

The relations among school autonomy, school leadership and teachers' organizational outcomes. A study in the context of school reform in China

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Preface

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1 General introduction

Chapter 1

General introduction

Abstract

This chapter serves as a general introduction to the research theme of the dissertation. First, the general theoretical background of school autonomy is presented, including the conceptualization and measurements of school autonomy and the school autonomy reform in a Chinese context. Second, the school leaders capacity, school organizational variables, teachers psychological variables and teachers' outcomes are discussed. The research problem stemming from the conceptual framework is presented, resulting in three research objectives. Furthermore, the overall research design is explained, demonstrating the links between the chapters and research objectives. Finally, an outline of this dissertation and an overview of the content of the different chapters are provided.

Introduction

School autonomy reform has been regarded as one of the main themes in the recent years in education (Eurydice, 2007; OECD, 2011). The rationales behind this reform include providing conditions that school leaders could respond better to the needs of their schools, reducing the supposed inefficiencies due to bureaucracy, and promoting innovation and participation to improve the quality of public education overall (Leithwood & Menzies, 1998b; OECD, 2011). School autonomy reform has been believed to grant freedom to schools to make decisions with regard to curriculum, funds, personnel, and student policies. For school leaders, they are expected to set and share a clear school vision, raise and use funds properly, employ qualified teachers based on school's needs, develop and evaluate them effectively. For teachers, they are supposed to enjoy greater say in choosing textbooks, designing curriculum and classroom teaching. Generally speaking, school autonomy is considered a strategy to ensure school accountability, enhance school innovation and teachers' participation, and eventually improve school effectiveness (Bogler & Somech, 2005; Briggs &

Wohlstetter, 2003; Firestone & Pennell, 1993; Leithwood & Menzies, 1998b; Riehl & Sipple, 1996).

However, although some empirical studies have observed that school improvement was caused by an increase in school autonomy, the effects of this reform at the school level are still inconclusive. Through which paths these potential influences can be established are also far from answered (Hanushek, Link, & Woessmann, 2013; OECD, 2011). Leithwood and Menzies's review of 83 empirical studies found "no firm, research-based evidence of either direct or indirect effects" of this reform on students (Leithwood & Menzies, 1998b). More recently, researchers tried to use comparative international surveys to examine this issue (Hanushek et al., 2013; Maslowski, Scheerens, & Luyten, 2007). For example, Hanushek, Link and Woessmann (2013) concluded that local autonomy has an important impact on student achievement, but this impact varies across countries and domains, which was in line with Shin, Slater and Backhoff's study (Shin, Slater, & Backhoff, 2012).

Scholars have proposed several reasons for these ambiguous results. Firstly, some researchers have pointed out that different conceptions and measures of autonomy used in previous studies were inconsistent and often neglect school leaders' individual feelings (Brauckmann & Schwarz, 2014; Verhoest, Peters, Bouckaert, & Verschueren, 2004). Such research often adopts a formal-legal status to describe school autonomy. However, due to different capacity and conditions, principals may perceive the same formal-legal status of autonomy differently (Adamowski, Therriault, & Cavanna, 2007). Secondly, most earlier research on school autonomy has been focusing on the effects of this reform on students' achievement, but paid insufficient attention to the role of school leaders and teachers in this reform (Leithwood & Menzies, 1998b; OECD, 2011; Shin et al., 2012). School leaders and teachers are critical to a successful reform, because school autonomy reform not only promises an increase in local decision-making power but also brings numerous challenges and dramatic changes to schools such as increased accountability and higher requirements on school leaders and teachers. Thirdly, increased school autonomy in different domains – for example, curriculum, funds, personnel, and student policy - may result in diverse effects on school organization or teachers' outcomes (Maslowski et al., 2007). As is rightfully indicated in the Eurydice report, the new research interest in school autonomy has increased mainly in two topics: how schools use their new powers, and the effects of school autonomy (Eurydice, 2007). Empirical research is needed to better understand these issues.

