refers to the ways in which people, space, and time are arranged and how money is allocated in the setting. Organization of resources can be intentionally designed as in the case of ability grouping or it can occur more naturally as in the case of peer group formation. In our framework, we posit that changing the ways resources are organized holds potential for changing setting outcomes to the extent that doing so also alters social processes.

Many schools and youth programs design activities around a particular *social organization* of how people are grouped in the setting. Policymakers, practitioners, and researchers are interested in the proportional representation of different kinds of people in the setting and whether these proportions matter for setting outcomes. Interest frequently centers on the ratio of adults to youth in the setting, with the underlying assumption being that lower ratios allow for more adult instruction and attention, thereby leading to better youth engagement and learning. Other forms of social organization include heterogeneous versus homogeneous groupings based on gender, race/ethnicity, socioeconomic status, achievement level, and behavioral problems. Policy and practice concerns center on the effectiveness of single-sex versus co-ed schools, mixed-income versus neighborhood schools, and ability-grouping versus whole-class instruction. In the case of grouping based on behavior problems, settings may be influenced by concentrating aggressive youth (Kellam et al. 1998). Having more children with behavioral problems in a class seems to make classroom management overwhelming and creates deleterious effects on learning for the entire class. If this is indeed the case, social organization of students is a promising target for intervention because it can be altered.

Changing the *physical organization* of settings often goes hand-in-hand with changing the social organization. School-within-school initiatives, for example, are meant to create smaller groupings of teachers and students within large schools to promote more social interactions. To accomplish this, these initiatives also change the physical organization of schools by locating students' classrooms in close proximity. Doing so restructures teacher-student and peer interactions so that they occur in a smaller, more intimate space (Oxley, 2000). Efforts focused directly on changing the physical organization of schools include open-plan designs involving fewer floor-to-ceiling walls than traditional classrooms; research suggests, however, that these designs often lead to greater distraction, time off-task, and noisiness (Evans, 2006).

Organization of economic resources involves changing the way funds are allocated in the setting. While policymakers focus on changing the overall level of economic resources through per site or per pupil expenditures, it is generally superintendents, principals, and program administrators who make decisions on how funds are allocated within settings. For example, recent California legislation (Senate Bill No. 638, 1996) increased the maximum per pupil and per school grants for after-school programs, but program administrators have considerable discretion for how those funds will be allocated. Programs are expected to improve students' school-day attendance, but while some programs will focus more resources on outreach and recruitment activities for truant students, others may focus resources on providing social services to meet the needs of students after they are in the door.

A common way to intervene on social processes is varying the *organization of time* in school. Block scheduling and year-round school schedules are two examples of interventions that change the organization of time, but not necessarily the overall amount of time youth spend in school. In *Prisoners of Time*, the Commission (1994) recommended different ways of organizing time, in addition to longer school days and years. One of their principal recommendations is creating flexibility in the way time is organized, rather than strict conformity to 51-min periods per subject. They supported block-scheduling, for example, because it allows teachers and students to engage in more ''extended exploration of complex topics or for science laboratories'' (p. 31). They also suggested that greater flexibility in schedules would change social processes among teachers and promote more team teaching.

An exemplar for understanding social settings: Class size reductions

In the past 15–20 years, researchers, educators, policymakers, and parents have become increasingly interested in class size reductions as an intervention to improve classroom processes and academic achievement. For our purposes, class size reductions represent an opportune exemplar for further explicating our framework for understanding social settings. First, classrooms are a fitting locus for setting intervention because classes provide youth with important daily experiences and activities, and substantial numbers of youth inhabit these settings. Second, class size reduction is a policy solution targeted at decreasing the number of students in the classroom (i.e., human resources) and reducing the teacher-to-student ratio within the setting (i.e., social organization). Although the focus is on changing resources and their organization, the effectiveness of class size reductions likely occurs through its influence on classroom social processes.

In illustrating our framework for understanding social settings, we begin by comparing the California and Tennessee initiatives to reduce class sizes in elementary schools. Many observers view the Tennessee initiative as very successful while the California initiative paled in comparison (Biddle & Berliner, 2002; Bohrnstedt & Stecher, 2002).[1] Next, we consider comparisons between U.S. schools and those in Japan. In each of these comparisons, we use our framework to suggest how we might understand class size in terms of resources, organization of resources, and social processes.

