

ABSTRACT

WANG, YULING. Factors that Impact Teacher Power in Decision-making in U.S. Public Schools: A Multilevel Analysis. (Under the direction of Drs. Duanne Akroyd and James Bartlett).

The teacher empowerment process emphasizes professional development and participation (i.e., increasing professional status, skills, knowledge and providing the opportunity to participate in decision-making); however, whether these efforts eventually lead to the realization of teacher power remains a critical concern, especially considering that the empowerment practices have to operate in the existing school culture. Without an adequate understanding of factors that impact teacher power exercises in schools, the impact of teacher empowerment remains under question. This study aims to empirically examine the impact of both individual-level factors (gender, race, union status, degree, teaching experience, collaboration, and networking) and school-level factors (school size, school level, and school climate) on teacher power in two decision domains at schools—namely, power in teaching and power in policy.

The study uses data from a national representative survey—1999-2000 Schools and Staffing Survey (SASS). Hierarchical linear modeling (HLM) was selected as the main method for data analysis. The analysis of the nationally representative data confirmed some previous findings and also made some new discoveries about teacher power. The results did not reveal any effects of gender, race and degree on teacher empowerment. Teachers with union membership report less power in both teaching and policy compared to teachers with no union membership. Teaching experience was not found to be related to either power in teaching or power in policy. This study also suggests that the empowerment is more effective when teachers are involved in collaboration and a network. In addition, the study

found that teacher power is related to several school-level factors: teachers from small schools (enrollment less than 300) have more power in both teaching and policy decision-making, and schools where teachers have more influence in decision-making were characterized by higher level of principal support and teacher engagement, with a lower level of teacher frustration.

This study offers three main conclusions. First, power is a multilevel concept because teacher power is an outcome of interplay between a teacher's individual characteristics and school organizational features. Second, teacher empowerment strategies should be highly contextualized. Third, social opportunities such as collaboration and networking should be a major target in fostering teacher empowerment. Therefore, policy makers and educational administrators need to provide holistic support from multiple levels to help to grow a healthy school environment in order to effectively empower teachers at schools.

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Factors that Impact Teacher Power in Decision-making in U.S. Public Schools: A Multilevel
Analysis

by
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DEDICATION

To my parents, Wang Gu-chun (王古纯) and Chang Tang-hong (常唐红) —for unconditional love and support.

BIOGRAPHY

Yuling Wang was born in Jiangsu, China, on April 16, 1982. Yuling graduated from Sancang Middle School in Dongtai, Jiangsu in 1997. She then attended Dongtai Teacher School with the dream of becoming a primary school teacher. The experience in Dongtai Teacher School aspired her to a career in education. Graduated from Dongtai Teacher School in 2000, Yuling was recommended to the Elementary Education Program at Nanjing Normal University and earned Bachelor of Arts degree in 2004. During the years in Nanjing, Yuling found her passion about educational research. After graduation, Yuling moved to Shanghai and attended East China Normal University. She earned a Master of Arts degree in Educational Administration in 2007. In 2008, Yuling decided to join the Educational Leadership and Policy Analysis program and began her doctoral studies at North Carolina State University. Yuling's research interest is educational administration. More specifically, she is concerned with topics related to school reforms, teacher development and policy analysis.

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Chapter 1: Introduction

Teacher power or influence in educational decision-making is an underlying issue in many educational reforms. With concerns about low student achievement, many educators and policymakers advocate further empowering teachers in educational management, following the lead of business and industry. In 1986, the Carnegie Task Force on Teaching as a Profession issued a report: *A Nation Prepared: Teachers for the 21st Century* argues that teachers should “assume new powers and responsibilities to redesign schools for the future” (p. 2). Since then, reforms (e.g., school-based management, teaching job redesign, and the professionalization of teachers) have focused on establishing representative decision-making systems within individual schools and creating supportive environments for teachers in which they have more professional capabilities and opportunities to influence educational policy as well as control the educational process (Murphy & Beck, 1995). Thus, teachers are encouraged to participate in school decision-making systems and work more collaboratively with colleagues in ways that include their opinion and voices to help consolidate their influence and power (Smylie, 1989). The emphasis on teacher empowerment seems often to be rooted in a belief that teachers’ expertise and problem-solving skills will benefit student learning and school effectiveness.

Research evidence has shown numerous educational benefits of teacher empowerment. For example, high performance schools tend to have more effective teacher empowerment in school decision-making process (Marks & Louis, 1997). In addition, teacher empowerment has been found related to student achievement (Moore & Esselman,

1992; Murphy, 1974; Rosen, 2007; Smylie, Lazarus, & Brownlee-Conyers, 1996); school climate (Keefe, 2008; Perry, 1999; Weiss & Cambone, 1994); school conflict (Ingersoll, 1996); and policy implementation (Roehrig, Kruse, & Kern, 2007).

Statement of the Problem

Despite a profusion of evidence as to the educational benefits of teacher empowerment and the increasing efforts in teacher empowerment, the awareness of teacher empowerment within schools is still limited. For example, teacher power in schools has usually been limited within boundaries determined by the principal (Hallinger, Murphy & Hausman, 2013; Ingersoll, 2003; Mangin, 2008; Smylie & Brownlee-Conyers, 1992; Weiss, 1992). Moreover, some studies reveal that teachers haven't acquired influence on many schools' operational decisions although they are allowed to participate in decisions (Donaldson, et al., 2008; Hallinger, Murphy & Hausman, 2013).

Even when increased participation occurs, it does not necessarily shift traditional arrangements of power among those involved. Besides, some analysts have concluded that the teacher empowerment has not only failed to produce the realization of teacher power, but also has led to many unintended negative consequences on both teacher satisfaction and classroom effectiveness (Ashton & Webb, 1986; Hallinger, Murphy & Hausman, 2013; Johnson, 1991). For example, in a study of school restructuring, Hallinger, Murphy and Hausman (2013) argued for the dilemma between the increased allocation of time for decision-making and the decreased allocation on classroom instruction. Johnson (1991) found that the lack of teacher influence in the final step of decision-making, thus negating

teachers' willingness to participate or get involved in all previous stages. This empirical evidence and these observations indicate the importance to further understand the nature of teacher power in schools.

However, there has been relatively little research on teacher power itself. There is even less systematic research on why some teachers have more power than others. Most research about teacher empowerment has focused on the structure of teacher participation and its effects on educational outcomes, looking into the questions such as what factors impact teacher participation (Abdel-Halim, 1983; Alutto & Belasco, 1973; Bandeen, 2009; Ciminelli, 2011; Conley, 1991; Hausdorff, 1992; Imber, Showers, & Duke, 1980; Keefe, 2008; Lintner, 2008; Sarthory, 1968; Smylie, 1992; Somech, 2003; Wallach, 2010); what processes teachers have to be able to participate in decision-making (Alutto, 1973; Hoy & Sousa, 1984); how much influence teachers have on school decision-making (Conley, 1991; David, 1989; Ingersoll, 2003; Malen and Ogawa, 1988); and what the associations are between teacher participation in decision-making and educational outcomes (Case, 1991; Hausdorff, 1992; Keefe, 2008; Keefe, Moore & Esselman, 1992; Rosen, 2007; Smylie, Lazarus, & Brownlee-Conyers, 1996; Taylor & Tashakkori, 1995; Weiss & Cambone, 1994; Xie, 2008). These studies have informed educational administrators and policy makers by providing empirical evidence. Yet these empirical findings and assumptions, while providing some insight on teacher participation, ways to promote teacher empowerment, and the effects on educational improvement, present a number of puzzles and potential problems.

The most notable problem is the following assumption underlying the current

research and educational practice: that the source of teacher power in school is only from their involvement in school decision-making (Bandeem, 2009; Brown, 2000; Hausdorff, 1992; Ingersoll, 1996; Rotigel, 1972; Walker, 1980; Webb, 2006; Xie, 2008). Therefore, these researchers conclude that by understanding the participation process and creating the opportunities for teachers to participate in decision-making, all teachers will eventually have more power and influence on educational process. While at the first consideration this may seem quite reasonable, upon closer examination this assumption becomes problematic. It would be reasonable to assume that teachers didn't want to participate in school decision-making because they saw no relationship between decision-making and empowerment. Or when these opportunities were provided, the teachers, not desiring more power, did not take the opportunity to exercise their influence. For example, in some schools, teachers are unwilling to participate even though they thought they understood the potential benefits of participation (Hallinger, Murphy, & Hausman, 2013; Johnson, 1991; Showers & Duke, 1980). A teacher in Johnson's study stated, "Participation is just a waste of time" (p. 17). The failure to recognize the disconnection between a teacher's participation in formal decision making and his or her actual power makes it impossible to really understand the factors that contribute to the variance in teacher power.

Secondly, the literature on power in school has previously concentrated on leadership-driven strategies, looking into such research problems as how school administrators' exercise of power in school governance impact teachers' life and school outcomes (Blas é & Kirby, 2008; Owens & Valesky, 2007; Sergiovanni, 1992; Shantz &

Pruieur, 1996). It is assumed that the administrator's leadership style is the vital factor that impacts teacher empowerment since increasing teachers' power often decreases principals' power; therefore, principals need to share their power with teachers and support teachers to voice their opinions (Chapman, 2013; Hord & Poster, 2013). However, this top-down approach largely neglects the important role that teachers play in the educational process at schools. Moreover, it neglects the problem that principals, themselves individuals, are often constrained by their location in patriarchal institutions and by the historical construction of school governance (Gore, 1992). Narrowing the research focus by ignoring or separating a principal's behavior from context or history and the issues involved makes the empowerment initiative difficult to implement successfully.

In response to these limitations, several analyses have, indeed, noted that teacher power in decision-making is related to a number of organizational as well as individual teacher-based factors (Angelle & DeHart, 2011; Chapman, 2013; Hord & Poster, 2013; Ingersoll, 2003; Mayer, 2013; Xie, 2008). However, these arguments are based either on case studies or the syntheses of literature about the teaching profession and the social organization of schools. No systematic attempts have been made to empirically examine the relationships of such factors on teacher power.

This study is prompted by a concern that current educational policy reforms emphasize increasing teacher power in a general way but in the absence of a strong body of research guiding specific implementations. Using a multilevel framework, this study aims to examine the factors that contribute to the variance in teacher power by considering how the

interplay of teacher attributes and school contexts might influence the degree to which teachers' power is realized in a school decision-making system.

Purpose of the Study

This study seeks to understand the nature of teacher power by focusing on the factors that result in the variations among teachers on the power of their decision-making at schools. Specifically, the study introduces a multilevel model as a framework for understanding teacher power in schools. Unlike other approaches that examine this issue by focusing on either school context or teacher level, the framework attempts to understand teacher power from the multiple perspectives: individual, social, organizational and cultural. It considers teacher power as an outcome of the interplay between a teacher's individual characteristics and a school's organizational features. This study uses this multilevel framework to identify the factors that should be targeted in future efforts at the teacher empowerment process. This study also makes evidence-based suggestions for policy makers and school administrators to facilitate the teacher empowering processes.

The study is guided by four questions:

1. Do schools differ in teacher power in decision-making?
2. How does the power teachers have in decision-making vary between teachers at the same school? In particular, to what extent are the characteristics of teachers, such as gender, race, work experience, union membership, formal collaboration, and networking, associated with a teacher's power in decision-making?
3. In what kind of schools do teachers have more power in decision-making?

Specifically, do school organizational features, such as its size, level, and climate, explain the variation of teacher power in decision-making among schools?

4. Does the association between a teacher's individual characteristics and his/her power in decision-making differ across schools? If so, how do these differences in organizational features among schools possibly influence this association?

Conceptual Framework

The conceptual framework used to guide this study is based on Isaac's (1987) view of power. Unlike other theorists who view power as a personal trait or an acquired skill, Isaac views power as a systematic, dynamic and multilevel concept. According to Isaac, power is "The capacities to act possessed by social agents in virtue of the enduring relations in which they participate" (p. 17). This definition locates the source or origins of power in the dynamics between individuals and the social organizations they inhabit.

In the educational field, systems theorists argue for a similar idea; Datnow, Hubbard and Meehan (2002) contended that agency and culture are two main facets that impact any kind of program implementation process. They defined culture as the sum of values, norms, and other taken-for-granted assumptions in shaping events, process and experiences at school (Schneider & Gunnarson, 1996). Agency was used to refer to individual actors' willingness to act, which was mediated by individuals' knowledge, skills and beliefs (Datnow, et al.). According to Datnow et al., neglecting the dynamic between agency and culture is the reason teacher empowerment efforts have often failed to achieve the intended outcomes. This perspective is used to conceptually frame how the individual-organization dynamics impact

teacher power in decision-making at schools.

In order to study the factors that impact teacher power in schools, this study takes a multilevel approach based on the work of Brass and Burkhardt's (1993) two-level analysis of power, which combines both structural and individual levels in organizations. As Brass (1984) pointed out, "While personal attributes and strategies may have an important effect on power acquisition, . . . structure imposes the ultimate constraints on the individual" (p. 27). This multilevel approach can be applied to study teacher power as well. The distribution of teacher power in a school is viewed as jointly and simultaneously determined by this interaction between structure and individual behavior. Therefore, both school organization and individual characteristics can cause an impact on teachers' perceptions of power in decision-making. The following section attempts to identify the factors of each level of analysis that will help to lay a foundation for a multilevel framework which will be used to understand the nature of teacher power in schools.

Teacher characteristics. Individuals in schools clearly differ in abilities, skills, and willingness to use those skills and abilities to acquire and exercise power. A set of factors related to teacher empowerment have been found that is currently functioning as the empirical evidence to guide the reform efforts to empower teachers. The literature suggests at least three aspects at the individual level that must be take into account: (1) personal characteristics, (2) expertise, and (3) social opportunities (Bacharach and Lawler, 1980; Tauber, 1985).

Personal characteristics. Individuals' personal characteristics were claimed to be the

major factors that differentiate individuals' power in terms of personal input in power acquisition. Previous research has identified that some factors such as gender, level of education, years of experience, and subject field have emerged as strong predictors for teachers' influence in schools (Angelle & DeHart, 2011; Moore & Esselman, 1992; Walker, 1980). For example, in a study of teacher power on 283 teachers from four randomly selected high schools in urban districts, Angelle and DeHart found that male teachers perceived they had significantly more influence than did female teachers in decision-making areas of budget and student personnel services.

Expertise. A teacher's professional knowledge, skills, and access to information comprise expertise. Previous research has found that professional expertise, prior teacher education, and practitioner inquiry all impact teachers' exercise of power in altering educational policies (Webb, 2002). Teachers with more teaching experience may have more chances to become leading teachers and take on responsibilities and roles in the school (Henke and Chen, 2000; Johnson, et al., 2004; Odell, 1997). Lichtenstein et al. (1991) found that teachers when they have knowledge of professional community, education policy, and subject area, are more powerful in educational issues at school.

Social opportunities. Social opportunities refer to the chances teachers have to build relationships and alliances with people in their schools. Much of evidence concerning teacher development and empowerment points to the importance of social activities. Benjamin and Walz (1988) suggest that teacher power can be increased by expanding personal networks. Surrey (1987), viewing power as a social construct, explains that "all

participants in the relationship interact in ways that build connection and enhance everyone's personal power" (p. 4). Network, collaboration, and professional community in schools, therefore, are crucial conditions for teachers to gain power and successfully exercise power in school decision-making. It is assumed teachers who are involved in any kind of social network are likely to have more power than other teachers who are not.

School context. Although teachers' exertion of their influence is contingent on individual resources and strategies, schools and the contextual features shape the conditions and environment where teacher power is exercised. Scholars in educational administration emphasize the vital role school culture plays in teacher empowerment reform (Hallinger, & Leithwood, 1996; Ho, 2010; Mayer, 2013). In a study of six schools that were involved in initiatives to facilitate increased school autonomy and expanded teacher decision-making power, Mayer found that lack of school structural and cultural supports contributed to the failure of teacher power expansion.

System theorists and sociologists have argued that power is generated and emerges out of interactions of reciprocal influence among members of an organization or community (Datnow et al., 2002; Mayer, 2013; Skreisberg, 1992). The more people act and interact together in an "integrating manner," the more their common and individual power increases. The schools with an "integrating manner" are generally described in terms of openness, sharing and collaboration (Skreisberg). Although scholars disagree on what features of a school determine teacher power, existing research provides the evidence that teacher empowerment is more effective in schools that have strong principal support, teacher

collegiality, collective responsibility, and collaboration (Briggs & Wohlstetter, 2003; Elmore, 1996; Hanson, 1976). These aspects of a school's organization capture the essence of social interactions in teacher empowerment by calling attention to two important linkages: principal-teacher (leadership practices) and teacher-teacher (engagement and frustration).

Leadership practices. The role of school leadership is a crucial, sometimes even omnipotent, factor of any aspects of school climate and characterizes the connections and interpersonal relationship between principal and teachers. These working relationships are often viewed as a representation of school culture (Hallinger, 2011; Leithwood, 2003; Mark & Louis, 1999). Researchers have suggested that schools with facilitative and supportive leadership are generally more open, collaborative and effective (Mark & Louis). In such schools, principals are perceived as democratic managers who maintained open channels of communication with the staff, and teachers are more willing to participate and get involved in school decision-making process as compared to schools where principals exhibited a harsh and authoritative attitude.

Studies have frequently reported that teacher empowerment at schools is associated with the work style of school administrator (Ariff, Mishra, & Rabby, 2011; Blase, 2001; Brown, 2000; Lintner, 2008; Rutherford, 2006; Somech & Wenderow, 2006; Wahlstrom & Louis, 2008); principal competence (Muscatello, 1991); and a principal's social attractiveness (perceived similarity to teachers and trustworthiness as well as principal's perceived willingness to suppress one's own self-interest for the benefit of the school) (Rinehart, Short & Eckley, 1998).

Teacher engagement. Schools with strong teacher engagement are generally described in terms of the collaboration and interactions among colleagues to achieve the common goals (Brundrett, 1998; Fullan, 1999; Keedy, & Rogers, 1991; Kelchtermans, 2006; Nias, 1998). These activities signify the satisfaction of teachers' own social needs without necessarily fostering a sense of accomplishment. They feel friendly toward each other and learn from each other. Some empirical evidence has shown that teachers tend to be involved more in democratic environment rather than in non-collaborative one (Hoy, 2003, 2008, 2011; Lu, 2013).

Previous research has found that collaboration among teachers provides the opportunity for teachers to share information, exchange resources, voice their opinions, and thus gain access to the policy process (Conley, 1991; Duke et al., 1981; Elmore, 1996; Hula, 1999; Kenis & Schneider, 1991). Consequently, it was predicted that teachers in schools with a collaborative atmosphere would more frequently be involved in the decision-making process. Such a relationship may be particularly likely in situations where the exercise of power is instrumental to teaching and instruction.

Teacher frustration. Teacher frustration has often been described in terms of the interference with and burden of teachers' work in schools. It is an important element in many frameworks describing school climate (Kottkamp, 1987; O'Connell & McCoach, 2008; Owen, 2001). When teachers experience high level of frustration at schools, they are likely to have less interest in teaching and school governance. Research has found that teacher frustration was closely associated with burnout, job satisfaction, and self-efficacy (Davis &

Wilson, 2000; Skaalvik & Skaalvik, 2009).

Teachers interacting with school environment. Teacher power is determined largely by the interplay between individuals and the school environment. The interaction is a dynamic process wherein the individual teachers and school environment adapt to each other (Datnow et al., 2002; Mayer, 2013). For example, Bidwell (1965) emphasized the role teachers play in school governance with the analysis of the school as a formal organization, and acknowledged that school governance is the outcome of the “interplay of bureaucratization and professionalism in the schools” (p. 992). Teachers can improve their professional skills and knowledge and participate in the school decision-making system, but these individual capabilities lead to different potentials in their exercise of that power. Thus, when teachers are in a particular school, they may pressure each other or help each other, or both, to provide their opinions and thoughts in decision-making system, depending on the norms of the social relations in the school.

To summarize, although there are many possible influences on teacher power at multiple level of the educational system, four elements ultimately impact teachers’ acquisition of and exercise of their power in a school administration: (a) the expertise and opportunities at individual level and (b) the school context and climate at school level. All the factors fall into these four elements. Therefore, this multilevel framework places the emphasis on the dynamic interplay between the teachers and school context.

In this study, a multilevel framework of teacher power (See Figure 1) is developed based on selected concepts and power theories aforementioned. In this framework, teachers

are nested in the particular school environment. The environment is differentiated by school context (e.g., school size and school level) and school climate (its internal social relations such as principal-teacher relations and teacher-teacher relations). On the left side of the figure are teachers' individual characteristics. The characteristics indicate teachers' potential ability to influence school decision-making. However, whether they exercise their power or not is largely determined by school conditions. These relationships are the means through which individuals share information, exchange resources, voice their opinions and gain access to policy process (Hula, 1999; Kenis & Schneider, 1991). As a result, the amount of teacher power in school decision-making is influenced by two levels of factors—individual teacher traits and school organizational features. There is a control for school context in order to examine the relationship between teachers' individual characteristics and their power in decision-making. Similarly, teacher-level factors were controlled to study the association between school context and teacher power in decision-making.

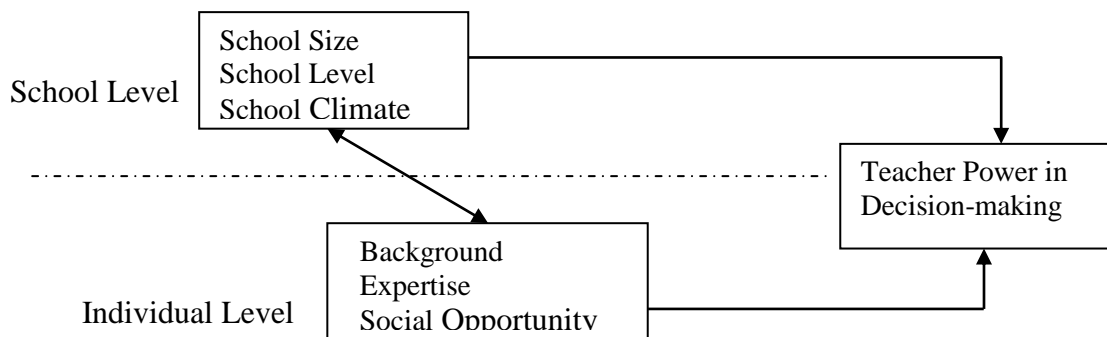


Figure 1. Two-Level Conceptual Framework on Teacher Power

Significance of This Study

By addressing the research questions, this study contributes to the existing literature in three ways:

First, this study advances the understanding of the nature of teacher power by taking the multilevel approach. Although there is an increasing interest in studying teacher power in academic fields, there is confusion regarding precisely what teacher power is and its connections to teacher empowerment. Drawing on the interdisciplinary theory, teacher power is viewed as evolving from the interplay of individuals and the school context in which they participate. This new conception of power advances teacher empowerment theory in education by clarifying the most critical elements of power to which we should attend. Therefore, the conceptual and empirical contributions inform empowerment theory by providing policy makers and educational administrators with practical answers to some difficult questions: (1) Where should the teacher empowering processes be targeted? (2) How should the teacher empowering processes be facilitated?

Second, a two-level hierarchical linear modeling analysis on a large, national representative data set used in this study contributes to the methodological tool kit of methods of studying teacher power and school management. The common method in the literature to study teacher power is to ask teachers to rate the influence they have on various dimensions of school decisions, and these individual ratings are aggregated to form measures of the reform effectiveness (Griffin, 1995; Ingersoll, 1996; Liu, 2007; Rosen, 2007). This approach ignores the impact of a school's organizational features upon teachers' power.

Using hierarchical linear modeling to analyze a large national representative sample provides a more sophisticated method for studying teacher power at schools—one that accounts for both teacher and school factors and allows for generalization of the results.

In addition, the results of this study have implications for policy makers and educational administrators regarding where to target teacher empowerment efforts. Researchers have stressed the role of ascribed characteristics such as professional knowledge and skills in power differentials. This might lead to the conclusion that the empowering processes should target individuals or groups with characteristics associated with powerlessness. However, while not denying the association between individual characteristics and teacher power, this study calls attention to the actual power realization in schools which is mediated by school context. Thus, identifying attributes of individual teachers and schools related to teacher power in decision-making will help educational leaders and policymakers diagnose the problems and implement not only shared decision-making governance for educational improvement, but also implement this reform in meaningful and effective ways.

Overview of the Study

This study consists of five chapters. Chapter 1 above provides a statement of the research problems, explains the significance of the study, and describes an overview of the research design. Chapter 2 reviews the theoretical foundation and empirical evidence for studying teacher power in decision-making. Chapter 3 explains the data source and research methodologies. It includes a description of the data source and variables, an explanation of

the statistical models, and an overview of the data analysis. The results of the analyses are presented in Chapter 4. Chapter 5 highlights key findings and specifies and discusses limitations and implications of the study.

Chapter 2: Literature Review

Chapter 2 begins with a review of reform initiatives on teacher empowerment to provide the background of this study. It then discusses the problems and issues in existing studies, demonstrating the limitation of our understanding of teacher power and the need to reexamine it. It then reviews two related areas of this study: decision-making participation and teacher power. Based on both theoretical arguments and empirical findings, factors that impact teacher power on both school level and teacher individual level are identified. The chapter concludes with the summary that link the problems, research questions, and methods chosen for this study with the literature.

Reform Initiatives and Teacher Empowerment

The concept of teacher empowerment is related to a historical effort to create democratic environments in schools while also enhancing school effectiveness and student learning. Research has shown that high performance schools tend to have more effective teacher empowerment in their schools' decision-making process (Marks & Louis, 1997). Teacher empowerment has also been found to be related to student achievement (Moore & Esselman, 1992, Murphy, 1974; Rosen, 2007; Smylie, Lazarus, & Brownlee-Conyers, 1996); school climate (Keefe, 2008; Perry 1999; Weiss & Cambone, 1994); school conflict (Ingersoll, 1996); and policy implementation (Roehrig, Kruse, & Kern, 2007). Thus, empowering teachers in schools has become the central theme for a wide array of decentralized governance and teacher professionalism movements for educational change and improvement over the past few decades. The next section provides the background of

reform initiatives and discusses their impact on teacher empowerment.

Professionalization, leadership and school restructuring. Scholars often consider teacher professionalization as equivalent to teacher empowerment in educational literature. It is commonly argued that teachers, as professionals, should have the power to control the educational processes and reforms. Maxcy (1991) stated:

Professionalism implies a kind of normative power. Educational professionals ought to have the power to form directives for action with regard to problems arising out of the exercise of their skills and expertise. Teaching professionals ought to have the power to make policy and policy decisions. By professionalism, I have in mind power being placed in the hands of educators such that they may possess leadership in policy and decision making affecting learning in schools. (p. 160)

Educational practitioners responded to this perspective by expanding teachers' roles and responsibilities in school-wide activities (such as assisting with the management of schools and facilitating professional learning communities). However, some empirical studies identified that individual factors such as a teacher's capability (e.g., unprofessional attitude, lack of knowledge and initiatives), have been obstacles to teachers making a real impact in decision-making at schools (Case, 1991). Therefore, the professional development at individual level that simultaneously focuses on advancing professional knowledge and improving teacher status has become the vehicle to teacher empowerment (Lichtenstein, McLaughlin, & Knudsen, 1991; Maeroff, 1988). It has been argued that through professionalization, teachers would be treated with more dignity, would have more to say

about their instruction, would feel more confident, and would more readily have an impact in decision making processes and their outcomes to help shape the way their jobs are done. In addition, according to this belief, teachers with experience, knowledge, and initiative would be able to create a democratic environment in schools through their ability to reinvest the authority in students. Therefore, initiatives such as teacher leadership attempt to seek a more systematic approach to developing the requisite skills and knowledge for assuming leadership roles and provide teachers with opportunities to participate in school decision-making processes.

Meanwhile, steering away from enhancing teacher individual capability, analysts from an organizational perspective began to discuss traditional school structure and administration challenges to teacher empowerment reform (see Murphy, 1990b). There was a tremendous upsurge in the quantity of research that began to produce scholarship and theories that called into question many of the underlying assumptions and specific approaches to promote teacher power. By highlighting the evidence that increasing teacher power in decision-making results in more effective school decisions, better teaching, and cohesive organizational culture, these theorists argue that traditional bureaucratic controls over schools impose some constraints on the professional autonomy of teachers and are potentially damaging to teacher morale. Instead of the centralized school arrangement which permits little time for teachers to interact around new information or knowledge and to reflect on their implications for practice, a more professional model focusing on collective responsibility and collaboration was thought more likely to empower teachers (Bryk et al.,

1996; Gronn, 2002; Weiss, 1992).

In addition, being in a small scale school may be an important factor that is critical to the success of teacher empowerment. Lee and Smith (1997) argued that professional communities focusing on teacher empowerment are unlikely to develop in a large and complex school. Based on the research findings, strategies at the school level that focus on changing school power relations, promoting collaborations, and grouping teachers into small teams have been dominant in many reform efforts.

Teacher empowerment requires the shift of the traditional principal's role (Blasé, 2001; Hargreaves, 2012; Lintner, 2008; Orphanos, 2011). A principal's leadership style (how they exercise their power and communicate with teachers) not only impact teachers' willingness to participate in decision-making, but also influences their desire to increase their own influence (Lintner, 2008; Muscatiello, 1991; Smylie, 1992; White 1992).

By highlighting the limitations of traditional school leadership, some scholars call for conceptualizing leadership in terms of interaction (Scribner, Sawyer, Watson & Myers, 2007). Smylie and Hart (1999) redefined leadership as "an organizational property shared among administrators, teachers, and perhaps others" (p. 428). In addition, new constructs such as distributive power (Dunlap, 1991) and shared leadership have been proposed and defined to guide the new regime of school administration. Accordingly, the power relation in school becomes a win-win situation which focuses on collaboration, negotiation and endemic reciprocity (Dunlap, 1991; Hargreaves, 2012; Moye, Henkin, & Egley, 2005). In the principal-teacher relations, the principal is viewed as a supporter and facilitator rather than a

traditional authority. Empirical evidence supports these conceptualizations and has shown that leadership in an effective school was decentralized, facilitative and supportive (Blas   2001; Hargreaves, 2012; Mark & Louis, 1999). Other research on distributive leadership also indicates similar results to the implementation of distributed leadership in schools and enhanced the nature and scope of teacher leadership (Rutherford, 2006).

In sum, the current reform initiatives have painted a big picture of two main approaches to empower teachers. One focuses on developing professional knowledge and skills (teacher professionalization) at the individual level; the second approach holds more collective and avowedly political notions of empowerment at the organizational level through the alteration of power relations and school restructuring. These efforts together are a joint attempt to not only alter the power relations within schools, but also to change the school structure and to seek the systematic change of teachers' power in order to improve both student learning and the school environment in education.

The impact of reform initiatives on teacher empowerment. Despite the aspirations of these reform initiatives and academic research on teacher empowerment, the realization of teacher empowerment within schools is still limited in several ways.

First, empirical evidence regarding scope and intensity shows little shift in relations of power at schools (Gore, 1992). Teacher power in schools is usually limited within boundaries determined by the principal (Weiss, 1992). Principals are reluctant to delegate authority to the teachers in decision-making, especially on the managerial domains (Hoy & Sousa, 1984). Hanson (1985) and Bacharach (1981) used "contested spheres" to describe the

decision arenas within schools where administrators and teachers compete for power. Moreover, some studies revealed that teachers haven't acquired influence on school operational decisions in many schools although they were allowed to participate in decisions. Even when increased participation occurs, it does not necessarily shift traditional arrangements of power among those involved.

Second, some analysts have concluded that the teacher empowerment efforts not only failed to produce the realization of teacher power, but also lead to many unintended negative consequences (Imber, Showers, & Duke, 1980; Johnson, 1991). For example, Johnson (1991) found a lack of teacher influence in the final step of the decision-making process, arguing that this lack negated teachers' willingness to participate and the effects of their involvement in all previous stages. In addition, Ashton and Webb (1986) found that teachers were dismayed and frustrated when they were unable to influence the decision-making process. Other empirical evidence has shown that teachers were less enthusiastic about participating in shared decision-making even they thought they viewed the potential benefits of participation (Imber, Showers, & Duke, 1980).

Evidently, these strategies cannot yield desirable educational outcomes. What is missing in these strategies is the understanding of the nature of teacher power. Although some of the current assumptions take into consideration teachers' expertise, access to information, and their participation in decision-making, the essential logic underlying these assumptions is that the variance in teacher power is caused by differences in professional knowledge, personality, and leadership practice. Therefore, by creating the opportunities for

teachers to develop their professional knowledge and skills and participate in decision-making, all teachers will eventually have more power and influence on educational process.

The failure to recognize the nature of teacher power as interactive and encompassing social potential which can be exercised or not makes it impossible to really understand the factors that contribute to the variation in teacher power. To understand the reason, this study takes a broad perspective to look at teacher power. Using theory from organizational and sociological studies, this study proposes a multilevel framework that attempts to look at the factors contributing to the differences in teacher power by considering how the interplay of teachers and school structures might influence the degree of teachers' power realization in a school decision-making system.

Research on School Decision-Making Related to Teacher Power

The richest body of research related to teacher power has focused on teacher participation in decision-making. It is assumed that the lack of teacher power is caused by the lack of opportunities to participate in a school's decision-making system. The typical strategy for administrators and policy makers to increase teacher power is to expand teachers' participatory roles in school decision-making process.

Participation in decision-making not only provides the opportunities for teachers to voice their opinions and have access to information, but it also alters the vertical power relationships between teachers and administrators, making each more accountable to the other, and promotes relationships among teachers themselves (Murphy & Beck, 1995; Smylie, 1994; Tannenbaum, 1968). The next section will review the studies on teacher

participation in existing literature to provide the theoretical foundation for teacher empowerment.

Teacher participation in decision-making. Sociological theorists define participation in decision-making as the “totality of such forms of upward exertion of power by subordinates in organizations as are perceived to be legitimate by themselves and their superiors” (Lammers, 1967, p. 205), whereas educational researchers tend to highlight the decisional scopes. For example, Short (1994a) pointed out teacher participation involves teachers’ input in critical decisions that directly affect their work.

Although scholars disagree on what aspects define participation, it is worth noting that participation in decision-making involves two processes: (a) direct participation and (b) indirect participation. Different forms of participation are distinguished by the kind of decisions and the structure. Specifically, direct participation is more relevant to work and work-related issues, and the implementation is closely connected with the style of leadership, while indirect participation is more concerned with general managerial policies and the implementation that represents an aspect of the organization’s system of governance. This differentiation manifests the need to take into consideration both the type of decisions and the school structure to fully understand the nature of teacher power.

Researchers have made great efforts to explore how to incorporate teachers in school decision-making by examining when, to what extent, and in what issues teachers should be involved.

Decision domains. The zone of indifference is a theoretical foundation in literature

that helps explain teachers' motivation to participate in decision-making. The central idea of the zone of indifference theory is that there is an area of decision content in which subordinates have little or no interest. Barnard (1938) called this area the zone of indifference and maintained that subordinates accept purely administrative decisions in this area. In school decision making, scholars claim that issues to be decided not only impact teachers' desire for participation, but also explain the variance in teachers' perception of their power (Smylie, 1992). Similarly, Ball (1987) argued that teachers' participation in or attempts to influence decision-making were determined by their personal and group vested interests as well as or in relation to their ideological commitments.

However, research fails to reach consensus on the decision domains. In a study of decisional patterns of teacher participation in two districts of western New York State, Alutto and Belasco (1972) proposed 12 decision areas to cover all activities in schools to study teachers' participation in decision-making: (a) hiring new faculty; (b) selecting specific instructional texts; (c) resolving learning problems of individual students; (d) determining appropriate instructional methods and techniques; (e) establishing general instructional policies; (f) establishing classroom disciplinary policies; (g) planning school budgets; (h) determining specific faculty assignments; (i) resolving faculty grievances; (j) planning new buildings and facilities; (k) resolving problems with community groups; and (l) determining faculty salaries. Mohrman and Cooke (1978) used factor analysis of the 12 areas identified by Alutto and Bilasco (1972b) to study the relationship between teachers' participation in decision-making and job satisfaction. They identified three decision domains including

technical decisions, managerial decisions, and negotiations. They found that teacher satisfaction was not related simply to the degree to which the teachers participated, but also to the type of decisions in which they participated. They concluded that participation in technical domains (texts, learning, methods, discipline, and instructional policy) had a significant positive relationship with job satisfaction.

Bacharach (1990) surveyed a sample of 842 elementary school and 689 secondary school teachers and reported four decision dimensions: a technical core, evaluation and development, resource allocation, and the distribution of human resources. Taylor and Bogotch (1994) claimed that the technical core itself consisted of two dimensions: instruction and instructional materials. In addition, Taylor and Bogotch found a managerial dimension and an associated technology dimension that is related to teachers and students but not to classroom activities.

Table 1 provides the discrepancies among the decision domains. Although there is no agreement on the elements of the decision domains, research, in general, employs two sides or the “zone view” of decisions (school-wide and classroom). The school-wide decisions consist of the administrative activities such as school coordination and resources allocation. The classroom zone consists of teaching and educational activities (Ingersoll, 2003).

Patterns of teacher participation. The earlier studies of teacher participation focus on identifying the patterns and mechanisms of teacher participation. Based on the study of teacher participation at schools in two districts, Alutto (1973) measured participation

according to three decisional states: Deprivation—actual participation in fewer decisions than desired; Equilibrium—actual participation in as many decisions as desired; and Saturation—actual participation in a greater number of decisions than desired. Alutto and Belasco (1972) found that teachers were more likely to report being decision deprived than in equilibrium or saturated, which suggested that teachers wanted to be more involved in the school decision-making process. In addition, the findings indicated a curvilinear relationship between decisional conditions and attitudinal work outcomes.

Table 1
Decision Domains at Schools

Decision Domains	Reference
1. Technical: classroom instruction	Charters & Packard, 1979; Herriott & Firestone, 1984; Schneider, 1985
2. Managerial: school wide	
1. Technical: classroom instruction	Mohrman and Cooke (1978)
2. Managerial: school wide	
3. Negotiation: salary and grievances	
1. Instruction and materials	Bacharach (1990) and Taylor and Bogotch (1994)
2. Evaluation and development	
3. Resource allocation	
4. Distribution of human resources	

Imber (1980) took a year of extensive field observations of the decision-making process in five secondary schools in the San Francisco Bay Area, examined teachers'

perception of the cost and benefits of participating in shared decision making, and found that the lack of actual influence in the final stage of the decision-making process made teachers less enthusiastic about participating even they thought they understood the potential benefits of participation.

In a study of school governance in 55 secondary schools, Hoy and Sousa (1984) collected data from the principals and teachers and proposed two dimensions of teacher participation in decision-making: delegated decision-making, which entrusts authority to others; and joint decision-making which stresses on the involvement of participants in the whole process to share a common effort. The study found that 62% of principals were reluctant to delegate authority to the teachers, although they were willing to involve teachers in joint decision-making. Instead of viewing decision-making in a unilateral direction, Hanson (1976) viewed this process as an interactive process. He argued that decision-making in schools is a result of the interaction between principals and teachers wherein they employ strategic behavior management to achieve the balance of power in schools.

Recently, several researchers focused on identifying the factors that impact teacher participation in school decision-making. These common factors include perceived decision-making structure (Rutherford, 2006), maturity, desired of power, self-described personal portraits, and the work style of leadership (Brown, 2000; Case, 1991; Hausdorff; 1992; Keefe, 2008; Lintner, 2008; Muscatiello, 1991; Smylie, 1992; Somech, 2003; Wallach, 2010).

Smylie (1992) revealed that teachers varied in their willingness to participate in different decisions. Teacher-principal working relationships exerted the most significant

influence on teachers' willingness to participate across decision areas. Case (1991) found that the type of governance structure employed in the school contributed to the difference between teachers' perceptions of decision-making. Brown (2000) used qualitative methodologies and micro political theory to examine teachers' desire for power and their perceptions of the empowerment initiatives and found that self-described personal portraits, the ideal echelon for decision-making power at the classroom level, and the work style of the school administrator had the most impact on teachers' desires for empowerment.

From an organizational cultural perspective, Hoy (2003, 2008, 2011) summarized five decision situations which were related to the degree of teacher participation: democratic, conflictual, stakeholder, expert, and non-collaborative. He found that there was maximum involvement in democratic situations, and no involvement in non-collaborative situations. These empirical studies seem to suggest that the consideration of individual and school context factors is vital when it comes to understanding the factors that contribute to the difference of teachers' power in decision-making.

Participation and educational outcomes. Another area that researchers have been interested in is the relationship between teacher participation in decision-making and educational outcomes. Numerous empirical studies have supported the claim that teacher participation not only impacts the school structure such as school climate (Keefe, 2008; Perry, 1999; Weiss & Cambone, 1994) and school conflict (Ingersoll, 1996), but also positively relates to teacher satisfaction, commitment and self-efficacy (Rice, 1993; Taylor & Tashakkori, 1995; Teague, 1991; Weiss, 1992).

Somech (2006) found that a strong emphasis on the participative management approach encouraged teachers to engage more in innovative practices at the school level (whole school projects) as well as at the class level (curriculum and pedagogy), and they concluded a positive effect on innovation, but no significant effect on performance. Ingersoll (2003) used regression analyses to show that more influence, in particular over social issues such as behavior policies, correlates with lower student-staff conflict, greater cohesion among teachers, less teacher-administrator conflict, and less teacher turnover. Murphy (2005) also suggested that enhancing teacher leadership opportunities in schools may help to retain teachers. Somech found that teacher participation is linked to their development of a sense of self-efficacy and self-determination (Conley & Bacharach, 1990; Firestone & Pennell, 1993; White, 1992).

Unlike other aspects of school function, the relationship between teacher influence and student achievement as well as instructional improvement is mixed. While some studies show a positive relationship between participation and student achievement (e.g., Crockenberg & Clark, 1979; Ramey & Dornseif, 1994), others find no evidence of this connection (Bryk, Deabster, Easton, Luppescu, & Thum, 1994; General Accounting Office, 1994; Rosen, 2007; Taylor & Bogotch, 1994). For example, in their study of teacher influence at charter schools using large national dataset—the School and Staffing Survey in 2000—Rosen (2007) failed to find a positive relationship between teachers' influence in decision-making and student outcomes. He concluded that decentralization may not be nearly enough to stimulate performance improvements in schools.

Other scholars argue that the relationship between teachers' influence on decision making and outcomes is contingent on decisions and environmental factors (Bozeman and Pandey, 2004; Ingraham, et. al., 2003; Moynihan and Pandey, 2004). Somech (2010) used a multilevel perspective to study the relationship between participative decision-making and outcomes. He argued that four elements serving as moderators may facilitate or inhibit the participative effects: teacher personality at individual level, principal-teacher exchange at the dyadic level, structure (bureaucratic/organic) at the school level, and culture (individualism/collectivism) at the environmental level.

Participation and teacher power. Studies have found that participation in decision-making impacts teacher empowerment in schools. Through the process of teachers' participation in schools, administrators share power and help teachers use it in a constructive way to make decisions affecting themselves and their work (Schermerhorn, Hunt, & Osborn, 1994). Based on the comparison design of a school making the transition from a traditional elementary school to an Edison charter school, Rutherford (2006) conducted over 50 interviews over a four-year period and found that the newly-implemented structure in the charter school enhanced the nature and scope of teacher power. Many believe that the formal alterations in decision-making structures will lead to real changes in the involvement, voice, and autonomy of stakeholders (Chapman, 1990; Dellar, 1992; Sackney & Dibski, 1992).

These findings on the connection between teacher participation and their power expansion in school decision-making were also supported by David (1989). Based on the review of a series of studies on site-based management, David found that the levels of actual

and desired involvement in decision issues had increased, teachers' perceptions of power in school decision-making process had increased, and the levels of interest and expertise in decision issues had changed.

However, other conceptual and empirical studies have reported the opposite results. For example, Malen and Ogawa (1988) found no evidence that patterns of influence were altered following the implementation of a school-site management initiative. Furthermore, using a national dataset—the School and Staffing Survey (SASS)—to investigate the change of teacher power from 1987 to 2000, Ingersoll (2003) claimed that there was little change in the level of teacher influence over decision-making at school. The mixed results of these studies demonstrate that teachers' responses to mandated empowerment reform were not cohesive.

Two approaches of measuring teacher power. While researchers generally use different methods to measure teacher power in different contexts, a review of literature revealed that these methods may be categorized into two major approaches: Subjective Measurement Method and Descriptive Case Study.

Descriptive case study. Descriptive Case Study collects the data through interviews and observations. With this approach, participants are asked to describe their understanding and experiences regarding teacher involvement in their school's decision-making process. Most studies that have adopted this approach focus on the examination of how a teacher exercises power in school policy and the relations to the policy implementation. For example, White (1992) relied on the data collected through interviews with over 100 teachers and

principals to study how decentralization works and how power is distributed in schools. This descriptive case study approach did provide the rich and detailed information of the school decision-making process, but such methods have often have been criticized for lacking generalizability to a larger population.

Subjective measurement method. The subjective measurement method relies on survey instruments. Participants are asked to report their subjective ratings of their level of influence regarding the main activities in schools. This approach is used widely in the area of instruction and school administration. In a study of teacher empowerment, Marks and Loise (1999) measured teacher power as an influence or control in four separate domains—school policy, teacher work life, student experiences, and classroom control, which were based on 14 items in the school restructuring study (SRS) survey of teachers. These measures asked teachers to rate the extent of their influence on the influence items using a 6-point scale, ranging from 1 (no influence) to 6 (a great deal of influence).