Human resources and their organization

Class size reductions center on classrooms as an important proximal setting for a teacher and his/her students. The intervention decreases the number of students (i.e., human resources) and the student-to-teacher ratio (i.e., social organization) in this proximal setting. It differs from other calculations of student-teacher ratios that assess the number of students relative to full-time equivalent education professionals (including reading, art, music specialists, librarians, etc.) in a school or school district. While these latter ratios are reflective of the social organization in a school or district, they do not focus on the immediate setting in which students and teachers interact. Class size reduction also differs from an intervention that places teacher's aides into classrooms. While this intervention does center on the classroom setting, it does not change the number of students nor the ratio of students to professional teachers in the setting.

Tennessee's Project STAR was the largest field experiment on class size reduction. It was conducted in schools across Tennessee and funded by the state legislature. Students entering Kindergarten were randomly assigned to three conditions: small classes with one teacher and about 15 students, regular classes with one teacher and about 24 students, and supplemented classes of regular size with one teacher and one full-time teacher's aide. Students remained in those experimental conditions until grade 3 though new teachers were assigned to classes each year. Evaluators, Finn and Achilles (1999), reported impressive effects. Students in small classes demonstrated higher achievement, more engaged learning, and less disruptive behavior than those in the regular and supplemented classes. By fifth grade, students who had been in small classes were

[1] In part, differences in observed effects between the Tennessee and the California initiatives are due to differences in research designs to assess observed effects. For our purposes, however, we focus on differences in the interventions themselves.

5 months ahead of their counterparts in reading, language, math, and science achievement. Small class sizes had benefits for all types of students, but the achievement effects were greater for low-income, African American, and urban students than for their respective counterparts. Achievement differences lasted into junior high and high school, when students were no longer in small classes. In these later grades, students who had been in small classes had higher grades, were less likely to dropout and be retained in grade level, and were more likely to take advanced-level and foreign language courses and volunteer to take college entrance exams than their peers who had been in regular size classes.

Despite considerable interest in class size interventions, there remains uncertainty as to the ideal class size. How small is small enough to achieve positive effects for children? Robinson's (1990) review of class size studies indicated that elementary school classes of 22 students or less were associated with positive effects while Glass and Smith (1978)'s review indicated 20. The NICHD Early Child Care Network's correlational analyses indicated a cutoff at about 20 children for positive social and emotional outcomes and about 18 children for instructional quality (NICHD, 2004). Experimental work has not directly addressed this issue. Tennessee's and California's initiatives differed in terms of class size, and this may partly explain why Tennessee's class size reduction initiative was more demonstrably successful than California's. In California, class size was reduced from an average of 29 students to 20 students or less. In Tennessee, class size was reduced from a median of 24 to 15 students.

Additional human, economic, and physical resources and their organization

The success of class size reductions may rest partly on adequate resources, including teachers (human resources), classroom space (physical resources), and funding (economic resources). Tennessee's Project Star included 79 schools and 329 classrooms (Finn & Achilles, 1999). All participating schools had space to create additional classrooms, additional teachers were by and large available to staff the classes, and the state provided funds to hire the additional teachers. California, in contrast, implemented class size reductions statewide and with inadequate human, physical, and financial resources. California already had severe problems with over-crowded schools and a shortage of qualified teachers (Bohrnstedt & Stecher, 2002). To meet the need for 18,000 new classrooms, some schools overtook other spaces such as childcare centers, music and art rooms, libraries, and gyms. To staff the small classes, California hired more than 28,000 new teachers over 3 years, including many who were uncertified and had little teaching experience. On the surface, this appears to be an increase in human resources, but they represent less qualified resources. The state provided financial incentives for participating school districts, but over half of school districts reported a funding shortfall. Some schools and districts reallocated funds from facility maintenance, administrative services, professional development, computer programs, or libraries to cover the costs of class size reductions.

In addition, distribution of resources across schools was uneven; and California's class size initiative likely exacerbated the difference (Bohrnstedt & Stecher, 2002). The hiring of teachers without full credentials and teaching experience largely occurred in poor schools, the same schools that served immigrant children and children of color. The human capital of teachers hired in those classrooms and schools may also have been inadequate to meet the cross-cultural and bilingual needs of students. Poor schools also were more severely overcrowded and had more difficulty creating new classrooms. Thus, they experienced more difficulty implementing the initiative, and this difficulty might have created barriers to accessing the state's incentive moneys for class size reductions.