Besides the researcher-developed index, teacher power index developed in the national representative survey—the School and Staffing Survey 1999-2000—showed a strong validation and has been one of the most popular instruments used by researchers in study of teacher power in the quantitative field (Hanson, 1976; Ingersoll, 1996; Xie, 2011). The measure contains two domains which cover 13 decision areas: influence within their schools and influence within their classroom. The questions are presented with 5 Likert-type response options (high scores indicate higher perceptions of influence).

Validity of subjective measure. The major concern with the subjective measure

method is whether the respondents validly report their own situations or practices. For teachers' perception of power, for example, some highly satisfied individuals could overestimate their power, or highly disgruntled ones could do the opposite. In addition, teachers may have different understandings of the terminology used in the survey instrument (Scherpenzeel & Saris, 1997; Sudman, Bradburn, & Schwarz, 1996). These random and systematic measurement errors in responses due to the subjective attributions of the rater may introduce, which may mislead the research analysis, if the errors are deemed to be of sufficient magnitude.

The National Center of Educational Statistics made a substantial effort to validate the instrument and questionnaires of the SASS 1999-2000 from a psychometric perspective. For example, some basic statistics (e.g., univariate, bivariate, and multivariate) of the key survey variables were calculated to compare to estimates from the previous SASS survey to ensure the basic relationships observed were within reasonable bounds. In addition, strategies such as re-interviewing, record checking and cognitive consideration were employed to reduce the measurement error.

However, research addressing the validity of the specific construct of SASS 1999-2000 in the area of educational administration and teacher power is very rare. The only one yielded in my review of the literature was the examination of the validity of teacher power questions in the SASS 1999-2000 (Wolfe, Ray & Harris, 2004). Rather than focusing on a specific type of validity evidence, Wolfe, Ray and Harris used a Rasch Rating Scale Model to investigate the validity from the systematic aspects. They concluded that these questions

demonstrated the acceptable quality from 6 aspects of validation including dimensionality, internal consistency, rating category effectiveness, item quality, and item hierarchy and measure quality.

Empirical evidence supporting the validity of self-reported questions in studies of teacher power use teacher power questions from the SASS. With the awareness of the error which may be introduced by the responses, Integoll (1996) argued that the error due to subjective attribution is negligible since the results show the strong internal consistency of the construct and significant differentiations in the responses on various activities. Similarly, the most recent study of the association between teacher power and student outcomes by Rosen (2007) using the SASS teacher power scale also demonstrated internal consistency of the construct.

Despite some methodological issues concerning the validity of self-reported scales in educational academic research, this study of teacher power relies on self-reported data from the School and Staffing Survey 1999-2000. The decision was made based on the following reasons. First, empirical evidence from the field of social psychology supports the hypothesis that perceptions of one's own power are positively related to one's actual power (Lippitt et al., 1999). As such, some errors may be introduced by the response, but they are less likely to mislead the results. Second, most studies of teacher power in educational administration employ self-report measures and provide the empirical evidence of the constructs' validity. Moreover, the self-reported measure of teacher power has policy implications for current educational reform. The current decentralized policy focuses on

individual motivation and psychological cognition, assuming the power needs are met if teachers “perceive that they have power, or when they believe they can adequately cope with events, situations, and/or people they confront” (Conger & Kanungo, 1988, p. 473).

Empirical evidence has shown that self-believed empowerment is positively associated with a teacher’s commitment to teaching, job satisfaction, and efficacy (Firestone & Pennell, 1993; Fletcher, 1990; Littrell, Billingsley, & Cross, 1994; Riehl & Sipple, 1996). Therefore, understanding of the difference between teachers’ own belief about the reality of their actual power in school decision-making may provide needed guidance for educational practitioners and policy makers.

Summary of research on teacher power in decision-making. While it seems logical that participation would provide opportunities for teachers to have more say in school decision-making, the evidence on whether teacher participation results in greater power in school decision-making is elusive.

These mixed results of teachers’ power in decision-making indicate that the current research focusing on the mechanism of teacher participation in decision-making may be limited and provide little guidance for educational practice. As a result, more research is needed to understand the nature of teacher power. This is particularly important in light of the fact that teacher power in school decision-making is a key aspect of a wider set of educational reform initiatives such as teacher leadership, site-based management and teacher empowerment, all of which describe the managerial approach to teacher power in decision making.

Teacher Power: A Multilevel Perspective

In this section, I examine the diverse studies of power in educational literature with the aim to clarify my own focus.

Theories of power in education. Power has been systematically studied for several decades by economists, philosophers, political scientists, psychologists and sociologists. However, its focus varies greatly in different fields and sub-fields and within different intellectual traditions (e.g., webrian, behavioral). In the educational field, current scholarship on teacher power can be placed in three groups: power possession, power exercise and power realization.

Power possession. Power possession, an important concept in power studies, refers to the conditions for power exercise (Simon, 1953). One group of researchers in educational administration focuses on power possession, arguing for improving preconditions to empower teachers (Elmore, 1995; Fullan, 1991; Goodlad, 1990; Maeroff, 1988; Maxey, 1991). These studies view teacher power as their preconditioned capabilities. For example, Maxey (1991) defined teacher power as the responsibilities of educators to control the educational process. Teachers, as professionals, acquire expertise and possess specialized knowledge that is obtained through years of education, training, and practice in the field. The variance in these skills and knowledge indicates the different ability to make educational decisions (Goodlad et al., 1990). Other studies in educational politics refer to teacher power as the ability to form unions, bargain and strike (Lortie, 1975; McDonel and Pascal, 1979). Richardson, Lane and Flanigan (1995) identify eight essential values in schools, including

power itself, respect, rectitude, affection, well-being, wealth, skill, and enlightenment. They argue that control over these values in the education system determines, to a great deal, school operations and outcomes. Therefore, research in this area reveals that a powerful teacher may be the one who is at the high level of the profession, acquiring adequate professional training and passing certification exams (Crawford, 2001; Hallinger & Murphy, 1985; Sergiovanni, 1989; Smylie, 1989).

In addition, recent studies in school organization tend to view teacher power as collective and structural resources or energy shared by all of the educators in a school in order to improve student outcomes or achieve school goals (Shrewsbury, 1987). This conceptualization of teacher power highlights the socio-structural preconditions for power operation. It suggests that strategies focusing on school structure and culture should be developed to counteract unequal power arrangements. The perspective resembles several reform initiatives which focus on advancing the individual and collective capacity to achieve the large-scale educational improvement.

Power exercise. Another group highlights teacher power exercise, viewing it through specific decision-making context. For example, Kreisburg (1992) defined power as the ability to participate in decision-making and to take actions for change. For Kreisburg, power is conceived as “participation rather than imposition, as collaboration rather than control” (p. 134). Therefore, teachers’ impact on their school’s decision-making becomes an indicator of the success and effectiveness of the empowerment activities.

Research in education focusing on this perspective consists of studies of the ways

teachers exercise power by providing prescriptions for educational leaders and policymakers such as how to incorporate teachers in school decision making systems. Suggestions include when, to what extent, and in what issues teachers should be involved. For example, Dunlap (1991) proposed the concept of facilitative power to understand the power relations which requires a model of collaboration, negotiation and endemic reciprocity. School administrators exercise facilitative power by supporting teachers and faculties to build the creative environment. This conceptualization of power provides some understanding of teacher empowerment and leadership practices in the context of educational decentralization.

However, the problem yielded by such a conceptualization of teacher power is the challenges in the assumptions; it implies that only when teachers are directly involved in specific context (e.g., school decision-making, classroom instruction) can claim to have power. This assumption led the researchers to focus on how much influence teachers have on school decision-making without a deeper inquiry on the construct of teacher power. However, it is likely that some teachers have the capability to influence decision-making, yet they may not choose to exercise their power in decision-making situations for various reasons. Empirical evidence has shown the limitation of the conflation of power itself and power exercise (e.g., participation in decision-making) is in the evidence. For example, research has shown that promotion of teacher power in school decision-making is often disconnected with their actual influence. Criticism raised from the sociological and political fields argue that defining power as the ability to win in a conflict condition (such as decision-making) can be very misleading as to where power really lies (Luke, 2009).

Power realization. The third group explores teacher power realization, focusing on how much power teachers should have to make schools function well. These studies concentrate on questions that explore teachers' understanding of their role in decision making systems and the effects of teacher power on student achievement; school climate (Keefe, 2008; Perry, 1999); school confliction (Ingersoll, 1996); policy implementation (Roehrig, Kruse, & Kern, 2007); organizational commitment; teacher job satisfaction; and self-efficacy.

Recognizing the importance of expanding teacher power, researchers seek to understand whether teachers prefer more responsibilities and influence and whether teachers' influence could be expanded in schools. Studies have found that teachers' desire for power expansion varied for several reasons. First, individual characteristics (e.g., gender, working experience, and race) play a key role in teacher power realization (Brown, 2000; Teague, 1991; Webb, 2006). These individual characteristics support their exercise of power at school. Second, decision issues also have an impact on teacher power realization. Decision issues are considered as a relation to the teacher's self-interest. Some decisions may serve the interests of a particular individual or groups, but not those of others. Ball (1987) placed teachers' interests into three categories: vested interests, ideological interests, and self-interests, and argued that teachers' participation in or attempts to influence decision-making are determined by their personal and group vested interests as well as or in relation to their ideological commitments. Resources (material and social), careers, and reputations are at stake when policies are agreed upon and decisions are made.

Given the complexity of the nature of power and the various degrees of teacher

empowerment implementation, how much power should be invested in teachers became a primary issue in literature. From an organizational perspective, Anderson (1967) argued that the decision of how much power should invest in teachers depends on the expectation of a return of the investment and an assessment of the risk involved. He described schools as the exchange system which is shaped by the role expectations and role obligations. He further explained:

If school organizations cannot gain from the reinforcement of the institution's goals by drawing upon the teacher's experience, knowledge, and initiative. Also the teacher may reinvest this authority in his students with the possibility of an additional gain for the school. Nevertheless, as in all investments, the possibility of loss is greater also.

(p. 135)

Anderson attributes the withdrawal of authority invested in teachers to the combination of the risk of their displaying an unprofessional attitude and their inability to reinvest the limited authority they have in students. Teachers tend to seek increased influence without altering the decision-making structure. Similarly, Case (1991) also commented that teachers' maturity and experiential base on which to make competent decisions exerts a negative force expanding their influence to school-wide decision making. Therefore, scholars have pointed out the necessity of "changing norms, knowledge, and skills at the individual and organizational level before a focus on changing structures" (Elmore, 1995, p.26; Fullan, 1991).

One of the challenges to promoting teacher power through role expansion comes from

teachers themselves. For example, Hausdorff (1992) surveyed approximately 130 teachers in two different schools in a study of teachers' beliefs about their decision-making authority and their own influence, . One school had been involved in a reform initiative to "empower" teachers for four years while the other school had been involved for only one year. Findings indicated that teachers limit themselves to seeking influence over decisions rather than gaining authority. Instead of seeking to alter the decision-making structure, they would rather to increase their influence within it. These studies raised the importance of how to realize teachers' influence without changing the school's hierarchical structure.

Comment on current research of teacher power. Table 2 shows that the current power theory in educational literature centers on three main aspects: power possession, power use and power realization. As has been shown, the existing literature has been dominated by studies of single aspects of power yet pays little attention to the dynamics between and among these aspects. In addition, several analyses indicate that teacher power is related to a number of organizational and individual teacher factors (Conley, 1991; Ingersoll, 2003; Johnson, 1976). However, these arguments are based on case studies and on syntheses of literature about the teaching profession and the social organization of schools. No systematic attempts have been made to empirically examine the relationships between and among such factors on teachers' power.

While it is clear that there has been a shift in the dispensation of power to teachers in schools, the nature of teacher power and how teacher power forms in schools are not clear. The absence of a clear understanding of teacher power has offered minimal practical

guidance. The failure of scholars to recognize the nature of teacher power as a potentially interactive and social outcome that can be exercised by a teacher's choice makes it impossible to really understand the factors that contribute to the variation in teacher power. To understand the reasons, this study takes a multilevel perspective to look at teacher power.

Table 2

Examples of Power Studies in Educational Literature in Terms of Power Aspects

Power Aspects	Main Constructs	Authors
Power Possession	Professional status, skills, knowledge, autonomy	Edwards, Green & Lyons (2002); Leithwood (1996);
Power Exercise	Participation in decision-making, teacher teams, distributed leadership	Scribner, Sawyer, Watson, & Myers (2007); Gronn (2000),
Power Realization	The amount of impact	Keefe (2008)

Theoretical Framework. Researchers have argued for the multilevel perspective as one useful approach to holistically capturing the dynamic nature of teacher empowerment in school settings (Lee, 1996; Ragins & Sundstrom, 1989; Somech, 2010). For example, following the suggestions of Ragins and Sundstrom in addition to Lee, who conceptualized power as the ability occurring at three levels, to study the gender effects on power structure at schools: the personal level, the interpersonal level, and the organizational level. Somech also argued for multilevel factors that may facilitate or inhibit the participative effects, including four elements: teacher personality at individual level, principal-teacher exchange at

the dyadic level, structure (bureaucratic/ organic) at the school level, and culture (individualism/ collectivism) at the environmental level.

Some conceptual arguments contend that teacher power results from the dynamic interaction between various levels. Power is viewed as the nature of the complex and multi-dimensional relationships that are negotiated and re-negotiated over time within a special context (Gore, 1993). Barnett (1984) proposed three key elements to understand teacher power: resources, dependency and influence strategies. He argued that teacher power resides in the access to resources and finalizes through administrators' behavioral change. The systems approach argues for the similar idea that power in schools is not defined by the decision-making system or formal authority, but grows out of the ongoing interplay of individuals and school context in which they inhabit. As Pfeffer (1981) stated:

Standard operating procedures, rules, and behavior repertoires clearly exist and are important in organizations. Much organizational decision-making involves issues that are neither important nor contested, and in such cases, standard operating procedures are sufficient to get the decisions made in an inexpensive fashion. However, it is necessary to be aware that these rules, norms, and procedures have in themselves an implication for the distribution of power and authority in organizations and for how contested decisions should be resolved. The rules and processes themselves become important focal points for the exercise of power. They are not always neutral and are not always substantively rational. Sometimes, they are part and parcel of the political contest that occurs within organizations. (pp. 30-31)

Additionally, systems perspective pays special attention to the potentials that individuals hold in schools and how school structure enables such individuals to exercise their power (Datnow, 2002; Lipman, 1997; Myer, 2013). When applied to teacher empowerment, the systems perspective privileges teacher power that is embedded in informed, consensual, and egalitarian human relations (Butbules, 1986). It posits that particular features of a school's conditions more or less impact the power exercises and create a normative environment that enables changes in teacher power in schools. Therefore, the ultimate goal of teacher empowerment is to "create the ideological and material conditions for work that enable them to share power, to shape policy, and to play an active role in structuring school/community relations" (Giroux, 1988, p. 214).

The multilevel framework of power based on the systems perspective has been developed by many researchers in the social sciences to study phenomena in the organizations. For example, in a study of the potential power in organizations, Brass and Burkhardt (1993) argued that both personal attributes and structures have important effects on power acquisition. They found that organizational structure partially mediated the relationship between individual behavior and power. This applies to the educational field as well. Datnow (2003) argued that agency and culture are two main facets that impact any kind of program implementation process. The neglect of the dynamic between agency and culture is the reason teacher empowerment efforts have failed to achieve the intended outcomes.

This study examines teacher power from a multilevel perspective. The distribution of

teacher power in a school is jointly and simultaneously determined by school structure and teachers' personal attributes. That is to say, both school and teacher individual characteristics make an impact on a teacher's perception of power on decision making. First, individuals in the schools clearly differ in abilities, skills, and willingness to use those skills and abilities to acquire and exercise power. Second, different school climates may variously impact teachers' exercise of power in their schools. Third, the power exercise of teachers in school can be viewed as the outcome of ongoing interaction occurring between teachers, administrators, and other stakeholders.

Factors that impact teacher power in past empirical research. This section summarizes the findings of relevant literature about the factors that impact teacher power. The review includes literature from both the teacher's perspective and school organizational theory.

Individual determinants of teacher power. The individual attributes and characteristics of teachers have attracted much of the attention for organizational psychologists who investigate the intrapersonal power within organizations. In education, it is widely believed that some teachers' individual factors not only impact their desire for participation in school decision-making processes, but also influence the way they exercise power at school (Benoliel & Somech, 2009; Brown, 2000; Teague, 1991; Webb, 2006). These individual factors have been identified in the literature as including gender, education, department, and subject field, which emerged as strong predictors for teacher power in schools (Angelle & DeHart, 2011; Moore & Esselman, 1992; Walker, 1980).

Gender difference plays an important role in understanding teacher power. There has been a historical battle between males and females in power acquisition in educational administration (Lee & Cioci, 1993). Educational leadership has historically been a male-dominated area, whereas the role of women leadership was more symbolic. Since most school principals are males, it is argued that power variation existing within schools occurs particularly among the genders. Moreover, school structures make it easier for men to express and act on their aspirations and harder for women to overcome stereotypes of being poorly suited to undertake administrative roles and responsibilities (Shakeshaft, 1987; Shmuck & Wyant, 1981). Numerous studies have confirmed these observations (Angelle & Dehart, 2011; Case, 1991). For example, in a study of teacher power with 283 teachers from four randomly selected high schools in urban districts, Angelle and DeHart found a significant gender difference in teachers' self-perceived influence regarding the decision domains. Male teachers perceived they had significantly more influence than did female teachers in decision-making areas of budget and student personnel services. Consistent with these findings, a gender component in the model of understanding teacher power is necessary.

In addition, teachers from various departments or grade levels may have different power in decision-making because of their various degrees of access to resources (Preffer, 1981). For example, Talbert and McLaughlin (1994) found that teachers in math departments as a whole hold more influence than those in English departments. Angelle and DeHart (2011) concluded that physical education teachers perceived that they had significantly more influence on budget decisions than did liberal arts teachers. Obviously,

such factors would increase the bargaining power and professional standing of some teachers and thus augment their influence over workplace decisions.

There is relatively little evidence that a teacher's position is associated with power. Organization theorists argue that one main source of power in the organization comes with a particular role or position rather than an individual person, and power can be exercised by any person holding that position (Scott & Davis, 2007). At schools, various ranking positions allow teachers to access different information which will, in turn, enhance their ability to influence the decision making. For example, teachers with higher rankings in the school may become gatekeepers of information (Barnett, 1984). Thus, the teacher's position (e.g., department chairs, committee memberships) in the school is a strong indicator of amount of power he/she has.

Teachers' educational level and expertise are important factors in explaining the variance in teacher power. As indicated in the previous section, a teacher maintains power because administrators and colleagues in the school are dependent upon him/her for special knowledge and skills and access to certain kinds of information. Acker-Hocevar and Touchton (1999) argued that "the influence of teachers in the system is a combination of how well they know how to work the system, their perceived expertise, the influence afforded them, the collective agency of the group, and the norms within the school district" (p. 26). For example, Angelle and DeHart's (2011) study of teacher power in decision-making found that teachers with a bachelor's degree rated significant higher on sharing leadership than teachers with a graduate degree.

In addition, several studies have provided evidence of positive relationships between years of teaching experience and teacher power (Dee, Henkin, & Duemer, 2003). Teachers with more teaching experience may have more chances to become leading teachers as well as take on more responsibilities and roles in the school (Henke, Chen, et al., 2000; Johnson et al., 2004; Odell, 1997). Indeed, Angelle and DeHart (2011) found that teachers with 16 to 25 years of teaching experience perceived they had significantly more power in the decision-making areas of budget, curriculum, and teacher assignment than did the teachers with one to five years of experience. Similarly, Dee, Henkin, and Duemer (2003) found that teachers with five to seven years of teaching experience reported less power than teachers with 11 or more of experience.

The school contextual determinants of teacher power. School contextual factors have been a focus in studies of teacher empowerment (Bass, 2000; Little, 2000; Louis, Mark, & Kruse, 1996; Silins, & Mulford, 2004). In their study of how distinctive patterns of collegial interaction define the course of school improvement, Louis, Marks, and Kruse examined eight elementary schools, eight middle schools, and eight high schools, all of which were judged to have made substantial progress in restructuring their academic program. The researchers observed schools and classes, interviewed teachers and administrators, and surveyed teachers. Based on a descriptive analysis of their interview data, Louis, Marks, and Kruse found a positive relationship between school professional community and teacher power; that is, teachers in schools with a higher level of professional community have more influence over school, teacher, and student policy. Similarly, Moller et al. (2001) found that

teacher leadership roles are uniquely dependent on the school context in which the teacher works. Lachman and McBrayer (1982) found that a teacher's sense of power was positively associated with bureaucratic structure and perceived bureaucratic control.

Although there is little systematic quantitative research examining the ways in which school context and composition specifically affect teacher power in decision-making, the existing empirical findings generally support the conclusion that school contextual factors such as school level, school size, and school climate are associated with teacher power in decision-making.

School level. Some studies indicate that teacher influence in decision-making may differ at various school levels (Angelle & DeHart, 2011). Elementary teachers may feel more influence on school decision systems than secondary teachers, in part because of their more all-encompassing responsibility for students and concomitant belief that they know their pupils best. Bacharach (1986) indicated that secondary teachers may be more sensitive to influence on a departmental rather than school-wide basis. In addition, theorists on school change argue that teachers from secondary schools tend to resist increasing power because of the complicated school bureaucracy, subject traditions and identifications, and closeness to university selection (Goodson, 1983; Grant, 1988; Hargreaves, 1994; McLaughlin & Talbert, 2001; Siskin, 1994).

School size. Less research exists on school size in relation to teacher power in decisions, but research findings on school size favor smaller schools (Gottfredson, 1985; Gregory, 1992; Johnson, 1990; Lee & Loeb, 2000; Miller, Stockard & Mayberry, 1992).

Teachers in small schools appear to perceive school administration positively and have high staff morale. These findings indicate school size is likely to be a factor that impacts teacher power in decision-making as well. Berlin and Cienkus (1989) reported that teachers in a small school have more control, more personal influence, and greater sense of efficacy. Furthermore, some scholars argued that the interaction between school size and social economic factors can explain different results in studies of teacher influence. Teague (1991) found that in large schools of low per-pupil-expenditure and in small schools of high per-pupil-expenditure, teachers were more active in school decision-making than teachers in large, high per-pupil-expenditure and small, low per-pupil-expenditure schools.

School climate. School climate is a salient factor in any research on effective educational reform (Hoyle, English, & Steffy, 1985; O'Connell & McCoach, 2008). It is referred to a set of internal characteristics that captures the distinctive tone or atmosphere of a school. Litwin and Stringer (1968) defined school climate as “a set of measurable properties of the work environment, based on the collective perceptions of the people who live and work in the environment and demonstrated to influence their behavior” (as cited in Hoy and Miskel, 1996, p. 140).

Teachers from the same school are likely to be exposed to the same stable relations, and this exposure results in a relatively homogeneous experience about their school that makes it distinct from those of other schools (James & Jones, 1974). In addition, from a psychological perspective, individuals within the same organization tend to ascribe the same meaning to the structures and practices around them (James, 1982). Therefore, school

climate is a characteristic of the entire organization which is based on members' collective perceptions and determines members' behavior and attitude (Pool, 1985). It is reasonable to assume teachers from schools with different climates may have different perceptions of their influence in decision-making.

Several instruments have been developed to measure school climate (Halpin & Croft, 1963; Hoy & Sabo, 1998; Hoy, Tarter, & Kottkamp, 1991; Pace & Stern, 1958; Stern, 1970). For example, some studies describe school climate as openness and closeness by identifying important aspects of social interactions in school (Halpin & Croft, 1963). Others use the symbolic framework focusing on the conditions that foster growth development in the organization (Bolman & Deal, 2003; Miles, 1969; Scott, 1998). The human-relations perspective of school climate is primarily concerned with the relationships and the connections among individuals within a school. From human-relations perspective, three key elements of school climate have been identified in the literature: leadership practice, teacher engagement and teacher frustration.

Leadership practices. Leadership in schools and school climate are interrelated (Griffith, 1999; Kelly, Thornton & Daugherty, 2005; Mark and Louis, 1999). Emerging from existing studies is the clear conclusion that leadership is a crucial, sometimes even omnipotent, factor in any aspect of school climate (Anderson, 1982; Leithwood, 1993; Tarter & Hoy, 1988). Principals' characteristics such as work style (Ariff, Mishra, & Rabby, 2011; Blase, 2001; Brown, 2000; Lintner, 2008; Rutherford, 2006; Somech & Wenderow, 2006; Wahlstrom & Louis, 2008); competence (Muscatello, 1991); and social attractiveness

(perceived similarity to teachers and trustworthiness as well as the principal's perceived willingness to suppress one's own self-interest for the benefit of the school) (Rinehart, Short & Eckley, 1998) have been identified as the powerful elements in determining school climate.

By the same token, principal effectiveness lies in the school environment. Empirical evidence shows that principals have positive effects only under school governance and climate conditions (Griffith, 1999). The school conditions such as school size, the number of grade levels as well as ethnic and socioeconomic characteristics in schools determine a principal's attitude and definition of his or work (Hallinder & Heck, 1996; Salley, 1979).

The linkage between school climate and teacher empowerment is evident in educational research where school climate has been related to leadership practices. Mark and Louis (1999) indicated that schools with facilitative and supportive leadership are generally more open, collaborative and effective. In such schools, principals are perceived as democratic managers who maintain open channels of communication with the staff, and teachers tend to be more willing to participate and get involved in school decision-making processes as compared to teachers in schools where principals exhibit a harsh and authoritative attitude. Smylie (1992) also contended that the dynamic of social interactions between principal and teachers not only impact teachers' willingness to participate in decision-making, but also has a significant influence on their desire for power acquisition.

In a study of the impact of how principals exercise their power on teacher empowerment, Lintner (2008) surveyed three districts in Alabama and found that a principal's use of expert power and referent power have the most influential relationship on

teachers' empowerment. Coercive and reward power bases are the least likely power bases to have a significant impact on empowerment. However, the study also found that most principals exercise their power from a legitimate power base, rarely from a reward power base. In addition, this study indicated that poor quality of administrative staff, standards, lack of communication, societal issues, and non-teaching duties are the main obstacles in teacher empowerment.

Teacher engagement. Teacher engagement is defined as a positive, fulfilling state of mind that is characterized by feelings of friendliness towards others or possessing a social need for satisfaction, not necessarily with a sense of accomplishment (Brundrett, 1998; Fullan, 1999; Keedy & Rogers, 1991; Kelchtermans, 2006; Nias, 1998).

Previous research provides the evidence that teacher engagement is an essential element in determining school climate. Schools with higher levels of teacher engagement were found to be related to the sense of community, personal caring among adults, and the integration between personal life and work life (Louis & Smith, 1991). These characteristics, in turn, impact teachers' attitude toward their professional work. Teachers in such schools are likely to take more responsibilities, work harder and get involved in decision-making processes. Such a relationship may be particularly likely in situations where the exercise of power is instrumental to teaching and instructions.

In addition, the emphasis on collective staff development and collegial interaction are found to be responsible for a positive "whole school" climate. Social interactions among teachers, such as collaboration, provide the opportunity for teachers to share information,

exchange resources, voice their opinions, and thus gain access to the policy process (Conley, 1991; Elmore, 1996; Hula, 1999; Imber, et al., 1981; Kenis & Schneider, 1991).

Teacher frustration. Teacher frustration has often been described in terms of interference in and burdens of teachers' work in schools. It is an important element in many frameworks of school climate (Kottkamp, 1987; O'Connell & McCoach, 2008; Owen, 2001). High levels of teacher frustration were often found in schools with limited resources and a lack of sufficient support for teachers to accomplish their teaching tasks (Kaufhold, Alvarez & Arnold, 2006). As mentioned above, teachers' power in decision-making at school lies in their ability to access the resources, information, people and facilities. Thus, it is reasonable to assume teachers in schools with high level of frustration will have less power.

Although school context has attracted much attention in the literature about teacher empowerment and school effectiveness, only a limited number of inquiries have been conducted that examine its relationship to effectively fostering teacher empowerment (Hanson, 1976; Hoy, 2003, 2008, 2011; Lee, 2000; Somech, 2000). Moreover, these studies are limited to qualitative case studies analyzing some particular organizational and administrator characteristics. Despite the limited and inconsistent data on the realization of teacher empowerment in schools, understanding the nature of teachers' power holds the possibility of empowering teachers in a collective way through the school climate.

Summary

Previous research has resulted in a long, almost exhaustive, list of factors that may affect teachers' power in schools. However, these factors are often examined in isolation

from each other or from the perspective of the system in which they interact. Rarely are they studied together under a framework to sort out their relative importance and to identify the relationships among them. Moreover, there seems to be no framework in the existing literature that captures the dynamic nature of teacher power. Scholarship in this area is in desperate need of the unified framework that supports the current research, which examines teacher power from many perspectives: social, organizational, and cultural. To understand the nature of teacher power, we need one framework that allows us to talk about these factors in similar terms.

Chapter 3: Methodology

Chapter 3 begins with an overview of this study's purpose and a restatement of the research questions. Then, a description of the data sources is presented after which the dependent and independent variables selected for this study are defined. The chapter concludes with an example of the multilevel models used to answer the research questions.

Data Sources

This study uses data from a national representative survey—Schools and Staffing Survey (SASS). The SASS was first designed in the mid-1980s by the National Center for Education Statistics (NCES). It has been used to collect the data during six periods: 1987-1988, 1990-1991, 1993-1994, 1999-2000, 2003-2004 and 2008-2009. Each round of SASS included separate but linked questionnaires for the principal and for a random sample of teachers in each school. The SASS is among the largest and most extensive survey of its kind in the nation, offering comprehensive information about teachers, administrators and the general school conditions of K-12 education in the United States. It is also one of the most widely used secondary data sources for research in K-12 education.

This study targets the population of American public school teachers. The sample of 1999-2000 SASS Public School Teacher Survey contained 42,086 respondents from 9,374 schools, representing the population of nearly 3 million across the nation (weighted N= 2,984,783). The unweighted response rates for public school teachers and public charter school teachers in the original 1999-2000 SASS were 81.2% and 87.8%, respectively. The weighted overall response rate was 76.6% for public school teachers and 71.8% for public

charter school teachers.

Sample Design

The NCES used multistage cluster sampling strategies to collect data. Schools were selected from several sample frames including the Common Core of Data (CCD), the Private School Survey (PSS), the area frame, charter school frame, and BIA frame. Then the selected schools provided the teacher lists from which a sample of teachers was selected from each school. To obtain a suitable teacher sample, teachers within schools were sampled at a rate that made the overall selection probability approximately constant within strata, which resulted in at least one and no more than 20 teachers per school. This sampling design facilitates the collection of complementary datasets that provide policymakers, researchers, educators, and the general public with a broad range of information on the conditions of schools and staffing in the United States.

The multistage cluster sampling strategy used in the SASS data collection results in the differential probabilities of sample selection, which may yield the incorrect nationally representative estimates. That is, the estimate of each teacher's power may not represent the same number of teachers in the population. Therefore, to account for differential probabilities of selection due to the nature of the research design, researchers have recommended incorporating sample weights during the analyses (Chambers, 2003; Little & Rubin, 2002; Pfeffermann, 1998; Pfeffermann, Moura, & Silva, 2004). Pfeffermann (1998) proposed to scale the weights using the reciprocals of the selection probabilities at each stage of sampling to improve the properties of the estimators. In addition, software packages such

as *Sudaan* and *Stata* allow the implementation of correct formulas for estimating variances when analyzing the individual-level predictors with individual outcomes in the complex survey.

However, there are some limitations to incorporating weights in fitting Hierarchical Linear Modelling (HLM) to survey data (Bertolet, 2004). Some software packages such as *SAS Proc Mixed* procedures cannot employ the raw sample weights calculated by the SASS if the study of interest was not the primary sampling unit. In addition, the use of sample weights may introduce multicollinearity into the model, thereby leading to erroneous results. To address the issue of selection bias due to the nature of design, a simple approach was adopted in this study: I included several important independent variables of teachers and schools as covariates in this study. By conditioning on certain respondents' characteristics, the bias due to sampling design can be ignored (Rubin, 1976).

Measures and Variables

Based on the literature review, this study examines the factors that impact teacher power from both individual and school levels. Table 3 lists the variables investigated in this study. It is important to note that some of the factors may relate to each other. The potential correlation between factors was considered both in data analysis and is discussed in Chapter 4 wherein the results are interpreted. The following section provides the information about each variable in this study.

Dependent variables. The measure of teacher power in this study focuses on individual teachers' subjective assessment of being powerful at schools. As literature

indicates, teacher power may be acquired and exercised in different settings, and thus may take an exhaustive number of forms. To make data analysis more manageable, teacher power in this study is categorized into two areas: teacher power in policy and teacher power in teaching.

Teacher power in policy. This variable reflects an individual teacher's subjective assessment of his or her power on policy decisions at a school. The policies covered the decision domain of standards for students, curriculum, professional development, teacher evaluation, new hires, disciplinary policy, and school budget. This dependent composite variable was created by averaging individual teachers' total score on items 57 a-g of the 1999-2000 SASS survey.

Teacher power in teaching. This variable measures an individual teacher's self-perception of their power over teaching decisions including instructional materials, content to be taught, teaching techniques, student evaluations, student discipline, and the amount of homework. This dependent variable is the sum of teachers' scores at their school on items 58 a-f of the 1999-2000 SASS survey.

Thirteen items were contained in the section "decision-making" of the 1999-2000 SASS public school teacher questionnaire, all of which were used to measure teacher power in this study. The items individually were measured on a 5-point, likert-type, ordinal scale (1 = no influence and 5 = a great deal of influence).

Independent variables. The next section describes the independent variables, including the names of the variables, a brief description of each, the measurement of the

variables, and the level of analysis in the models.

Measures at the teacher level. Measures at teacher level focus on the following teacher demographics: gender, race, degree, working experience, union membership, network, and formal collaborations. The selection of these variables was drawn on the previous literature. Although it is acknowledged that a teacher's psychological factors, such as motivation and self-interest, either facilitate or inhibit the power acquisition, studies of teacher empowerment have consistently indicated that the major sources of teacher power come from their expertise and professional skills (Crawford, 2001). Therefore, this study focuses on the effects of these two constructs with the aim of seeking practical implications on educational policy and administration of teacher empowerment initiatives. Teacher expertise was measured by their working experience, and the level of professionalism was measured by degrees, union membership, network and formal collaborations. In addition, this study includes two basic demographic variables of teachers, gender and race, to reduce the bias in the estimation of teacher power. The detailed information and operation of each variable is described below.

Gender. Teachers were asked to respond to the following question: Are you male or female? which results in the qualitative variables as "male" or "female" in the 1999-2000 SASS data set. The response was coded as a dummy variable "gender" with two values: 1 = male and 2 = female.

Table 3
Variables Investigated In This Study

	Constructs and Variables	Item No	Coding for Analysis
Dependent Variable	Power in School Policy		
	1. Student performance standards	TQ57a	A 5-point likert-type, ordinal scale (1 = no influence and 5 = a great deal of influence)
	2. Curriculum	TQ57b	
	3. Professional development	TQ57c	
	4. Teacher evaluation	TQ57d	
	5. Teacher hiring	TQ57e	
	6. Discipline policy	TQ57f	
	7. School budget	TQ57g	
	Power in Teaching		
	1. Teaching content	TQ58a	A 5-point likert-type, ordinal scale (1 = no influence and 5 = a great deal of influence)
	2. Instructional material	TQ58b	
	3. Teaching techniques	TQ58c	
	4. Student evaluation	TQ58d	
	5. Student disciplines	TQ58e	
6. The amount of homework	TQ58f		
Level-1 Variables	Personal Characteristics		
	Gender	TQ64	1 = male and 2 = female
	Race	TQ65	1 = White, 2 = Black, and 3 = others
	Expertise		
	Work experience	TQ6a	Years of experience-a continuous variable created by NCES
	Degree	TQ8a-b	1 = master or high and 2 = less than master
	Union membership	TQ63	1 = not union member and 2= union member
Social Opportunities			
Formal collaboration	TQ27e	1=yes and 2=no	
Network	TQ27g	1=yes and 2=no	
Level-2 Variable	School size	Created by NCES	1=less than 300 students, 2=300-499 students and 3=500 or more students
	School level	Created by NCES	1 = elementary school, 2 = secondary school and 3 = all other cases
	School Climate	A composite measure created by researchers	A 1-4-response scale with 1 = strongly agree, 2 = somewhat agree, 3 = somewhat disagree, and 4 = strongly disagree.
	Leadership practices		
	Teacher engagement		
Teacher frustration			

Race. Teachers reported their race based on five categories: White, Black or African-American, Asian, Native Hawaiian/other Pacific Islander, and American Indian/Alaska Native. Among public school teachers, 83% were non-Hispanic White, 8% were non-Hispanic Black, 6% were Hispanic, about 1% were non-Hispanic American Indian or Alaska Native, about 1% were non-Hispanic Asian, and less than 1% were non-Hispanic Native Hawaiian or other Pacific Islander. For the current study, five categories were recoded as a categorical variable “race” with three values: 1 = White, 2 = Black and 3 = others.

Work experience. Teacher work experience was measured by the years of teaching. Teachers answered the following questions:

- How many years have you worked as a FULL-TIME elementary or secondary teacher in PUBLIC, CHARTER and /or INDIAN schools?
- In what year did you begin teaching in THIS school?

Based on the responses to the two questions, the National Center for Education Statistics has created a continuous variable “totexper” of work experience for teachers. In this study, I use this composite continuous variable “totexper” provided in 1999-2000 SASS dataset.

Teacher degree. The education-level variable was reported from two categorical variables, which asked: Do you have a bachelor’s degree? and Do you have a master’s degree? Responses were “yes” or “no.” Those who answered yes to the first question were prompted to answer the next six specific questions on the degrees, such as when did they earn the degree, where the degree was rewarded, the topic of their major, and whether it was

with their second degree. The second question is also followed by the specific questions on their master's degree as the first one. There were 41,633 respondents out of (98.92%) with a bachelors and 18,501 respondents (45.04%) with masters. In the current study, the dummy variable "degree" was created for the research questions, in which 1 = master or high and 2 = less than master.

Union membership. Teachers responded to this question: Are you a member of a teachers' union or an employee association similar to a union? The answers were either yes or no. I recoded the variable as a dummy variable "union" with value 1 = not union member and 2= union member.

Formal collaboration. Teachers were asked to respond to the question: Do you have regularly-scheduled collaboration with other teachers on issues of instruction? The question excluded administrative meetings. Their answer can be either yes or no. The dummy variable "T0154" was created with the value 1=yes and 2=no.

Network. Teachers responded to the question: Are you participating in meetings including a network of teachers (e.g., one organized by an outside agency or over the internet)? The answer was either yes or no. The dummy variable "T0156" was coded with value 1=yes and 2=no.

Measures at school level. The measures at school level consist of two constructs: school context (school size and school level) and school climate. The detailed description follows:

School size. The schools were asked to answer the following question: Around the

first of October, how many students in grades K–12 and comparable ungraded levels were enrolled in this school? NCSE created the categorical variable “s0092” (total enrollment) from the response with the coding 1=less than 300 students, 2=300-499 students and 3=500 or more students.

School level. The response items for school level include K-12 and ungraded by asking the question: Which of the following grades are offered in this school? Based on the responses, the NCES created the categorical variable with the value 1 = elementary school, 2 = secondary school and 3 = all other cases.

School climate. 10 items in the section “teacher attitude and school climate” of the 1999-2000 SASS public school teacher questionnaires were used to create the composite variable school climate. The questionnaire items asked each teacher’s perception of their social interaction with colleagues and school leaders on a 1-4 response scale with 1 = strongly agree, 2 = somewhat agree, 3 = somewhat disagree, and 4 = strongly disagree. Table 4 shows an example of the wording used for questions on teacher attitudes and school climate in 1999-2000 SASS.

Data Cleaning

There were 42,086 respondents to the 1999-2000 SASS questionnaire. Since this study is only interested in full-time public school teachers, 2,245 respondents who were part-time teachers, itinerant teachers, long-term substitutes, or administrators (38,375 from 8652 schools) were excluded. In addition, 3,350 non-interviewed respondents from the schools were excluded. These changes resulted in a final sample data set containing 36,677 full-time

teacher respondents with regular teaching certificates from 7,934 public schools.

Table 4
Teacher Attitudes and School Climate Survey Question Wording and Items, 1999-2000 SASS Data

Teacher attitudes and school climate survey question wording

Using the scale of 1-4, where 1 means "Strongly agree" and 4 means "strongly disagree." To what extent do you agree or disagree with each of the following statements?

- The principal lets staff members know what is expected of them.
- The school administration's behavior toward the staff is supportive and encouraging.

Missing data is a common phenomenon in almost all educational research. As is well-known in the quantitative educational literature, there are three types of missing data: survey non-response (e.g., a respondent may be missing from the entire data collection process), item non-response (e.g., miss, neglect or refuse to answer a specific question), or respondents may not be applicable to answer certain questions. In the 1999-2000 SASS dataset, the missing item non-responses were coded as the negative number (-9). After the data cleaning process, school enrollment, the only variable in this study, had 3,350 missing teacher responses. They were coded as negative values in the original SASS dataset. These missing values were treated by using maximum likelihood estimation method through SAS *Proc Mixed* procedure in the data analysis. The maximum likelihood estimation method is

able to produce the accurate estimation of the data with missing values by incorporate all the information from all the observations, assuming missing at random (MAR) or missing completely at random (MCAR).

Data Analyses

According to several specific research questions, this study applied several data analysis methods. First, factor analysis was performed to examine the latent dimensions of teacher power (dependent variable) and school climate (school-level variable); then, a descriptive analysis was performed to paint a big picture of the data; last, several multilevel models were constructed, and Hierarchical Linear Modelling analyses were performed to identify possible statistically significant factors from both individual and school levels.

Factor analysis. Exploratory factor analysis was performed to examine the latent dimensions of teacher power (dependent variable) and school climate (school-level variable). The Kaiser criterion (eigenvalue >1) (Kaiser, 1960) and the Scree test (Cattell, 1966) were used as the criteria to determine the number of factors to be retained. In order to interpret the solution more easily, orthogonal rotation, forcing unrelated factors, was used in this study since it was easier to make composite variables that were then used in the hierarchical linear regressions without the complication of multicollinearity (Stewart, 2001). The extracted factors were subsequently used in the hierarchical linear regressions.

Descriptive analysis. The purpose of descriptive analysis is to paint a big picture of the data itself and examine the correlations among the variables to lay the foundations for further model predictions of the variables of interest. This descriptive analysis includes three

steps: first, conduct univariate analysis of each variable to summarize the teacher characteristics and school features. Percentages in the table are also compared to other categorical variables including teacher gender, race, union membership, teacher degree, collaboration, network, school level, school size and school climate. Continuous variables including teachers' work experience and school size are then described by the mean, standard deviation, minimum, and maximum. Second, bivariate analysis is performed to examine the correlation among each variable. By creating the correlation matrix separately at the teacher level and the school level, the assumptions and validity of the analysis was checked. Lastly, simple linear regression was performed to gain a basic understanding of the association between predictors and dependent variables.

Multilevel data analysis. This study is interested in modeling the variability of power on the decision-making of teachers sampled from many different schools to examine the effects of both the individual teacher level and school level. To meet the research purpose, hierarchical linear modeling (HLM) was selected as the main method for data analysis in this study.

The multilevel analyses include three steps: first, the null model was conducted to ensure the sufficient variability between and within schools to warrant further analyses (Raudenbush, 2002). Then, three multilevel models were performed to answer research questions about why teachers have more power in some schools than others, and why in some schools the association between teacher power and their individual characteristics is stronger than in others.

The main feature of HLM is the decomposition of the level-1 and level-2 covariance structure. Therefore, the analysis starts with the null/fully unconditional model to ensure that there is sufficient variability between and within schools to warrant further analyses (e.g., Nezlek, 2001; Raudenbush, 2002). The fully unconditional model (no predictors included in the model) was conducted to obtain estimates of within-school (δ_2) and between-school (τ_{00}) variability. These estimates were used to calculate the intraclass correlation coefficient (ICC). Scholars express multilevel models in different ways. In this study, the models for each of the levels are specified separately (Singer, 1998). The equation of the unconditional model is as follows:

$$\text{Level 1: } Y_{ij} = \beta_{0j} + r_{ij}.$$

$$\text{Level 2: } \beta_{0j} = \gamma_{00} + u_{0j}. \text{ Where } r_{ij} \sim N(0, \delta^2) \text{ and } \mu_{0j} \sim N(0, \tau_{00})$$

In this model, Y_{ij} is the power in decision-making the i^{th} teacher has in the j^{th} school. The fixed effect γ_{00} is the point estimate for the grand mean across all nationwide public schools. Two random effects (μ_{0j} and τ_{00}) represent the variation between school means (μ_{0j}) and the variation among teachers within the school (τ_{00}).

Second, a random intercept regression model with only level-1 predictors was used to examine the variability of teacher power in terms of individual characteristics. The second model with only school level variables was performed to examine the main effects of school level predictors. Then an intercepts and slopes-as-outcomes model was used to answer the main research questions: 1) Why do some teachers have more power than others (intercept)? 2) Why do some teachers have a stronger individual power characteristic relation than others?

The model includes both Level 1 and Level 2 predictors—predicting teacher power from teachers' individual characteristics, school features, and the cross-level interaction of school size, school level, and school climate compare against teacher gender, power on teaching, network, collaboration, and union status. The within-school relations are represented by the regression coefficients in the Level 1 model.

The effects of organizational variables on each of these relationships are represented in the corresponding Level 2 model. At Level 1, each teacher's power difference is represented by an intercept and slope that becomes the outcome variables in a Level 2 model, which may depend on individual-level characteristics (e.g., gender, work experience and union status) (Hawkins et al., 2001).