Social processes

Changing social processes may be the key way class size reductions impact student outcomes. Proponents of class size reductions argue that the intervention changes what teachers do in the classroom and how students behave, but understanding what actually changes in classrooms remains ''elusive'' (Finn & Achilles, 1999, p. 102). When Finn, Pannozzo, & Achilles, (2003) reviewed the literature on why small classes have positive effects, they largely conceptualized the issues in terms of changes within individuals: that is, students' ''learning and social behaviors'' and teachers' ''interpersonal styles.'' This focus on changes within individuals, however, does not capture the likely patterns of dynamic transactions between teachers and students in small classrooms.

Transactional social processes are suggested in Finn and colleagues' review though they are not conceptualized as such. In describing changes in teachers' interpersonal style, they state ''teachers [in small classes] reported that more time was now available to listen to children, to get to know their personal lives and concerns... Children were more willing to approach the teacher... they frequently initiated conversation with teachers about personal matters'' (Finn et al., 2003, p. 342, from Johnston, 1990). They also described changes to students' behaviors, specifically decrements in antisocial behavior and increases in prosocial and positive learning behaviors. It would seem that smaller classes enabled teachers and students to develop

closer, more intimate relationships; and this intimacy likely contributed to their interactions and communication patterns over time; and vice versa, interactions and communication likely fostered greater intimacy within their relationships. Moreover, peer relationship processes also seemed to change as students engaged in more mutual assistance and encouragement. Locating intervention effects solely in teachers' or students' behaviors, and measuring outcomes at the individual-level, belies these more complex social transactions.

Large-scale observational studies also find that small classes are associated with more promotive interactions between teachers and students. Analyses from the NICHD Early Childcare Network (2004) found that smaller classes have higher quality instructional and emotional interactions between teachers and students. Similarly, Blatchford, Moriarty, Edmonds, & Martin's (2002) observational study in the United Kingdom finds that small classes are characterized by higher quality instruction, specifically more interaction between teachers and students and greater engagement of teachers and students in their interactions.

Despite these interesting hypotheses about how class size reductions might change social processes, one intriguing point emerges from class size studies—teachers' teaching strategies and methods do not seem to change when they are in small classes even though the amount of time spent on teaching and classroom management does change (Finn et al., 2003). These findings may indicate that teaching scripts (e.g., norms emphasizing didactic, question-response, directive, test/evaluative interactions) are fairly resistant to change.

Promotive social processes in large classes: Cross-cultural comparisons

Cross-cultural comparisons are useful because they can open up the ''universe of alternatives'' for creating social processes in classrooms and schools that address the common goal of student learning (Sarason, 1982). In the case of class size, Japan and Taiwan represent interesting counterpoints to arguments in the United States that class size reductions are necessary for changing classroom processes and hence student outcomes. Research on elementary schools in Japan and Taiwan suggests that large classrooms can have social processes that promote student learning and engagement. In the U.S., elementary school classes of less than 20 students are associated with better achievement and lower behavior problems. In Japan and Taiwan, however, elementary school classrooms often include 35–50 students, and these large classes do not lead to serious concerns over behavioral and achievement problems (Stevenson & Stigler, 1992). Some observers might be tempted to attribute this contrast to person-centered differences between East Asian and U.S. children, but Stevenson and his colleagues (1992, 1995) argue that the differences are attributable to classroom- and school-level differences. Stevenson, Stigler and their colleagues detail differences in the organization, delivery, and content of lessons, but our discussion focuses on the social processes in their cross-cultural comparisons to further illustrate our framework (Stevenson & Stigler, 1992; Stigler, Gallimore, & Hiebert, 2000).

Stevenson and Stigler (1992) find that elementary school teachers in Japan lead children's activities during 74% of class time whereas U.S. teachers do so during 46% of class time. Over half of U.S. children's time was spent working individually, with neither direct interaction with teachers nor coordinated activities with peers. In part, this is because whole-class instruction in the U.S. is organized often as a traditional teacher lecture, followed by student seatwork wherein children practice and apply their new skills *on their own*. It is not uncommon for children to complete their lessons without interaction with teachers and peers and to leave the lesson not knowing whether their answers were correct.

In contrast, whole-class instruction in Japanese elementary schools involves greater social interaction between teachers and students and amongst students themselves. Unlike U.S. teachers' traditional lectures, Japanese teachers begin lectures by posing a problem or series of questions that students must actively discuss. Students present various solutions to which their classmates and teacher further discuss and comment. During seatwork, teachers do not retire to their desks but, rather, move around the room, assisting and interacting with students. Lessons often end with some type of activity in which teachers and students review students' responses, and teachers summarize the lesson. Thus, although Japanese lessons are structurally similar to U.S. lessons in terms of lecture followed by student seatwork, Japanese instruction is infused with higher levels of social interaction. Patterns of greater social interaction in Japanese schools have been replicated in the Third International Mathematics and Science Study (Stigler, Gallimore, & Hiebert, 2000).

Classroom social processes in Japan also may be potentiated by the temporal organization of school schedules, the social organization of teachers' activities, and longer school days for teachers. In the U.S., school schedules require elementary school children to remain seated for long periods of time, a situation that may contribute to young children's restlessness and behaviors that appear disruptive. In contrast, Japanese schools in Stevenson and Lee's (1995) study provided children with 10–15 min recess breaks between every 40–45 min class. While children are noisy and active during these breaks,

they settle to calmer attention in the classroom. In addition, teachers' interactions with colleagues differ considerably in Japan versus the U.S. In Japan, new teachers receive in-service coaching from experienced, master teachers who take one-year leaves of absence from their positions to observe new teachers and provide them with guidance to improve their teaching. Vice-principals and head teachers also bear responsibility for training new teachers. Moreover, teachers' school schedules are organized to provide them with time to prepare lessons and to do so collaboratively with other teachers. These collaborative interactions are made possible by larger class sizes that allow Japanese teachers to spend only 60% of their time in school leading a class, and by spending more time at school before and after classes to work with other teachers and students needing help. These aspects of time and social organization are not part of the daily experiences of many U.S. teachers, who spend almost the entire school day teaching and with little interaction with their colleagues (Fullan, 2001).

Future directions and caveats for theory and empirical research

Our framework raises empirical research questions for future studies on social settings. What are the interdependencies and reciprocal effects among resources, organization of resources, social processes, and setting outcomes? Do social processes mediate the effects of changing resources and/or organization of resources on setting outcomes? To what extent do resources and/or resource organization directly affect social processes, and to what extent do they have interactive effects on social processes? In addition, future empirical studies will need to consider the degree of alignment (synergy, coordination) or misalignment among social processes within settings. Some social processes may contribute to positive setting outcomes for youth, but others may hinder those outcomes.

In recent years, theoretical developments on settings seem to be converging with empirical developments. The field is developing better setting-level observational measures and is becoming more sophisticated about aggregating individual-level data to represent setting-level constructs (see Chan, 1998 and Shinn, 2000 for reviews). We are excited particularly about observational setting measures that capture transactional social processes by coding a stream of social interaction rather than discrete person-centered behaviors. In the area of youth programs, for example, High/Scope (Smith, 2005) has developed and validated a Youth Program Quality Assessment Tool to measure many of the widely-agreed upon features of youth development programs. For classrooms, Pianta, LaParo, & Hamre (2004) have been building upon their work in early childcare settings to develop CLASS, an observational measure of the instructional and social-emotional quality of elementary and secondary school classrooms. In terms of intervention research to improve settings, the field now has better tools for research design, analysis, and power calculations for setting-level studies. In the area of experiments, for example, Raudenbush, Bloom, and their colleagues have developed software, a consultation service, and related papers to assist researchers in determining the sample size of settings needed to have adequate statistical power to detect the setting-level impacts of their interventions.

In this paper, we have focused on understanding social settings, specifically schools and other youth-serving organizations, and future work is needed on youths' other settings, including neighborhoods, homes, and peer groups. It may be useful to delineate the ways in which the approach we have discussed here does and does not fit these less formal settings. We also have focused on bounded social settings, which are nested within the broader contexts of school districts and public policy, and further theoretical work is needed to better understand how those macro-contexts affect settings and setting intervention.

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