The following is the example of HLM models in the analysis,

Level 1: $Y_{ij} = \beta_{0j} + \beta_{1j} (\text{Male}) + \beta_{2j} (\text{Lessthanmaster}) + \beta_{3j} (\text{Unionmember}) + \beta_{4j} (\text{Formalcollaboration}) + \beta_{5j} (\text{Network}) + \beta_{6j} (\text{White}) + r_{ij}$

Level 2: $\beta_{0j} = \gamma_{00} + \gamma_{01}(\text{Smallschool}) + \gamma_{02}(\text{Elementary}) + \gamma_{03}(\text{Principalsupport}) + \gamma_{04} (\text{Teacherfrustration}) + \gamma_{05} (\text{Teacherengagement}) + \mu_{0j}$

Where $r_{ij} \sim N(0, \delta^2)$ $\mu_{0j} \sim N(0, \tau_{00})$.

In this model, the school effect (intercept β_{0j}) was allowed to vary. The effects of teacher-level variables were treated as fixed. In level 1, influence in decision-making for teacher i in school j is a function of the intercept β_{0j} , which is defined as the expected level of teacher i 's influence in school j , $\beta_{1j} - \beta_{6j}$ are the expected differences in teacher i 's decision-making power in school j associated with teacher individual characteristics. The

error term, r_{ij} , represents a unique effect associated with teacher i in school j after taking into account the effects of teacher gender, degree, certification type, work experience, and union status (i.e., how much that individual varies within schools).

In the Level 2 equation, γ_{00} is the grand mean of teacher decision power nationwide in public schools; the effects of school characteristics on teacher decision-making influence are represented by γ_{01} , γ_{02} and γ_{03} , respectively; and the degree to which teachers vary from the grand mean of teacher influence on decision-making is represented by μ_{0j} ; the average slopes between teacher decision influence and individual characteristics, controlling for school features, represented by $\gamma_{10}-\gamma_{50}$; $\gamma_{11}-\gamma_{53}$, are the school effects on the slopes between teacher decision influence and individual characteristics ($\beta_{1j}-\beta_{5j}$). The characters $\mu_{1j}-\mu_{5j}$ represent the degree to which teachers vary from the slope.

Summary

This chapter describes the data source as well as dependent and independent variables selected for this study. To answer the research question, HLM was selected as the primary means for data analysis. The null/fully unconditional model is run at the beginning of the data analysis to ensure that there is sufficient variability at the school level to warrant continuation with a multilevel analysis. Several models are used afterwards to address the research questions. The findings of this study are presented in Chapter 4. Chapter 5 presents implications and practical applications based on these findings, theories, and past research.

Chapter 4: Results

This chapter demonstrates and discusses the results of the data analysis using the methods described in Chapter 3. It begins with a presentation of the results from the descriptive analyses to provide a basic understanding of the data itself and lay the foundation for further analyses. The second section discusses the main results from data analyses that address four major research questions:

1. Do schools differ in teacher power in decision-making?
2. How does teacher decision-making power vary between teachers at the same school?
3. In what kinds of schools do teachers have more power in decision-making?
4. Does the association between a teacher's individual characteristics and power in decision-making differ across schools? If so, how do differences in organizational features among schools possibly influence this association?

Factor Analysis

Exploratory factor analysis was conducted to examine the latent dimensions of teacher power (dependent variable) and school climate (school-level variable). The Kaiser criterion (eigenvalue >1) (Kaiser, 1960) and scree test (Cattell, 1966) were used as the criteria to determine the number of factors to be retained. In order to interpret the solution more easily, orthogonal rotation (forcing unrelated factors) was used in this study since it is easier to use the resultant composite variables in hierarchical linear regression models without the potential complication of multicollinearity (Stewart, 2001). The extracted factors

were subsequently used in the hierarchical linear regressions.

Teacher power exploratory factor analysis. The exploratory factor analysis of the data collected through 13 items in the section of “decision-making” of the 1999-2000 SASS public school teacher questionnaire identified two areas of teacher power: teacher power in policy ($\alpha = 0.80$) and teacher power in teaching ($\alpha = 0.78$). Teacher power in policy was identified by the influence they reported on school-wide decisions; teacher power in teaching was identified by the influence they reported on classroom decisions. Table 5 shows the factor numbers and corresponding eigenvalues using the *varimax* rotation. Cronbach’s coefficient alpha (α) shows the sufficient internal consistency of the retained factors.

School climate exploratory factor analysis. Exploratory factor analysis of the items in the section “teacher attitude and school climate” of the 1999-2000 SASS public school teacher questionnaire results was performed to seek the patterns to represent the measure of school climate. The results revealed three latent constructs: data suggested school climate was identified by leadership practices ($\alpha = .82$); teacher engagement ($\alpha = .73$); and teacher frustration ($\alpha = .68$). Table 6 shows the factor numbers and corresponding eigenvalues after the *varimax* rotation. This item was measured on a 4-point scale (i.e., 1=strongly agree to 4=strongly disagree).

Table 5
Patterns of Exploratory Factor Analysis for Decision Domains (Rotated)

Survey Items	Factor 1 Policy Dimension	Factor2 Teaching Dimension
Setting performance standards	0.58	0.27
Establishing curriculum	0.55	0.37
Determining professional development	0.58	0.14
Evaluating teachers	0.59	0.02
Hiring new teachers	0.58	0.04
Setting discipline policy	0.65	0.16
Deciding school budget	0.54	0.04
Selecting instructional materials	0.24	0.51
Selecting content	0.19	0.62
Selecting technique	0.07	0.71
Evaluating students	0.02	0.69
Disciplining students	0.20	0.47
Determining the amount of homework	0.00	0.59

Note: Response choices ranged from 1 = no influence to 5 = a great deal of influence.

Table 6
Factor Patterns of Exploratory Factor Analysis for School Climate (Rotated)

Survey Items	Factor1 Leadership	Factor2 Engagement	Factor3 Frustration
T0299 Principal's expectation	0.73	0.19	0.16
T0300 Administrative support	0.64	0.19	0.24
T0310 Principal Communication	0.70	0.29	0.16
T0302 Misbehavior interference	0.13	0.14	0.33
T0305 Other duties interference	0.07	0.02	0.32
T0311 Staff cooperation	0.32	0.55	0.22
T0316 Content Coordination	0.07	0.33	0.01
T0309 Colleagues share beliefs	0.19	0.55	0.16

Note: Response choices ranged from 1 = no influence to 5 = a great deal of influence.

To operationalize the school climate variable, individual teachers' item responses on each dimension within his/her school were aggregated. School means of each dimension then were computed to represent the climate profile of the schools. The low score on the dimension of leadership practice features the school with effective leadership and encouragement. Similarly, the low scores on the dimension of teacher engagement and teacher frustration describe the school with a professional and engaged staff. These school means serve as the data for computing subtest reliabilities and for the further multilevel data analysis.

In sum, based on study design and through factor analysis, the dependent variable—teacher power—was operationalized into two areas: power in policy and power in teaching. The school level variable—school climate—was measured by three aspects: principal support, teacher engagement and teacher frustration.

Descriptive Analyses

The presentation of descriptive results for the variables of interest is reported in three steps: first, the results of the univariate analysis are described, including the means and standard deviations of the continuous variables; the frequency and percentages of the categorical variables are then given. Furthermore, teacher power in decision-making is examined using both teacher-level and school-level variables. Second, the results of the simple bivariate relations (as evidenced by Pearson's R) between variables is reported. Third, simple OLS regression analyses predicting teacher power from background factors is presented to help shape and interpret multi-level analyses.

In order to adjust standard error estimates of multistage clustered sample design effects, and to get a better sense of the data itself, the mean and standard deviation of the continuous variables were calculated through both SAS *Proc Surveymeans* procedure and SAS *Proc Means* using the relative weights of the variable “*tfnlwgt*” ($tfnlwgt/\text{mean}(tfnlwgt)$). The results show that the estimates of the means were the same, but SAS *Proc Surveymeans* yielded the smaller standard errors. This is because the Taylor expansion method of estimation that SAS *Proc Surveymeans* uses takes complex sample designs into account.

Participant characteristics. Among these 36,677 teachers, 24,523 (66.86%) were female; 32,342 (88.18%) were White; 12,167 (33.17%) were elementary school teachers; and 24,510 (66.83%) were secondary school teachers. In addition, 25,613 (69.83%) teachers were involved in regular formal collaborations with other teachers on instruction at the school. Only 9,263 (25.26%) teachers participated in a network (e.g., one organized by an outside agency or over the internet). The frequency distribution of teacher characteristics by gender, race, union membership, degree, network, and formal collaboration can be found in Table 7. The covariate at the teacher level was total teacher work experience with the mean 14.72 ranging from 1-62 (SD=10).

Table 7
Teacher Power in Decision-making by Teacher Level Characteristics

Variables	Sample Size		Power	
	n	Percentage	Policy M (Se)	Teaching M (Se)
Gender				
Male	12154	33.14	2.54 (0.79)	4.14 (0.63)
Female	24523	66.86	2.56 (0.80)	4.09 (0.65)
Race				
White	32342	88.18	2.55 (0.78)	4.13 (0.63)
Black	2376	6.48	2.49 (0.89)	3.93 (0.73)
Others	1959	5.34	2.61 (0.87)	4.08 (0.69)
Union Member				
Yes	27202	74.17	2.55 (0.79)	4.10 (0.64)
No	9475	25.83	2.56 (0.81)	4.14 (0.64)
Degree				
Less than master	20807	56.73	2.58 (0.79)	4.12 (0.64)
Master or higher	15870	43.27	2.52 (0.80)	4.10 (0.66)
Network				
Yes	9263	25.26	2.65 (0.82)	4.12 (0.64)
No	27414	74.74	2.52 (0.79)	4.09 (0.64)
Formal collaboration				
Yes	25613	69.83	2.61 (0.80)	4.12 (0.64)
No	11064	30.17	2.41 (0.77)	4.09 (0.68)

Note. Standard errors are in parentheses. Sample sizes and percentages are presented unweighted

Special features of the school. There were 7,934 schools in the sample data including 4,215 elementary schools and 3,690 secondary schools. Among these 7,934 schools, 2148 schools had an enrollment with fewer than 300 students; 1,826 schools enrolled between 300 to 499 students; and 3,994 schools had 500 or more students. Tables 8 and 9 display the simple statistics of the school-level variables and teacher power in decision-making by school characteristics. The average score of each school climate domain was close to each other with less than 0.5 difference. The average school climate score was 16.27 (SD=2.43) ranging from 8 to 29.

Table 8
Teacher Power in Decision-making by School Characteristics

Variables	Sample Size		Power	
	n	Percentage	Policy M	Teaching M
School Level				
Elementary	4215	33	2.60 (0.81)	3.98 (0.67)
Secondary	3690	67	2.52 (0.78)	4.19 (0.61)
School Enrollment				
Small	2148	27	2.64 (0.79)	4.24 (0.60)
Medium	1826	23	2.60 (0.80)	4.09 (0.66)
Large	3994	50	2.51 (0.79)	4.08 (0.65)

Note. Standard errors are in parentheses.

Table 9
Descriptive Statistics of School Climate

Variables	M	SE	Range	Skewness
School climate	16.27	2.43	3-12	-0.27
Leadership support	5.39	1.37	2-8	-0.64
Teacher engagement	5.79	1.00	3-12	-0.06
Teacher frustration	5.10	0.79	8-29	-0.02

Teacher power in decision-making. Teachers have more power in teaching than in school policy. The results of the average teacher power comparison by decision are presented in Table 10. The average teacher power in teaching is 4.02 at K-12 sample schools where the average teacher power in school policy is 2.54 ranging from 1 to 5.

Table 10
Descriptive Statistics of Teacher Power in Decision-making, Weighted

Variables	M	SE	Range	Skewness
Power in policy	2.54	0.08	1-5	0.27
Power in teaching	4.02	0.68	1-5	-0.86
Power in decision-making	3.22	0.62	1-5	-0.16

There is no big difference between teacher power in decision-making by teacher level characteristics. For example, as Table 7 shows, male teachers reported more power in policy

than females, with a 0.05 unit difference; however, female teachers reported more power in teaching than males, with a 0.02 difference. The power in policy of white teachers ($M= 4.13$, $SD=0.63$) is more than other races.

Teacher power in decision-making varies in terms of school-level factors. A graph for the average value of teacher power by school level, as shown in Figure 2 and Figure 3, indicates that secondary school teachers tended to have more power in teaching but less power in policy when compared to elementary school teachers. The comparison of average power in decision-making by school size demonstrates that teachers from small schools (enrollment less than 300) tended to have more power in both teaching and policy than teachers from large schools (Figure 4 and Figure 5).

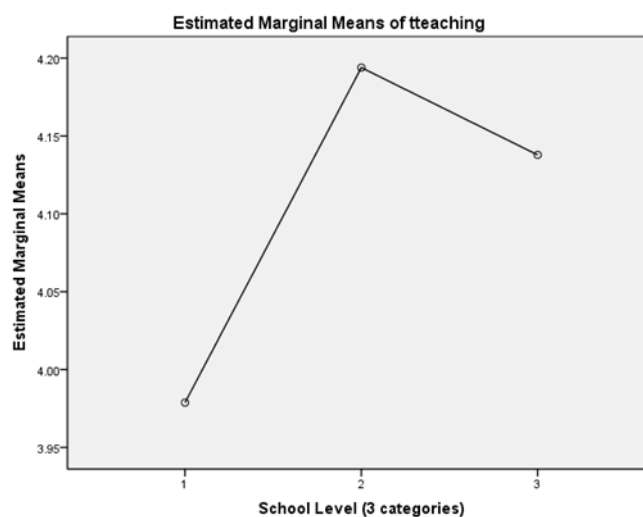


Figure 2. Average Teacher Power in Teaching by School Level

The association between gender and teacher power depends on the school level. Ten separate interaction effects between teacher level variables (level 1) and the variables of “school level” and “school enrollment” (level 2) were examined. Individually, the interaction effects on power in policy between school level and gender were significant. Male teachers in elementary had less power in policy than of those in secondary schools; female teachers from elementary schools, however, had more power in policy than those in secondary schools (See Figure 6).

In addition, the effects of teachers’ formal collaboration, union membership, and degree also were also impacted by school size. For example, the graph in Figure 7 indicates that there were negative effects of teacher formal collaborations in small and large schools, but the effects of teacher formal collaboration became positive in medium schools.

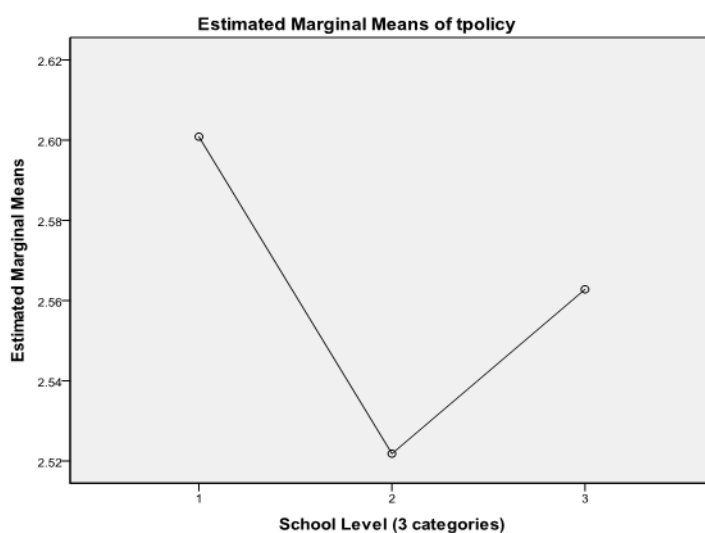


Figure 3. Average Teacher Power in Policy by School Level

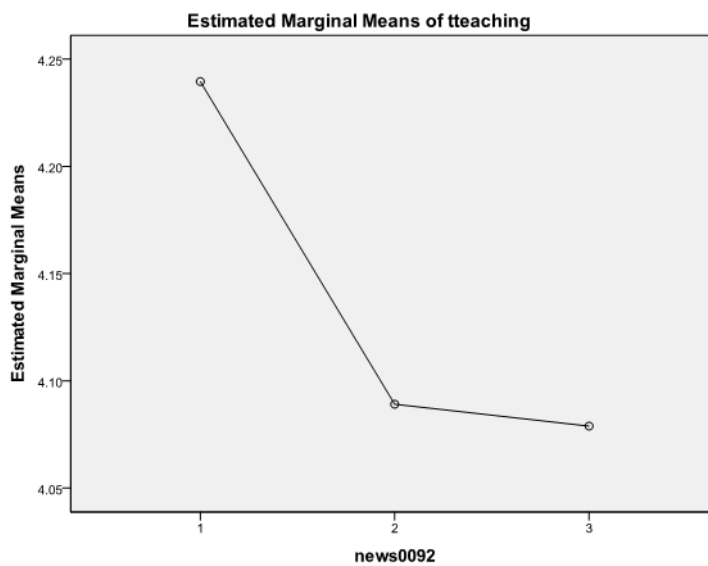


Figure 4. Average Teacher Power in Teaching by School Enrollment

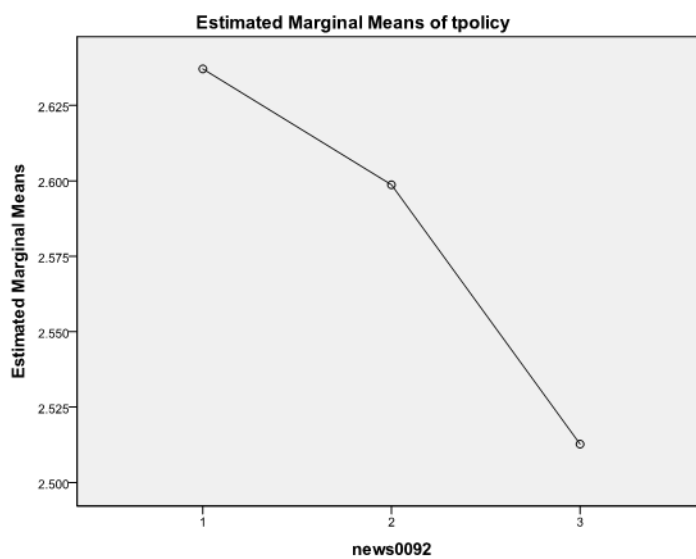


Figure 5. Average Teacher Power in Policy by School Enrollment

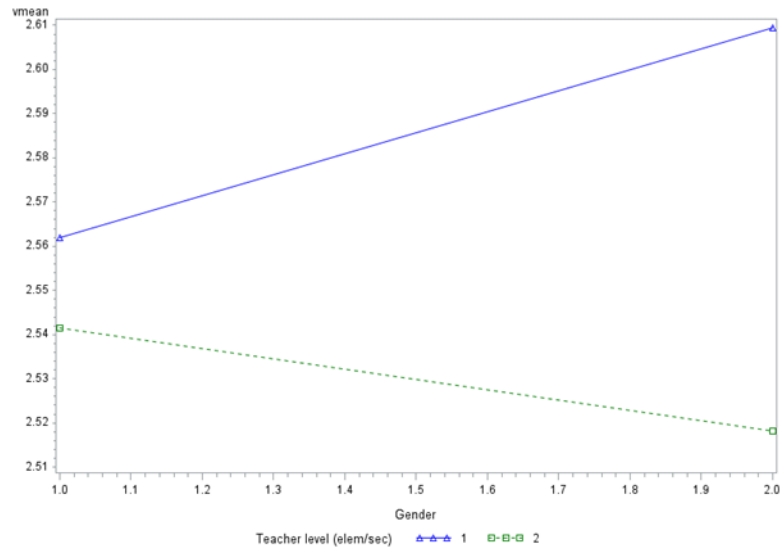


Figure 6. Average Power in Policy for Gender by School Level

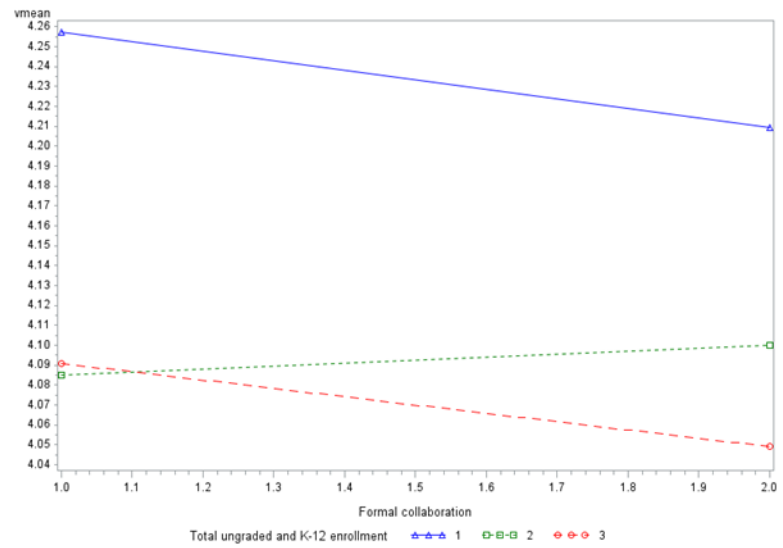


Figure 7. Average Power in Teaching for Formal Collaboration by School Enrollment

Covariate relationships.

Teacher power and individual factors. Collaboration is significantly more related to teacher power in policy than power in teaching. As shown in Table 11, the correlation between power in policy and their involvement in formal collaboration is $-.11$ where the correlation between power in teaching and collaboration is only $-.02$.

The variables union membership, gender, and race were associated with teacher power in teaching. The correlation between these independent variables (level 1) and power in teaching were significant, although were trivial where all bivariate correlations were ± 0.05 or less. However, they were not associated with teacher power in policy. As shown in Table 11, the coefficients were not significant at the 0.05 level.

The correlations between teacher-level variables (level 1) were also small or trivial. The variables “network” and “race” exhibited moderately strong negative relationships at the -0.05 level. The highest correlation was -0.17 , between teacher network and collaboration, which raises no harm for the analysis.

Teacher power relates to school-level factors. Teacher power in teaching and policy are closely related to school contextual factors. As shown in Table 12, all correlation coefficients of correlations between school-level variables and teacher power were significant at the .001 level. School size represents an important factor that is significantly related to teacher power in teaching ($-.16$). Specifically, the smaller the schools, the more power teachers have in teaching. Principal’s supportive behavior is more related to teacher power in policy among any school level factors (-0.22). The smallest correlation between

school-level independent variables (Level 2) was -0.03, the correlation between principal support and school enrollment. The only association of notable strength is between principal support and teacher engagement variables, with bivariate correlation of 0.50.

Teaching experience and power in decision-making. There is no relationship between teaching experience and power in decision-making. The result of testing the linear assumption of teaching experience and teacher influence is presented in Figures 8 and 9, which show no evident linear pattern. This violates the linear assumption of level 1 predictors. In order to fix the problem, the continuous variable of teaching experience was recoded as a categorical one with 1=less than 5 years, 2=5 years to 15 years and 3=more than 15 years. The comparison of the mean teacher power in these three levels of teaching experience demonstrated trivial differences, which indicated no obvious relationship between influence in decision-making and teaching experience.

Table 11

Teacher Level (Level 1) Correlation between Independent Variables and Power, uncentered (N=36,677)

	Collaboration	Network	Union	Race	Gender	Degree	Experience	Teaching	Policy
Formal collaboration	1								
Teacher network	0.17 ^{***}	1							
Union member	0.04 ^{***}	0.05 ^{***}	1						
Race	-0.02 ^{***}	-0.02 ^{***}	-0.02 ^{***}	1					
Gender	-0.06 ^{***}	-0.02 ^{***}	-0.03	0.04 ^{***}	1				
Degree	-0.04 ^{***}	-0.03 ^{***}	-0.10 ^{***}	-0.02 ^{***}	-0.01	1			
Teaching experience	-0.09 ^{***}	-0.02 ^{**}	-0.11 ^{***}	-0.04 ^{***}	-0.04 ^{***}	0.29 ^{***}	1		
Power in teaching	-0.02 ^{**}	-0.05 ^{***}	0.02 ^{***}	-0.05 ^{***}	-0.04 ^{***}	-0.02 ^{***}	0	1	
Power in policy	-0.11 ^{***}	-0.07 ^{***}	0.01	0	0.01	-0.04 ^{***}	-0.03 ^{***}	0.36 ^{***}	1

*Note.****p<.001; **p<.01; *p<.05.

Table 12

School Level (Level 2) Correlations between Independent Variables and Power, uncentered (N=9377)

	Teacher Engagement	Principal support	Teacher Frustration	School Level	Enrollment	Teaching	Policy
Teacher Engagement	1						
Principal Support	0.50***	1					
Teacher Frustration	0.26***	0.27***	1				
School Level	0.31***	0.09***	0.04***	1			
School Enrollment	0.11***	-0.03***	0.13***	0.21***	1		
Power in Teaching	-0.04***	-0.08***	-0.16***	0.14***	-0.09***	1	
Power in Policy	-0.18***	-0.22***	-0.16***	-0.04***	-0.07***	0.36***	1

*Note.****p<.001; **p<.01; *p<.05.

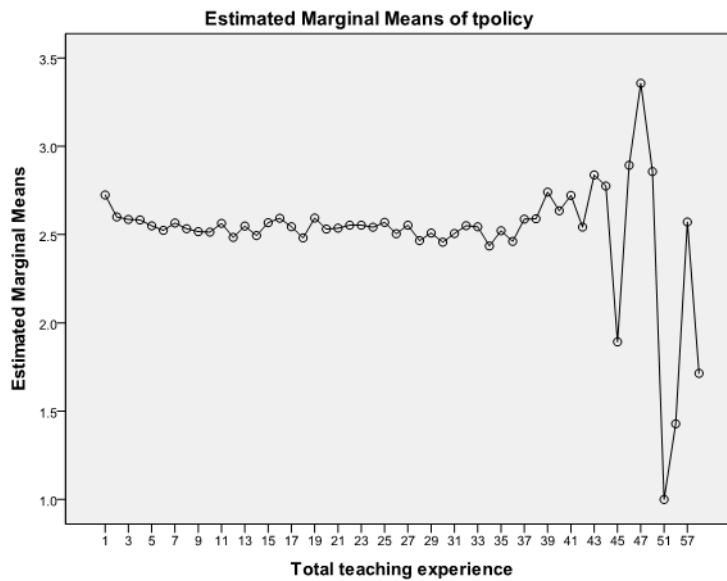


Figure 8. Power in Policy and Teaching Experience

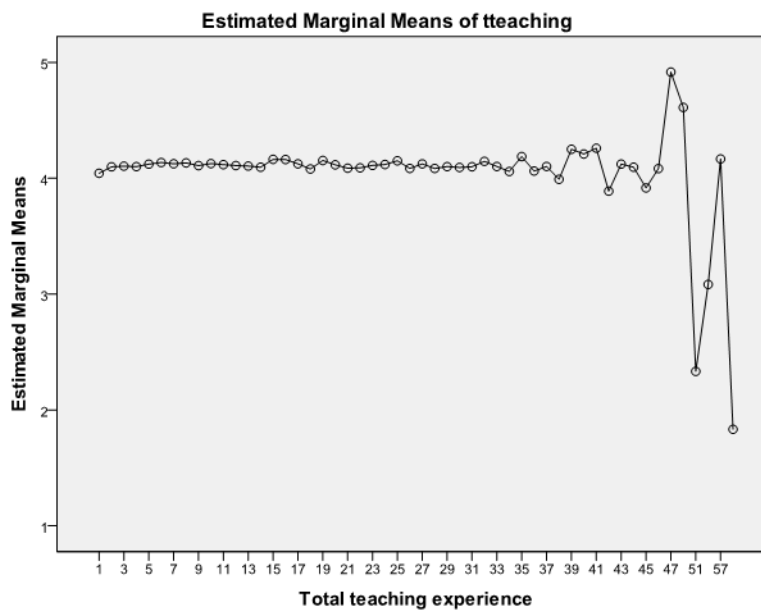


Figure 9. Power in Teaching and Teaching Experience

HLM Analyses

This section presents the specific results related to the main research questions to illustrate the possible factors that impact teachers' power in school decision-making. The results are presented separately for teacher power in teaching and teacher power in policy.

Research question 1: Do schools differ in teacher power in decision-making?

To answer this question, a preliminary analysis of the unconditional model with no term other than the intercept included at any level was conducted to ensure that there was sufficient variability at Level 1 and Level 2 to warrant continuation with hierarchical analyses (e.g., Nezlek, 2001; Raudenbush & Bryk, 2002).

Teacher power in school decision-making depends more on individual factors. Using the formula $\tau_{00} / (\tau_{00} + \sigma^2)$, I calculated the intraclass correlation coefficient (ICC). The result of the model on power in teaching indicated that 86% of total variance accounted for within school difference ($\sigma^2 = 0.36$, $z = 129.62$, $p < .001$), while the results of the model on power in policy shown that 83% of the total variance is accounted for by within school difference ($\sigma^2 = 0.53$, $z = 129.62$, $p < .001$).

Teachers have more power in teaching than power in school policy. As showed in Table 13, the grand mean of teacher power in decision-making varies significantly ($M=3.28$, $SD=0.003$, $p<0.001$). Compared with teacher power in school policy ($M=2.57$, $SD=0.01$, $p<0.001$), teachers reported much more power in teaching ($M=4.11$, $SD=0.003$, $p<0.001$). The result is consistent with the previously discussed literature.

However, schools do differ in teacher power in decision-making. As shown in Table

13, the between-school variance is significant, which indicates the amount of variance in these variables that could potentially be explained by school-level predictor variables.

Table 13
The Unconditional Model of Teacher Power

Fixed Effects	School Decisions	Teaching	Policy
Intercept			
School mean influence	3.28***(.00)	4.11***(.00)	2.57***(.01)
Random Effects			
Between-School Fluctuation(τ_{00})	0.07***	0.06***(.00)	0.11***(.00)
With-in school Fluctuation (δ^2)	0.30***	0.36***(.00)	0.53***(.00)

Note. Standard errors are in parentheses. $p < 0.05$.

The schools significantly vary in the effects of formal collaboration, union status, race, teacher degree, and power in policy. Table 14 demonstrates the results of the covariance estimate for teacher level variables in the teacher level model.

The result shows that the effects of network ($p = .35$) and gender ($p = .17$) on power in teaching were not significant between schools. However, there was significant evidence of the effects of the intercept ($p = .04$), formal collaboration ($p = 0.04$), union status ($p = .04$), race ($p < .0001$), teacher degree ($p = .01$), and power in policy ($p < .0001$). This model allows the effects of teacher individual characteristics to freely vary between schools.

With regard to power in policy, the results of the model shown in Table 14 demonstrated that the variance estimates for the effects of formal collaboration ($p=.17$), union status, gender ($p=.17$), degree ($p=0.30$), and influence in teaching ($p=0.10$) were not significant.

The results of covariance parameter estimates of teacher level model suggested the possibility to test for the moderating effect of school level variables on relations between network, race, gender (independent variables), and teacher power in policy.

Table 14
Covariance Parameter Estimates of Teacher Level Model

Covariance	Policy Pr > Z	Teaching Pr > Z
Intercept	0.01	0.04
Formal Collaboration	0.17	0.04
Network	0.00	0.35
Union Status	0.17	0.04
Race	<.01	<.01
Gender	0.00	0.17
Degree	0.31	0.01
Teaching/Policy	0.10	<.01
Residual	<.01	<.01

Research question 2: How does teacher power vary between teachers at the same school?

This section discusses the results of the two random effects regression models of

teacher power in teaching and teacher power in policy. It attempts to answer the following research question: To what extent are teacher characteristics such as gender, race, work experience, union membership, formal collaboration, and networking, associated with a teacher's power in decision-making? The variable "teaching experience" was excluded from teacher-level model analysis since the previously-diagnosed result with the linear assumption indicated no linear relationship between teacher power and teaching experience. The reference teacher referred to a female, multiracial, non-union member teacher with a master or above degree who is involved in collaboration and network. Interpretation of the coefficients includes the effects of each variable after controlling for other teacher-level variables.

Individual factors and teacher power in teaching. The random effects regression models with all teacher level variables explained 9% of the parameter variation in the mean teacher power in teaching. The goodness of fit statistics are shown in Table 15. The result from the goodness of fit statistics demonstrates that both AIC and BIC are smaller with a

Table 15
Goodness of Fit Statistics

Model	AIC	BIC	-2LL
Random intercepts and random slopes	65389.1	65458.9	63369.1
Random intercepts	65480.0	65494.0	65476.0

Model 2 in Table 16 shows the results of the fixed effects of teacher individual more constrained model, and the change in the -2LL is significantly larger (2106.9) characteristics with only the random intercept. The average teacher power in teaching (grand mean) was $\gamma_{00} = 3.39$ (se=0.02, t=170.50, p<.0001) for reference teachers across the nation.

As showed in Table 16, teacher power in teaching significantly differed because of gender, race, union status, formal collaboration, and network (See Model 2 on Table 16). When considering only teacher-level factors, male teachers reported more power in teaching than female teachers (see Model 2 on Table 16). Teachers who were union members reported less power in teaching than non-union members. White teachers reported more influence in teaching than black and multiracial teachers. In addition, participation in formal collaboration and a network were also significantly influenced teacher power in teaching.

However, degree level is not associated with teacher power in teaching. The results in Table 16 indicate that teachers with a master's degree or less reported more power than teachers with Ph.D. degree. However, there was no significant difference of power in teaching between teachers with different degree types.

The effects of union status, race, formal collaboration, and assignment are no longer significant once the school level factors are included. The model with both individual and school level variables accounts for 67% of the between-school and 9% of the within-school variance. Model 4 in Table 16 shows the results. Comparing Model 3 at the teacher level, the fixed effects of degree (p=.90), formal collaboration (p=.98) and union status (p=.24)

were no longer significant. At school level, neither principal support ($p=.97$) nor teacher engagement ($p=.15$) were significantly associated with power in teaching. Another major difference identified between Model 4 and the other models with only one level of predictor variable (Models 2 and 3) is that the direction of the effects of gender and formal collaboration had become inversely correlated. The new model showed that female teachers reported having significantly more power than male teachers. Teachers who participated in formal collaboration tended to have more power in teaching, although the difference was not significant.

Individual factors and teacher power in policy. The fixed effects model of teacher individual variables explains 12% of within school variance. As shown in Table 17, the average teacher power in policy (grand mean) was 2.63 ($se=0.03$, $t=94.44$, $p<.0001$) for the reference teacher across the nation. Gender, collaboration, network and degree are the four factors that significantly impact teacher power in policy at schools. The results of fixed effects on teacher-level predictors in Table 17 show that male teachers had more power in policy than female teachers. Teachers with a master's degree or less reported more power in policy than teachers with Ph.D. degree. In addition, teachers who network and collaborate reported more power in policy than teachers who do not.

Union status has no effect on teacher power in policy. Neither union status ($p=0.12$) nor gender ($p=0.92$) were significantly associated with teacher power in policy. Teacher power in teaching was a significant predictor of their power in policy ($t=70.23$, $p<0.001$). Specifically, with a one unit increase in power in teaching, teacher power in policy also

increased by 0.43 units. White teachers reported less power in policy compared with black teachers and multiracial teachers.

Table 16
Fixed Effects Estimates for Models of the Predictors of Teacher Power in Teaching

Fixed Effects	Model 1	Model 2	Model 3	Model 4
	Unconditional	Teacher Level	School Level	2 Levels
Intercept				
School Mean Power	4.11***(.00)	3.39***(.03)	4.14***(.01)	4.18***(.02)
Gender (Male)		0.02**(.01)		-0.03**(.01)
Union Member (Yes)		-0.02**(.01)		-0.01 (.01)
Race (White)		0.04**(.02)		0.01 (.01)
(Black)		-0.08***(.02)		-0.10*** (.02)
Degree (Less than master)		0.00 (.01)		0.00 (.01)
Network (Yes)		0.05***(.01)		0.03***(.01)
Formal Collaboration (Yes)		-0.02*(.01)		0.00 (.01)
Power in Policy		0.29***(.00)		0.28***(.00)
School-Level				
School Enrollment (Small)			0.18***(.01)	0.16***(.01)
Medium			0.06** (.01)	0.05***(.01)
			-0.24***	
School Level (Elementary)			(.01)	-0.01*** (.01)
Principal Support			0.03***(.00)	0.00 (.00)
Teacher Frustration			-0.10**(.00)	-0.08***(.01)
Teacher Engagement			0.01***(.00)	-0.01 (.00)
Random Effects				
Between-School				
Fluctuation(τ_{00})	0.06***	0.04***(.00)	0.03***(.00)	0.02***(.00)
With-in school				
fluctuation (δ^2)	0.35***	0.32***(.00)	0.35***(.00)	0.32***(.00)

Note. Standard errors are in parentheses. Principal support, teacher frustration and teacher engagement are three elements of school climate. *** $p < .001$; ** $p < .01$; * $p < .05$.

Table 17
Fixed Effects Estimates for Models of the Predictors of Teacher Power in Policy

Fixed Effects	Model 1	Model 2	Model 3	Model 4
	Unconditional	Teacher Level	School Level	2 Levels
Intercept				
School Mean Power	2.57***(.01)	2.63***(.03)	2.53***(.02)	2.57***(.03)
Gender (Male)		0.06***(.01)		0.04***(.01)
Union Member (Yes)		-0.01 (.01)		0.01 (.01)
Race (White)		-0.07***(.02)		-
(Black)		-0.02 (0.02)		0.08***(.02)
Degree (Less than master)		0.06***(.01)		-0.03 (0.02)
Network (Yes)		0.06***(.01)		0.06***(.01)
Formal Collaboration (Yes)		0.16***(.01)		0.06***(.01)
Power in Teaching		0.43***(.01)		0.13***(.01)
				0.42***(.01)
School-Level				
School Enrollment (Small)			0.11***(.01)	0.04***(.01)
Medium			0.05** (.01)	0.02* (.01)
School Level (Elementary)			-0.01 (.01)	0.09*** (.01)
Principal Support			0.09***(.00)	0.08***(.00)
Teacher Frustration			-	-
Teacher Engagement			0.08***(.01)	0.04***(.00)
			0.06***(.01)	0.05*** (.01)
Random Effects				
Between-School Fluctuation(τ_{00})	0.11***	0.07***(.00)	0.06***(.00)	0.05***(.00)
With-in school fluctuation (δ^2)	0.53***	0.47***(.00)	0.53***(.00)	0.46***(.00)

Note. Standard errors are in parentheses. Principal support, teacher frustration and teacher engagement are three elements of school climate.

*** $p < .001$; ** $p < .01$; * $p < .05$.

The mutual influence between power in teaching and power in policy. On average, teacher power in policy was positively associated with their power in teaching. As shown in Table 16, as teacher power in policy increased by 1 unit, their reported power in teaching increased by 0.29 units. Table 17 also shows this positive relationship; that is, as teacher power in teaching increased by 1 unit, their reported power in policy increased by 0.43 units. In addition, compared to the power held in teaching, there was a bigger fluctuation for power in policy within and between schools, and there were more significant effects for both individual level and school level for power in policy. In other words, teacher power in teaching is less predictable by the variables of interest.

Research question 3: In what kinds of schools do teachers have more power in decision-making?

This section discusses the effects of school-level factors on teacher power in both teaching and policy. Specifically, it answers the following question: FD school organizational features such as its size, level, and climate, explain the variation of teacher power in decision-making among schools? Two means-as-outcomes regression models (without predictors at the teacher level) were performed to answer the research questions.

School level factors and teacher power in teaching. As shown in Table 16, the means-as-outcomes regression model (without predictors in teacher level) explains 50% of the variation in school means power in decisions related to teaching ($(0.03-0.06)/0.06=0.50$). The average teacher power in teaching in a large secondary school with average school climate score was 4.14.

School enrollment and school level had statistically significant associations with teacher power in teaching. Specifically, teachers from small schools (enrollment less than 300) reported more power in teaching (0.18 units difference) than teachers from big schools (enrollment larger than 500) ($t=14.59$; $p<0.001$). Teachers from medium schools (enrollment between 300 and 500) reported more power (0.06) than teachers from big schools. Elementary teachers reported significantly less power in teaching than the secondary teachers ($t=-28.60$, $p<0.001$).

Furthermore, the average teacher power in teaching was significantly associated with principal support, teacher frustration, and teacher engagement. Specifically, a one-unit increase in school climate domains (e.g., principal support and teacher collaboration) resulted in a significant additional increment to school mean teacher power in teaching. On the contrary, a one unit decrease in teacher frustration climate resulted in teacher power in teaching increasing by 0.10. However, the aspects of school climate—teacher engagement and principal support—were not significant for influences of power in teaching when all control variables were included.

School level factors and teacher power in policy. Teacher power in policy is affected by school level factors. The means-as-outcomes regression model (without predictors at the teacher level) explains 46% of the total variation ($(0.11-0.06)/0.11=0.46$). Model 2 in Table 17 demonstrates the results of the means-as-outcomes regression model. It reveals that the average teacher power in a large secondary school with average school climate score was 2.53.

School level is not related to teacher power in policy decision-making. The result shows that there was no significant difference in average teacher power in policy between elementary school teachers and secondary school teachers after controlling for other school predictors.

School size plays a significant role in the difference of average teacher power in policy. Teachers from small schools (enrollment less than 300) reported more power in policy (0.11 units difference) than teachers from big schools (enrollment larger than 500) ($t=14.59$, $p<0.001$). Teachers from medium schools (enrollment between 300 and 500) reported more power (0.05 unit difference) than teachers from big schools. Therefore, as the school gets larger, teachers tend to report less power in policy ($t=45.63$, $p<0.001$).

As shown in Table 17, all the elements of school climate—principal support, teacher frustration, and teacher engagement—were significantly associated with teacher power in policy. Specifically, a one-unit increase in school climate domains (e.g., principal support and teacher collaboration) resulted in a significant additional increment to the school mean of teacher power in policy. On the contrary, with a one unit decrease in teacher frustration, teacher power in policy increased by 0.08 units. Model 4 in Table 17 shows the effects of both individual and school level variables on teacher power in policy including all the predictors of interest. This model explains 53% between-school and 13% within school variance.

Comparing to Model 3, the difference of average power in policy between elementary school and secondary school teachers became statistically significant. That is, teachers from

elementary schools had a more favorable perception of power (0.09 units difference) than teachers from secondary schools ($t=8.91$, $p<0.001$). The significance and directions of other estimates of school level and teacher level remained constant.

These results indicated that teachers from an open school climate tended to have more power in policy decision-making. They also illustrate the common belief that school climate may possibly help mediate the relationship between school outcomes and school context.

Research question 4: Does the association between a teacher's individual characteristics and power in teaching decision-making differ across schools?

This section discusses the results of two interaction models of predictors of teacher power in both teaching and policy. It attempts to answer the following research questions: Does the association between a teacher's individual characteristics and his/her power in decision-making differ across schools? If so, how do these differences in organizational features among schools possibly influence this association?

Teacher-school interaction of teacher power in teaching. The two-level model with random intercept and random slopes (race, formal collaboration, and influence in policy) accounted for 83% between-school and 14% within-school variability of teacher power in teaching. The effects of formal collaboration, union status, race, degree, and influence in policy vary across schools on power in teaching.

The results of Model 1 in Table 18 demonstrate that the relationship between the two decision domains (policy vs. teaching) depend significantly on the three domains of school climate (principal support $p<0.001$, teacher engagement $p<0.001$, and teacher

frustration <0.001). Specifically, with a one unit increase in the level of principal support, the slope decreases by 0.02 ($t=-4.5$, $p<0.001$). However, the slope increases as the level of teacher frustration and engagement increase ($t=5.78$, $p<0.001$; $t=2.69$, $p<0.001$). The result indicates that the relationship between power in policy and teaching becomes stronger in a school with a higher level of engagement and a lower level of principal support in the climate.

The effects of school climate were not significant in the relationship between formal collaboration and power in teaching, nor were they significant on the relationship between race and power in teaching. The variance components for the slopes of power in policy, race and formal collaborations were significant, indicating that the slopes were variable.

The relationship between power in teaching and race neither depends on school level nor school size. Model 2 in Table 18 shows the results of the interaction effects of school context on the relationship between race, formal collaboration, power in policy, and power in teaching. The fixed effects of formal collaboration, race, union status, degree, school level, principal support, and teacher engagement were not significantly associated with teacher power in teaching.

The slopes for power in policy differ significantly across school level and school size. With regard to the interaction, white teachers from medium schools reported the most power in policy ($t=2.05$, $p=0.04$). However, there was no interaction between black teachers and school size. That is to say, the relationship between black teachers and power in policy does not depend on school size. The interaction effect between school size and black teachers was not significant. Compared to small schools, the relationship between power in policy and

power in teaching was significantly stronger in the large schools ($t=-4.38$, $p<0.001$) and in the elementary schools ($t=5.78$, $p<0.001$). There is no significant interaction between race and school context variables (school size and school level), nor an interaction between formal collaboration and school level. The variance component for slopes of race, formal collaboration, and power in policy are significant, indicating that the slopes vary across the schools.

Teacher-school interaction of teacher power in policy. The two-level models with random intercept and random slopes (network, race, and gender) accounted for 87% of between-school and 13% of within-school variability of teacher power in teaching. The effects of network, race, and gender vary across schools on teacher power in policy.

Model 1 in Table 19 tests the hypothesis concerning the interaction effects of school climate and power in policy. The results of the model with random intercepts and random slopes of gender, race, and network indicate that the relationship between network and power in policy significantly depends on three domains of school climate. With a one unit increase in the principal support element of school climate, the slope for network decreases by 0.03 ($p<0.0001$). With a one unit increase in both domains of teacher engagement and teacher frustration, the slope increases as well. The result indicates that the relationship between power in policy and participating in a formal network becomes stronger in a school with a higher level engagement in school climate. In addition, there is no interaction between race and school climate, nor between gender and school climate.

Table 18
Interaction Models of Predictors of Power in Teaching

Fixed Effects	Model 1	Model 2
Intercept		
School Mean Power	4.18***(.02)	4.17***(.03)
Gender (Male)	-0.03***(.01)	-0.03***(.01)
Union Member (Yes)	-0.01(.01)	-0.01 (.01)
Race (White)	0.01 (.01)	0.01 (.02)
(Black)	-0.10***(.02)	-0.10***(.02)
Degree (Less than master)	0.00 (.00)	0.00 (.00)
Network (Yes)	0.04***(.01)	0.04***(.01)
Formal Collaboration (Yes)	.00 (.01)	.01 (.01)
Power in Policy	0.28*** (.00)	0.27***(.01)
School-Level		
School Enrollment (Big)	0.14***(.01)	0.11 **(.04)
Medium	0.04***(.01)	0.05 (.04)
School Level (Elementary)	-0.24***(.01)	-0.21***(.03)
Principal Support	-0.02 (.01)	.00 (.00)
Teacher Frustration	-0.09***(.02)	-0.08***(.00)
Teacher Engagement	0.04 (.02)	-0.01(.00)
White*Small School		0.03 (.04)
White*Medium School		0.02 (.04)
White*Elementary School		-0.02 (.03)
Black*Small School		-0.03 (.06)
Black*Medium School		0.04 (.05)
Black*Elementary School		-0.02 (.04)
Collaboration*Small School		0.02 (.02)
Collaboration*Medium School		-0.04*(.02)
Collaboration*Elementary		-0.03 (.02)
Policy Power*Small School		-0.05***(.01)
Policy Power*Medium School		.00 (.01)
Policy Power*Elementary School		.05 ***(.01)
Collaboration*Support	0.00 (.01)	
Collaboration*engagement	-0.01 (.01)	
Collaboration*Frustration	0.02 (.01)	
Policy power*support	-0.02***(.00)	
policy power*engagement	0.02***(.00)	

(Table 18 cont'd)

Fixed Effects	Model 1	Model 2
Policy power*frustration	0.03***(.01)	
White*Support	0.02 (.01)	
Black*Support	0.01 (.02)	
White*engagement	-0.03*(.02)	
Black*engagement	-0.00 (.03)	
White*frustration	-0.00 (.01)	
Black*frustration	0.01 (.02)	
Random Effects		
Between-School Fluctuation(τ_{00})	0.01***(.00)	0.01***(.00)
Power in Policy (τ_{11})	0.01***	0.01***(.00)
Race (τ_{22})	0.01***	0.01***(.00)
Formal Collaboration (τ_{33})	0.01**	.00*(.00)
With-in school fluctuation (δ^2)	0.30***(.00)	0.30***(.00)

Note. Standard errors are in parentheses. Principal support, teacher frustration and teacher engagement are three elements of school climate. ***p<.001; **p<.01; *p<.05.

Model 2 in Table 19 shows the results of the interaction effects of school context on the relationship between gender, race, network and power in policy. The fixed effects of gender, race, and school size on teacher power in policy are not significant. Compared to secondary school teachers, the relationship between network and power in policy is significantly stronger for elementary teachers while the relationship between white teachers and power in policy is stronger in secondary schools. However, the relationship between black teachers and power in policy does not significantly vary between schools with difference sizes. The variance component for slopes of race, network, and gender are significant, indicating that the slopes vary across the schools.

Table 19
Fixed Effects Estimates and Variance-Covariance Estimates for Interaction Models of Predictors of Teacher Power in Policy

Fixed Effects	Model 1	Model 2
Intercept		
School Mean Power	2.57***(.03)	2.54***(.03)
Gender (Male)	0.04***(.01)	0.05***(.01)
Union Member (Yes)	0.01(.01)	0.01 (.00)
Race (White)	-0.08*** (.01)	-0.06* (.03)
(Black)	-0.03 (.02)	-0.01 (.03)
Degree (Less than master)	0.05*** (.01)	0.06***(.01)
Network (Yes)	0.06***(.01)	0.07***(.01)
Formal Collaboration (Yes)	0.13*** (.01)	0.13*** (.01)
Power in Teaching	0.42*** (.01)	0.42***(.01)
School-Level		
School Enrollment (Large)	0.04***(.01)	-0.02 (.04)
Medium	0.02 (.01)	-0.06 (.05)
School Level (Elementary)	0.09***(.01)	-0.21***(.03)
Principal Support	0.10*** (.01)	0.08*** (.00)
Teacher Frustration	-0.00 (.02)	-0.04***(.01)
Teacher Engagement	0.05** (.02)	0.05***(.01)
White*Small School		0.03 (.04)
White*Medium School		0.02 (.04)
White*Elementary School		-0.02 (.03)
Male*Small School		0.00 (.02)
Male*Medium School		-0.04 (.02)
Male*Elementary School		-0.04 (.02)
Network*Small School		0.01 (.02)
Network*Medium School		0.01(.02)
Network*Elementary		0.17***(.04)
White*Small School		0.07 (.05)
White*Medium School		0.09* (.05)
White*Elementary School		-0.10 **(.04)
Black*Small School		0.02 (.07)
(Table 19 cont'd)		

Black*Medium School		-0.01 (.06)
Black*Elementary		-0.08 (.05)
Male*Support	-0.01(.01)	
Male*engagement	-0.01 (.01)	
Fixed Effects	Model 1	Model 2
Male*Frustration	-0.03* (.01)	
Network*support	-0.02***(.00)	
Network*engagement	0.02***(.00)	
Network*frustration	0.03***(.01)	
White*Support	-0.03 (.02)	
Black*Support	-0.04* (.02)	
White*engagement	-0.00(.02)	
Black*engagement	-0.01 (.03)	
White*frustration	-0.03 (.02)	
Black*frustration	-0.04 (.03)	
Random Effects		
Between-School Fluctuation(τ_{00})	0.01 (.01)	0.01(.01)
Gender (τ_{11})	0.01*(.00)	0.01* (.00)
Race (τ_{22})	0.03***(.01)	0.03***(.01)
Network (τ_{33})	0.01***(.00)	0.01**(.00)
With-in school fluctuation (δ^2)	0.45***(.00)	0.45***(.00)

Note. Standard errors are in parentheses. Principal support, teacher frustration and teacher engagement are three elements of school climate. *** $p < .001$; ** $p < .01$; * $p < .05$.

This chapter presented statistical tests of several hypotheses about the impact the relationship between a school's organizational features and a teacher's individual characteristics have on teacher power in two decision domains: teaching and policy. This study finds that there are statistically significant school-level effects on teacher power in decision-making (both teaching and policy) at schools. Explaining teacher power difference in decision-making can be most attributed to three factors: individual level—teacher characteristics; organizational level—school climate, school enrollment and school level; and

the interaction between two level factors.

No linear relationship between teachers' teaching experience and decision-making power was found. The effects of teachers' network involvement and school enrollment are significant across the twelve models that were run in this study. In sum, the individual factors accounted for very little variation in teacher power in decision-making compared with school level factors.

Chapter 5: Discussion, Implications and Conclusion

This chapter discusses the results presented in Chapter 4 in the context of existing theory. Next, the limitations of the work are addressed, with a focus on what factors may have affected the outcomes of the analyses. The chapter then addresses the implications for both educational theory and administrative practice.

Discussion

This study provides support for the assertion that teacher power is a multilevel concept. Both individual characteristics and school contextual factors have significant impact on teachers' power in decision-making. Factors at the school level, however, appear to explain much more variance in teacher power when compared to the factors at the individual level. These findings indicate strong support for the important role of a healthy and open school climate with strong principal support, high teacher engagement, and lower levels of teacher frustration to foster teacher empowerment. In addition, the results confirmed previous findings about the social opportunities for teacher empowerment. They provide evidence in favor of the strategies of promoting collaboration and networking to empower teachers. Overall, these results underscore the importance of enhancing the social aspects at both individual level and school level in the effort of teacher empowerment reform.

The mutual influence between power in teaching and power in policy. The results of two-dimensional construct of teacher power through factor analysis confirm that we should examine teacher power at school separately within different domains. The analysis of the nationally representative data shows that teachers had varying power with

different aspects of decisions. Descriptive analysis demonstrates that, on average, teachers report more power in teaching than in school policy, with the observed difference being statistically significant.

Teacher empowerment has been the one of the most notable themes in educational reforms during the past several decades. The central idea of the reform initiatives has been to provide teachers with more opportunities to participate in school-wide activities so they can influence the educational process. Despite the numerous reform efforts that have been made on teacher empowerment, studies have found that teacher power in school governance is still limited (Gore, 1992; Ingersoll, 1996; Rosen, 2007; Weiss, 1992). The result that teachers reported more power in teaching than in policy is consistent with the existing literature. Although schools have tried to involve teachers in school governance for a long time, the results suggest that this is still the major area for reform and change. These findings add more evidence into the literature. They also raise the question on how to effectively empower teachers to ensure their power in school decision-making system be realized.

Two potential theories explain the results of discrepancy of power in policy and power in teaching: first, the conflict of between principals and teachers in existing school structure. Hanson (1985) and Bacharach (1981) used “contested spheres” to describe the decision areas within schools where administrators and teachers compete for power. Some empirical evidence has shown that principals were not willing to grant power to teachers since they saw a decrease of their power while increasing teacher power (Blas é & Kirby, 2008; Owens & Valesky, 2007; Sergiovanni, 1992; Shantz & Pruietur, 1996). The limitation

of existing power structures in school leaves teachers “with very limited influence in making decisions outside their own classrooms” (Smyser, 1995, p. 132).

One the other hand, teachers were found to show no interest in school governance even they thought they viewed the potential benefits (Barnard, 1938; Johnson, 1991; Showers & Duke, 1980; Smylie, 1992). The “zone of indifference” theory might explain this phenomenon. Barnard argued that there is an area of decision content in which subordinates have little or no interest. According to Barnard’s theory, teachers may not be interested in exercising the power on school policy decisions since they see no relation of it to the goals they desire. This study confirms that the administrative decisions are still in teachers’ “zone of indifference”.

Factors related to teacher power. Educational research has been argued for the individual factors that impact teacher empowerment. This section discusses the results of factors at individual level which related to teacher power in decision-making.

Teaching experience not related to power. Research has constantly argued that teacher power in decision-making mainly comes from their expertise, which is often measured via years of work experience, training, and credentials (Childs-Bowen, Moller, Scrivner, 2000; Duke, 1994; Fessler & Ungaretti, 1994; Hallinger & Murphy, 1985; Sergiovanni, 1989; Smylie, 1989; Snell & Swanson, 2000). Angelle and DeHart (2011) found that teachers with 16 to 25 years of teaching experience perceived they had significantly more influence in the decision- making areas of budget, curriculum, and teacher assignment than did the teachers with one to five years of experience. It is reasonable to

assume that more experienced teachers have more power in school decisions since teachers with more experience are likely to be more passionate about teaching and learning. They tend to take on responsibilities and roles in the school at large (Henke, Chen, et al., 2000; Johnson, 2004). However, their study shows no linear relationship between teaching experience and power in decision-making (both teaching and policy), which is not consistent with the common intuition and prior research. There is no obvious pattern occurring in the preliminary analysis of their relationship. One possible explanation for these results is that the previous study and the current study differ in how teacher power was operationalized. For example, Angelle and DeHart (2011) operationally defined teacher power as teacher leadership, which emphasized teachers' responsibilities. Unlike their definition, the operational definition presented here places greater emphasis on realized influence in decision-making. It may be that teaching experience is related to teachers' responsibility but not to how much power they exercise in school decision-making. As teachers gain more experience in teaching, they become more knowledgeable and confident in dealing with instruction and students, but not with the school-wide issues. The results indicate that teacher expertise might be a necessary but not a sufficient enough condition to impact the realization of teacher power in decision-making at schools.

This finding may offer important implications for educational policies that often focus on improving professional knowledge and skills to empower teachers. This finding suggests that educational policy makers on teacher development need to devise the training and support strategies to provide knowledge for coping with school-wide issues.

Effects of degree and race depend on the decision domains. This study found that the effect of race on teacher power depends on the decision domain. White teachers reported having less power in policy but more power in teaching than black teachers and multiracial teachers. The deliberative effort in educational policy that has focused on developing teachers from under-represented minority groups may explain this result. It is believed that teachers from under-represented minority groups are more effective teachers of minority students. Thus, a deliberative effort of administrators to empower minority teachers may explain the result that black teachers have more power in policy at schools.

It is also noteworthy that no significant difference in power was observed between teachers with various degree types. This finding is consistent with the existing literature that no relationship is observed between degree and instructional task perceptions (Bakkenes, Brabander, & Imants, 1999). However, teachers with less than a master's degree report having more power in policy compared to teachers with a master's degree or above. This result is consistent with the findings of Angelle and DeHart (2011) wherein teachers with lower degrees scored higher on power in school-wide decisions. A possible explanation for this phenomenon may be the result of some interaction effects in the relationship. Kardos (2001) found that new teachers were more likely to value sharing expertise and network. Thus, it is reasonable to assume there is an interaction between educational degree and years of experience. Similarly, teachers with lower-level degrees are more likely to get involved in collaborative efforts and maintain communication since they may need more assistance from their colleagues. Bakkenes, Brabander and Imants (1999) indicated that teachers who

collaborate are more interested in school-related communication. An interaction between collaboration and degree might also be expected. Even after all these analyses, these explanations still sound insufficient; the issue, therefore, deserves more attention in future research concerning the relationship between teacher degree and influence on policy.

Gender and teacher power. Although part of this study was designed to estimate the direct effects of gender on teacher power, it is difficult to see how gender could actually impact teacher power at a school directly. When only considering teacher characteristics, some of the current study's results confirm prior research (Alutto and Belasco, 1972; Angelle and DeHart, 2011; Case, 1991). For example, on average, male teachers report more power in decision-making (both in teaching and policy) than female teachers. However, when I control for school level characteristics as well as other teacher characteristics, the direction of the effects of being male in power in teaching becomes inversely correlated.

The effects of the interaction between a teacher's individual characteristics and school level variables may help explain this phenomenon. A reasonable mechanism might be that certain school-level factors impact the relationship between a teacher's gender and a teacher's power. This interpretation is consistent with the results of further multilevel interaction analysis which found that the association between male teachers and power in teaching depends on school size. This relationship becomes significantly stronger in large schools for male teachers.

Network impacted teacher power. The impact of individual network has attracted a lot of attention in research on educational administration. It is argued that being part of a

network is a determinant of power since it provides teachers with access to information, people, and resources. The result in this study that teachers who are involved in a network reported significantly more power in decision-making (both in teaching and policy) compared to teachers who do not adds more evidence to the literature. In addition, the finding that the effect of networks on power in policy is stronger compared to power in teaching confirms the existing assumptions that school-oriented tasks are crucial to the distinction between isolated from non-isolated teachers (Bakkenes, 1996; Imants & Bakkenes, 1993). This result also highlights the importance of social interactions in teacher empowerment, suggesting that the effect of network on teacher power is far more complicated.

Union members had less power. Concerning the effects of union status on power in decision-making, the study found that teachers with union membership report less power in both teaching and policy compared to teachers with no union membership. This result is consistent with past research showing that teachers were reluctant to participate in school decision-making since the influence on school decisions jeopardizes collective bargaining influence at a district level (Duke, 1980; Halinger, 2013). This conflict is most significant when it comes to certain decisions such as school budgeting and community involvement. Conceivably, the existence of a teacher's union and other organizations provide teachers opportunities to exert an impact on their working conditions and school policy without participating in school decision-making. Teachers may regard individual influence in school decisions as threats to the strength enjoyed by the position of teacher organizations which

represent a united profession. More research may be needed to examine these phenomena in the future.

Collaboration and teacher power. This study finds no simple effects of formal collaboration on teacher power. As far as decisions in teaching are concerned, teachers who participate in formal collaboration report significantly less power in teaching than teachers who do not when only considering the effects of teacher level variables. However, the effect becomes insignificant if the model controls for school level variables.

Collaboration is strongly related to teacher power in policy. This study found that teachers who collaborate with others reported having more power in policy compared to teachers who do not. The result supports past findings that teachers involved in team teaching and collaboration demonstrated considerably more power in school decisions than did teachers in schools where there was no collaboration (Dee, Henkin, & Duemer, 2003; Scribner, Sawyer, Watson, & Myers, 2007).

Collaboration is considered an effective strategy to promote teacher empowerment at schools in an era of educational reforms. It provides more opportunities for teachers to share information, resources, learn from each other and strengthen the connections among teachers. Virtually, everyone would agree that these opportunities would enable teachers to exercise more power in decision-making. The research literature on collaboration has thus far failed to distinguish collaboration's effect on various decision domains. This study found that collaboration was negatively related to teacher power in teaching. It could be argued that teachers who seek more power may keep a low profile during collaboration, especially in

their expertise area (Duke, 1980; Hallinger, 2013).

In sum, a teacher's individual characteristics may be less important in explaining variations in teacher empowerment than school reformers may wish to believe. In this study, little variation in teacher power was explained within schools by factors gender, race, collaboration, and network. In addition, the study found that the effects of race and formal collaboration on teaching power vary across schools. Different schools have varying relationships between network, gender, race and power in policy.

Professional development at the individual level that simultaneously focuses on advancing professional knowledge and improving teacher status has become the vehicle to teacher empowerment (Lichtenstein, McLaughlin, & Knudsen, 1991; Maeroff, 1988).

Factors related to school organization. School organizational features such as school size and school climate are found to produce significant mean effects on teacher power in decision-making (in both policy and teaching) at the school-level. They account for more than half of the variation in teacher power in decision-making between schools.

Size influences teacher power. When the question of what kinds of schools have a more positive impact on teacher power in decision-making was examined, it was found that teachers in small schools (enrolling fewer than 300 students) reported much more power in both teaching and policy than teachers from medium-sized or larger schools. This finding is consistent with the literature which favors small schools (Gottfredson, 1985; Gregory, 1992; Johnson, 1990; Lee & Loeb, 2000; Miller, Stockard & Mayberry, 1992). In small schools, teachers have more positive attitudes about their responsibilities in school administration,

more interaction with colleagues, and higher staff morale. Teachers who interact more often with few colleagues and students would also be well-informed and perhaps have more resources. It is likely they are more capable of impacting school decisions. Thus, it is concluded that school size influences teacher power in decision-making at schools.

School climate impacts teacher power. In this study, school climate was a composite variable measuring three facets of school organization: leadership style, teacher engagement, and teacher frustration. The findings of this study reveal that schools where teachers have more influence in decision-making were characterized by higher level of principal support and teacher engagement with a lower level of teacher frustration. In these kinds of schools, the principal's behaviors focus on communicating and clarifying school goals, missions, and other main issues. Teachers share beliefs and values, cooperate with each other, and feel less interference by the routine of duties and paper work. These results are consistent with the previous education organizational theory which favors the open school climate (Briggs & Wohlstetter, 2003; Elmore et al., 1996; Mayer, 2013). For example, Louis, Marks, and Kruse (1999) found that teachers in schools with higher levels of professional community have more influence over school, teacher, and student policy. Thus, the findings of this study reinforce that contextual factors such as supportive leadership style, strong teacher engagement and less teacher frustration are crucial in promoting teacher empowerment. It is suggested here that teachers will feel more powerful when higher level of principal support and teacher engagement and lower level of frustration are perceived at schools.

Effects of school level on teacher power. This study found that elementary teachers

reported having less power in teaching than secondary teachers. However, the relationship between school level and power in policy is positive after controlling for other predictors. The result demonstrates that elementary teachers reported have more power in policy compared to teachers in secondary schools.

These results are consistent with previous research (Angelle & DeHart, 2011). This is because elementary school teachers have a myriad of roles beyond teaching, and they have a more all-encompassing responsibility for students. With the increased responsibilities for students, teachers are likely to be more proactive in school policy decisions. In addition, the results confirm that the variation in teacher power in decision-making exists among different school levels.

The interactions. The question of how schools' organizational features impact the relationship between teachers' power in decision-making and their individual characteristics was examined by the interaction in the multilevel models. The significant interaction findings include:

The interaction between power in policy and school climate. The study found that the relationship between power in teaching and power in policy depended on school climate. The results highlight the important role of school climate in teacher empowerment. It also confirms the argument that teacher empowerment is dependent upon context (Kreisberg, 1992; Sarason, 1990).

The interaction between network and school level. The study found that the relationship between network and power in policy significantly depended on school level.

The association was stronger for elementary school teachers than it was for secondary school teachers. Studies on school teachers found higher degrees of isolation, defined as the minimal interaction between a teacher and other staff members, in the elementary school settings affects teachers' perceptions of different types of the tasks (Forssyth & Hoy, 1978; Zielinski & Hoy, 1983). It is the link between isolation and the perception of tasks which explains the interaction effects between network and school level on teacher power in decision-making (Bakkenes, Brabander, & Imants, 1999). This result yields insights that can be helpful in developing and supporting collegial relations in different levels of schools.

The interaction between network and school climate. Another interesting finding in this study is with the same amount of power in policy, teachers involved a network are more likely to be from schools with less principal support. In addition, teachers involved in the network from the schools with higher level of frustration report more power in policy. These results seem to be counterintuitive. However, they confirm Pfeffer and Salancik's (1978) premise of power relationship that some actors could deliberately gain additional capacity from their association with others.

School enrollment, school level and school climate were not observed to have a significant impact on either the association between both gender and influence in policy or race and influence in power in policy.

In sum, this study found that individual level factors are related to teacher power but only explain a small amount of variance in teacher power in decision-making at schools when compared to the school-level factors. The study also found that teacher power in

schools is the result of the interaction between individuals and the school environment rather than the correlations between or among some isolated factors. Although the professionalism of teachers (focusing on individual knowledge and skills) enhances teacher empowerment, without the proper school climate, teacher empowerment could be constrained by the environmental press, especially when the outside action is threatening (Firestone & Bader, 1991; Rowan, 1990). Results regarding the interactions between teacher power and individual-school yield insight that can be helpful in fostering teacher empowerment in schools.

Summary

The analysis of the nationally representative data showed that teachers had varying power with different aspects of decision-making. Some previous findings were confirmed and some new discoveries about teacher power were made. Teachers in the United States have less power in policy. Although schools have tried to involve teachers in school governance for a long time, these results suggest that this is still a major area in need of reform and change.

The multilevel approach has been shown to be a useful framework for the study of teacher power in schools. From this framework, it is easy to understand why some teachers have more power than others. As an individual within a larger school context, a teacher's attributes and background may impact the desire to acquire power and exercise it through the school decision-making system. However, the power of the individual level factors' effects accounted for the variation of teacher power was relatively low when compared to the power

of the association with school-level factors. A school's organizational structure, such as school size, school level and school climate, explains the largest amount of variation in teacher power. These results reinforce the notion that the outcome of teacher empowerment is more tied to how healthy and open school climate is.

Study Limitations

A number of limitations are recognized within this study. First and foremost is the nature of the dependent variable, "teacher power in decision- making." For the purpose of this study, the dependent variable seeks to assess a more general construct of teacher influence. Due to the limitations of measurement using secondary data analysis, two variables "influence in teaching" and "influence in policy" are used as latent indicators of teacher power. Thus, the measurement of teacher power in schools is largely relative to the nature of the concept.

The examination of the effects of teacher individual characteristics on power in decision-making is confined to demographics. Previous literature has shown that personality traits such as the need for influence, ideological commitment, and satisfaction not only impacts teachers' desire for influence at schools, but also influence the way they exercise influence at schools (Brown, 2000; Teague, 1991; Webb, 2006). Future research on the determinants of teacher power, therefore, needs to incorporate variables reflecting these cognitive and ideological factors of teachers as well as characteristics of school organizations.

Furthermore, this exploration of teacher power in schools is limited to the individual and school levels. Teacher power at schools might also be influenced by other levels of our

educational system, evidenced recently, for example, in the dyadic relations (leader-member exchange theory) and culture at the district and state level; such factors might be the moderators that could facilitate or inhibit the effects of teacher empowerment (Somech, 2010). Thus, how might these other levels of factors impact teacher power? Future research may consider more levels of analysis to further understand the nature of teacher influence.

The last limitation in this study is the use of the pre-No Child Left Behind public dataset. In order to keep the privacy of individual respondents, the NCES recoded several continuous variables of public SASS data, such as school enrollment into categorical data, which provides limited information on the analysis. In addition, the data was collected in a pre-No Child Left Behind era. The impact of the deliberative reform effort of No Child Left Behind on teacher improvement and their perceptions of schools may have either positive or negative. The positive impact may be due to the increasing collaboration and cooperation among teachers in teaching and planning; the negative impact may occur when teachers feel frustrated about the standardized testing and curriculum adoption. For example, the legislation mandates that K-12 public educators meet specific accountability measures by 2014, including Adequate Yearly Progress requirements for students in reading and mathematics. In some schools, principals may have more control over teacher professional development in order to reduce the achievement gaps in schools. Research conducted in the context of NCLB found a relationship between teacher empowerment and school AYP status (Coble, 2007; Koppich, 2005). Thus, the conclusions drawn from this study may not accurately reflect current situations. The replication of current findings using the latest

restrictive dataset is needed before any firm conclusions can be made.

Implications

This study proposed the multi-level approach by integrating three major aspects of teacher power in the literature: power possession, power exercise, and power realization through the lens of the individual and school levels. To date, school management appears to know little about the factors that impact teacher power in decision-making. The currently available research is confusing. Some scholars believe in improving individuals' skills and knowledge while others are convinced that the effect of teacher empowerment is contingent on school culture. This study assumes teachers' individual abilities determine the way in which they acquire power and use power in the school. A school's existing structure as well as culture is the precondition for teachers to exercise power. Thus, the realization of teacher power (e.g., the amount of influence in school decision-making) relates to both individual attributes and school context.

The results from study support the system theory of social change which shows that teacher power in decision-making is not an integration of isolated factors, but is situated in and connected with the school context. These findings about the significance of school organizational features extend existing research and suggest implications for educational administrators and policy in several ways.

Implication for educational policy. Understanding the nature of teacher power provides a clue into some of the fundamental premises of teacher empowerment. What is the most effective strategy to increase teacher power? Is it "Changing norms, knowledge, and

skills at the individual level” (Elmore, 1995, p. 26), or changing the school organizational structure? (Fullan, 1991). This study provides the evidence that the association between teacher power and personal characteristics is mediated by school organizational features. Furthermore, school organizational features explain much of the variation in power difference compared to teachers’ individual characteristics. These results suggest the implications for teacher professionalization and school administrations.

Teacher professionalization and empowerment. The findings of this study suggest that teacher empowerment may be influenced by individual attributes which are manifest in ways of power acquisition and power exercise. These individual attributes include demographics, social opportunities and formal collaborations. The findings are consistent with theory and research on teacher professionalization. The professional development at the individual level that simultaneously focuses on advancing professional knowledge and improving teacher status has become the vehicle to teacher empowerment (Lichtenstein, McLaughlin, & Knudsen, 1991; Maeroff, 1988). The literature on teacher professionalization suggests that increasing specialization and improving teacher status made teachers more confident in dealing with the issues and decisions that not only impact the classroom, but also their professional lives beyond the classroom. Westheimer (1998) explains that autonomy means a “belief that teachers should have greater authority over the school, have greater autonomy in their classrooms and have time to meet as a group to share experiences, discuss strategies, and make collective decisions that affect the school and their teaching”. At the same time, schools provide the environment and opportunities for choice

and autonomy in demonstrating teachers' professional competences. Teachers maintain power at school because school administrations are dependent upon them for their special skills and access to certain kinds of information. Research has shown that individual factors play the key role in not only teachers' willingness to participate, but also in determining the way they acquire and exercise power. This study confirms the previous findings on the individual factors, which may offer important implications for educational policy that often focus on improving professional knowledge and skills to empower teachers.

Create supportive teacher professional development plan. Despite the earlier findings that teaching experience is strongly related to teacher power at school, this study found that teaching experience is not associated with power. This finding may have important implications for existing educational policy that often just focuses on improving professional knowledge or skills to empower teachers. It is reasonable to assume teachers who gain more experience in teaching may become more knowledgeable and confident in dealing with educational issues and decisions. Leithwood (1992) suggests that expert leadership is expert problem-solving. However, as this finding suggests, teachers who have more teaching experiences may be more confident in instruction and students, yet they may not be as confident making decisions about school-wide issues. Educational policy makers on teacher development need to devise training and support strategies to ensure teachers are able to translate their professional qualifications and knowledge into influence in school decision-making process.

Focus on sensational knowledge and skills. The effort to enhance teacher

professionalization could, in the abstract, serve a wide variety of possible goals of teacher empowerment. However, the profound effects of gender, race, and degree found in this study on teacher power suggest that the reform effort has embedded within a distinctive mix of preexisting attributes and elements. These attributes make some effects of teacher empowerment more likely than others. The findings support the sensational perspective of professional knowledge (Vanover, 2009). Vanover argued professional knowledge is the network of the images, experiences and emotions that shapes a person's choice. Therefore, it may be important for policymakers who want to promote teacher empowerment through professionalization to take individuals' needs and perceptions into consideration. The knowledge defined from a sensational perspective may have significant impact on the interactions and power acquisition in schools.

School culture and empowerment. This study aligns with previous research which suggests that teacher power may be influenced substantially by the school contexts in which they are established. These contexts include social and political factors that may be manifest in prevailing patterns of leadership practice, teacher collaboration and frustration. These findings are consistent with theory and research on leadership development in organizational context (e.g., Hallinger, & Leithwood, 1996; Ho, 2010; Mayer, 2013). As mentioned earlier, the literature on leadership suggests that leadership development is an organizational phenomenon. Teacher leadership is influenced not only by school organizational structures but also by the interactions and collaborations among teachers and other school leaders (Datnow et al., 2002; Mayer, 2013; Skreisberg, 1992). The literature on teacher

professionalization suggests that individual professional development is contingent in part on socialization associated with professional environment in which their skills and knowledge can be developed. These individual and organizational dimensions are interrelated and likely to be mutually reinforced.

These conclusions have important implications for policy and leadership practice. They suggest that teacher empowerment strategies should be highly contextualized. Practicing ways to foster successful teacher empowerment in schools depends, to a great extent, on a supportive administration and collaborative working environment. Although policymakers have tried to involve teachers in school governance for a long time, the analysis of nationally representative data suggests that this is still the major era for reform and change. In addition, social opportunities such as collaboration and networking should be a major target in fostering teacher empowerment.

Therefore, in considering how to promote teacher power in school decision-making, policy makers and educational administrators can empower teachers through providing holistic support, focusing on establishing ongoing communication and collaboration in schools, aligning the goals of school restructuring with teacher empowerment, and supporting more research on further understanding of teacher power itself.

Provide holistic support for teacher empowerment in schools to facilitate a supportive and collaborative school environment. A change in teacher power cannot be achieved merely through applying new or good ideas. Therefore, it is impossible to empower teachers by merely focusing on changing one factor while keeping others the same. Current

reform practices providing opportunities for teacher participation or improving individuals' professional knowledge does not necessarily help empower teachers in schools. The results from this study support the system theory in social change which show that teacher power in decision-making is not an integration of isolated factors, but is situated in and connected with the school context. A supportive and collaborative school environment is crucial for teacher empowerment. Consequently, holistic support from multi-level aspects to help to grow a healthy school environment should be one key target for teacher empowerment.

Align the goals of school restructuring with teacher empowerment. Researchers have suggested that efforts to restructure schools are relatively unsuccessful when compared with the expectations set out in the initial restructuring literature (Hallinger, 2013; Taylor & Bogotch, 1994). This study's findings reinforce the notion of the interdependence among reform implementation, school structure, and culture. The hierarchical structure of schools has been identified as a key factor that limits teacher power expansion in the literature (Rallis, 1990; Smyser, 1995). Therefore, in order to successfully increase teacher power, emphasis should be placed on those factors and patterns that align the goals of school restructuring in addition to implementing shared decision-making governance structures for educational improvement in meaningful and effective ways. In addition, continuous diagnosis of school climate and considerations of the impact of cultural and structural factors on individual teachers in the gradually-changing process is crucial. Instead of focusing on the characteristics of the teachers themselves, the diagnosis of school climate can help understand the structural relationships in schools. These structural relationships capture some

important and underexplored implications for teacher empowerment.

Support more research on further understanding of teacher power itself. Teacher empowerment is believed to have great potential for helping teaching and student learning, and great efforts have been made to promote teacher power in school decision-making. In the past, the emphasis has been mainly on how to involve teachers in the school decision-making process. Results from this study suggest that a systematic understanding of teacher power itself is of more critical importance. Therefore, more efforts should be focused on the nature of teacher power; specifically, to successfully implement teacher empowerment, more research on teacher power itself is required. Teacher power has received attention from educators and researchers, but empirical studies on this topic are still very scarce. Sufficient policy and financial support for this kind of research is important because a sound understanding of teacher power is the premise of any effort to promote it. With the acknowledgement of the importance of teacher power, more administration emphasis should be placed on promoting meaningful teacher empowerment in schools.

Implications for school administration. Since teacher empowerment in schools is an ongoing effort influenced by the school environment, it is of crucial importance to understand this phenomenon, to control factors that are positively related to teacher power realization, and to grow a healthy school climate that facilitates power realization in school decision-making. Findings from this study suggest the following:

First, before teacher empowerment is implemented in schools, it would be helpful for school administrators to diagnose the patterns of their school climate with a focus on social

interactions. Results from this study suggest that teachers in a healthy, open school climate generally have more power in school decision-making. Healthy school climate can be facilitated through a number of approaches: a) promoting supportive leadership practices to help teachers to voice their opinions; b) enhancing collaboration among teachers to increase communication; c) minimizing interferences to reduce teachers' frustration.

Second, after teacher empowerment is implemented in a school, it would be very helpful for administrators to be responsive to teachers' needs and supportive of their personal goals, focusing on aligning personal goals with school goals. This study found that teachers have much more power in teaching than in policy at schools. Barnard's (1983) zone of indifference theory provides some implications for practice in that regard. The lack of teacher power in policy may be caused by the lack of interest in exercising the power in governance since teachers see no relation of power to attaining the goals they desire. Therefore, the effort to create and align schools' goals with teachers' personal goals should become the priority for school administrators.

Third, it is essential for administrators to implement teacher power in a particular school context. Results of this study indicate that teacher empowerment is contextualized, and the difference between a teacher's individual power is largely determined by school level factors. Since teachers exercise their power in school primarily through the informal mechanisms of influence rather than formal authority structures, school culture plays the important role in how teachers feel in the schools, which thus impact teachers' interest in school-wide activities. Therefore, when designing a framework for teacher empowerment,

school administrators should understand school context in a dynamic way in that it is characterized by continuous activity and interchanges both within school and between it and its staff. These contextual factors are interdependent, changing these factors is a gradual process.

Fourth, it would be helpful for school administrators to focus on social interactions in order to empower teacher. The analysis in this study confirmed previous findings about social opportunity in teacher empowerment. Collaboration and networking were the major areas of teacher empowerment. This study found that the relationship between networking and teacher power suggests that efforts to develop efficacious collegial relationships in school are crucial for teacher empowerment. Teacher empowerment means that some decisions in schools are moved down in the professional community and are made by teachers. Because teachers are more likely to know someone close to them better and have more time to spend more with colleagues, the social interactions in schools increase the teachers' decision-making influence. In addition, isolated teachers may be less motivated to exercise power in school policy. Bakkenes, Brabander, and Imants (1999) found that isolated teachers were less interested in school-related communication. This study suggests that the empowerment is more effective when teachers are involved in collaboration and networking. The results from this study provide evidence in favor of these strategies. Therefore, if school administrators want to empower teachers, they may need to focus on internal interactions at school to build the strong connections among teachers (Scribner, Sawyer, Watson, & Myers, 2007).

In addition, this study confirms previous findings that teachers from small schools have more power in decision-making. A reform strategy of creating smaller schools-within-schools within larger school buildings to promote ongoing communication and collaboration in schools might be helpful in fostering teacher empowerment.

Implications for future research. This study has important implication for both empowerment theory and research. First, the study demonstrates the complexity of teacher empowerment and the viability of using multilevel models in efforts to analyze the pattern of teacher power in schools. To date, most studies in this field move beyond the understanding of basic concepts and are limited to the either quantitative analysis at single level or descriptive analysis of power relations and power exercise. Thus, this study suggests that researchers consider this multilevel approach and include more levels of analysis tin future research on teacher empowerment.

Second, from the perspective of school administration, this study supports the view that teacher empowerment is highly contextualized. The study found that there is a significant difference in teacher power within schools as well as between schools. School level factors, however, explain a larger amount variance when compared to teachers' individual characteristics. It supports Abdel-Halim's (1983) argument that shared decision-making may be an effective strategy depending on a subordinate's perception of the power structure. Building on this point, future research may investigate what types of school conditions are pertinent to teacher empowerment. Other questions, such as what is the contextual and institutional role in the formation of school power structure, are also worthy

of pursuit for the future research.

Third, a social network analysis might be a worthy pursuit for future researchers to understand teacher power in schools. This study has shown that there is a significant difference between power among teachers who participate in a network (organized by an outside agency or over the internet) and teachers who do not. A network as part of the informal structure is complex and multilayered. Research to date has not linked the network to teacher empowerment. Future research may consider how a teacher's network impacts their power in school decision-making as an important effort to further understand this construct. This finding suggests new ways of exploring how teachers' social networks shape their power in schools.

Finally, a failure to find the significant effects of collaboration on power in teaching suggests that collaboration is not a panacea to bring about the effectiveness of teacher power related. If we view the power as a resource, it is reasonable to consider collaboration as a strategy to pool and transfer the resources in schools to achieve the maximum strategic benefits. However, not all collaborative activities will necessarily generate distributed leadership, as it depends greatly on the level and quality of involvement plus the degree of skillfulness within the group (Harris & Lambert, 2003). It also depends on the internal conditions set, often by the formal leadership, to support and nurture collaborative learning and to harness the leadership's energy. Johnson (2003) also pointed out collaboration in schools could impact power relations and damage professional autonomy. It may be an interesting topic for future research to explore the dynamic of collaboration and power

structure in schools.

Conclusion

By studying teacher power in decision-making as a multilevel and dynamic concept, this study goes far beyond the previous single-level studies of teacher power to call to attention the role of school organizational features in the reform era. The analysis has demonstrated that the nature of teacher power is related both to an individual's background and the school context.

In this study, teacher power, measured by teachers' perception of the influence in school decision-making, was seen to be dependent on several school-level factors as well as individual factors. The results of multilevel analysis concerning the factors that influence teacher power at schools are presented in Figures 10 and 11. The red box signifies the constructs which were used in this study; the light green box denotes the variables and the green cloudy shape signifies the implication for practices. The operations show the relationship between variables: plus means positive; minus means negative; a cross means interaction; and star means no relationship. As shown in Figures 10 and 11, the factors that influence teacher power at schools occur at multiple levels and are not independent of one another. In addition, their impact on how teachers exercise power in school is not a simple one.

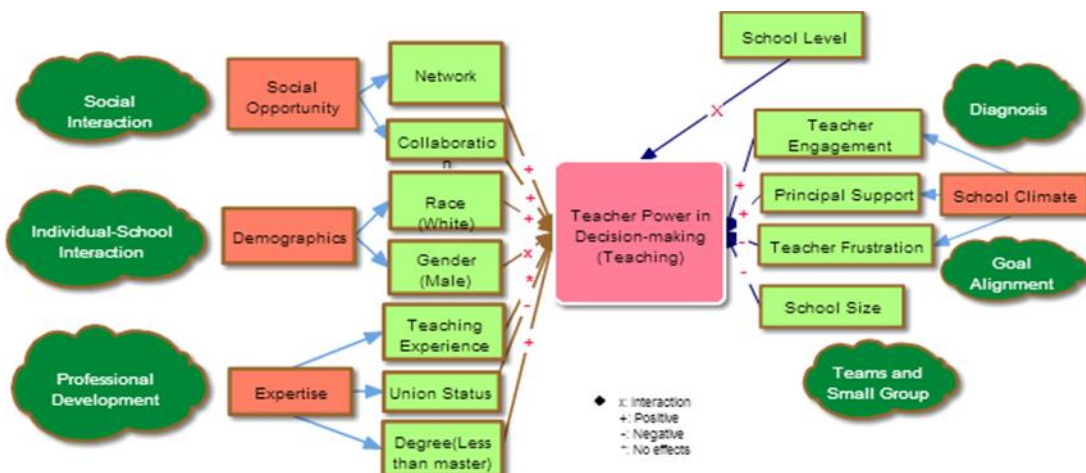


Figure 10. What Influences Teacher Power in Teaching at Schools

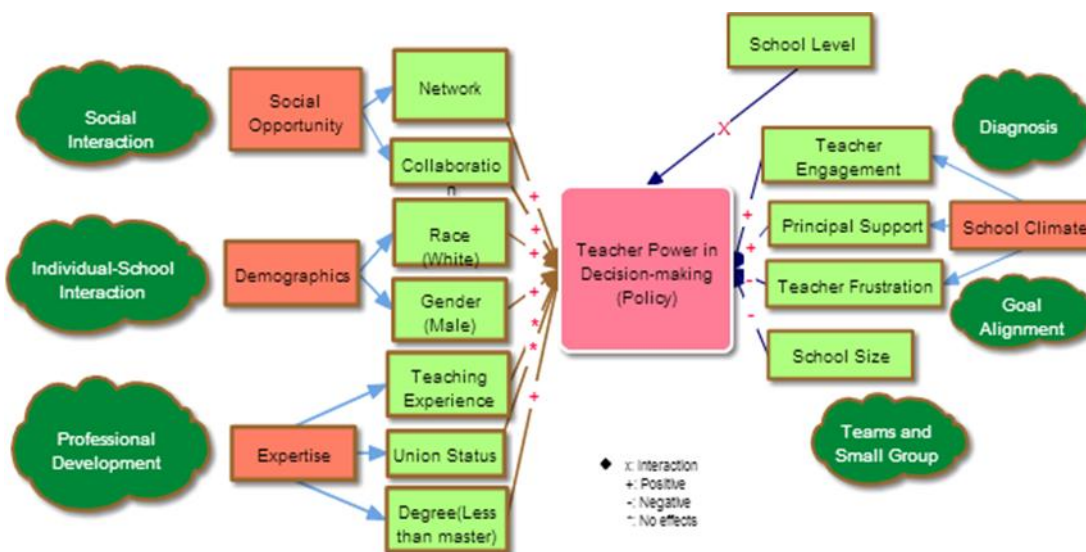


Figure 11. What Influences Teacher Power in Policy at Schools

What matters most in teacher empowerment reform is addressing the school-level

factors. This research measured school climate in three elements (leadership practices, teacher engagement, and teacher frustration) to identify several significant organizational cultural influences. This finding suggests that popular teacher education initiatives focusing on increasing their professional knowledge alone will not lead to the realization of teacher empowerment if schools fail to pay attention to the school's contextual conditions. If a school wants to empower teachers, policy makers and reformers should study the dynamics of teachers and school environment. Without understanding the nature of teacher power and how do teacher individual characteristics and school organizational features impact influence in decision-making, it may be difficult for teacher empowerment reform to be effective.

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APPENDICES

Appendix A: Categories of Teacher Power from 1999-2000 SASS

Construct	Questions in 1999-2000 SASS instrument
Power in school policy	<ul style="list-style-type: none"> • Setting performance standards • Establishing curriculum • Determining professional development • Evaluating teachers • Hiring new teachers • Setting discipline policy • Deciding school budget
Power in teaching	<ul style="list-style-type: none"> • Selecting instructional materials • Selecting content • Selecting technique • Evaluating students • Disciplining students • Determining the amount of homework

Appendix B: School Climate Variable Scales from 1999-2000 SASS

Indicators in Literature of School Climate	(number of questions on survey) Questions in 1999-2000 SASS instrument
Supportive Principal Behavior	<p>T0299. The principal lets staff members know what is expected of them.</p> <p>T0310. The principal knows what kind of school he/she wants and has communicated it to the staff.</p> <p>T0300. The school administration's behavior toward the staff is supportive and encouraging.</p>
Frustrated Teacher Behavior	<p>T0305. Routine duties and paperwork interfere with my job of teaching.</p> <p>T0302. The level of student misbehavior in this school (such as noise, horseplay or fighting in the halls, cafeteria or student lounge) interferes with my teaching.</p>
Indicators in Literature of School Climate	(number of questions on survey) Questions in 1999-2000 SASS instrument
Engagement Teacher Behavior	<p>T0309. Most of my colleagues share my beliefs and values about what the central mission of the school should be.</p> <p>T0311. There is a great deal of cooperative effort among the staff members.</p> <p>T0316. I make a conscious effort to coordinate the content of my courses with that of other teachers.</p>

Appendix C: School Climate-Survey Items Inter-correlations

		T0299	T0300	T0310	T0302	T0305	T0311	T0309	T0316
T0299	Common expectation	1							
T0300	Principal support	0.59	1						
T0310	Principal communication	0.66	0.55	1					
T0302	Misbehavior interferes	-0.17	-0.19	-0.19	1				
T0305	Other duties interfere	-0.10	-0.14	-0.09	0.17	1			
T0311	Staff cooperation	0.37	0.40	0.43	-0.21	-0.11	1		
T0309	Colleagues share beliefs	0.27	0.25	0.33	-0.15	-0.07	0.49	1	
T0316	Coordinate content	0.11	0.10	0.15	-0.06	-0.01	0.21	0.22	1