This dissertation aims to contribute to this ongoing debate by studying school autonomy in China. The introduction of school autonomy reform in China's centralized culture creates a unique challenge. In this dissertation, we studied how principals perceive and use school autonomy on the one hand, and examined how these factors influence teachers' organizational outcomes on the other hand. The following sections of this chapter will present the theoretical background of this dissertation.

Conceptual framework

School autonomy reform in China: A historical view

China has the world's largest education system. The continuous improvement of market mechanisms and the shift towards more open policies have led to rapid economic growth in China in the past few decades (OECD, 2016). Along with the open-up policy in economy, China began its educational decentralization reform in the 1980s. To reduce the financial burden of the central government is the main incentive of the educational decentralization in China (Ngok, 2007). The "Decision on the Structural Reform of China's Education System" issued in 1985 initiated the financial reform as a key element of the educational decentralization agenda. Local governments were given the fully responsibility for running schools and covering the main cost of financing education (Hawkins, 2000; Lin & Zhang, 2006; Ngok & David, 2004). To broaden the financial resources, local governments and schools diversified financing sources, raising funds from multiple sources apart from the governmental allocation. Accordingly schools also had greater autonomy in other domains of school management, especially in the domain closely linking to funds allocation. For example, schools can use the funds to employ teachers meeting their particular needs and requirements, pay teachers based on a school-based evaluation system, and adjust the student enrollment policy to attract more fee-paying students (Hawkins, 2000; Ngok, 2007).

This financial decentralization in education system in China is a double-edged sword (Hawkins, 2000; Ngok, 2007; Park & Shen, 2008). It increased the education provision through mobilizing new education resources, but also enlarged educational inequity (Liu & Onwuegbuzie, 2012; Liu & Dunne, 2009; Painter & Mok, 2008). For example, schools in developed regions enjoyed the economic advantages, receiving sufficient financial support from local governments; schools with higher public reputation were financially self-sustained due to their attraction for fee-paying students (Painter &

Mok, 2008). In contrast, schools in underdeveloped regions receiving an inadequate governmental budget may have difficulty to pay teacher salary on time; and schools with a lower reputation unable to attract enough students were also struggling in a despairing fiscal plight (Cheng, 1994; Zhang & Zou, 1998).

To reduce the education inequality, the central government of China retrieved certain autonomy and responsibility from the local governments and schools in the late 1990s (Hanson, 1998; Hawkins, 2000). In particular, the degree and range of financial autonomy at the school level were decreased. It deprived local governments largely of their fiscal and administrative autonomy, and established a strict monitoring system of school revenue expenditure at the upper administrative levels to constrain abuses (Liu & Dunne, 2009). Some local governments retrieved personal autonomy, for example, by recruiting teachers for schools in its jurisdiction and affording teacher salary to ensure teacher quality and salary payment.

Later, the “New Curriculum Reform” launched in 2000 and stepped in the second round in 2008, aiming to promote a new pedagogic culture to cultivate students’ reasoning ability, innovative consciousness, curiosity, investigative strategies and cooperation (Dello-Iacovo, 2009; Huang, 2004). Schools have received a relative level of autonomy to reconstruct the curriculum to challenge a traditional pedagogical culture that puts exams at the center of schooling (Liu & Dunne, 2009; Walker & Qian, 2015).

These policy changes redefined the autonomy in different domains at the school level in China. They also brought new challenges to school leaders and teachers. Though the autonomy has been reduced in some domains in China (Hawkins, 2000; Karlsen, 2000; Ornelas, 2000; Painter & Mok, 2008), researchers also claimed that these policy changes were not a fundamental reversal but rather a pause aiming to redress some flaws of the reform (Painter & Mok, 2008; Zhao, 2009). With this regard, empirical research on the school autonomy reform in a Chinese context is still strongly needed to establish a more stable and sustained mechanism to eventually guarantee education quality and equity.

In the following sections, the literature review regarding to the school autonomy reform is provided to set up a theoretical framework. The key concepts, the relationship between variables, and the contextual factors used in this dissertation will be discussed.

School autonomy reform: “The way of the future” or “a failure”?

Over the past few decades, educational decentralization has been implemented in many countries (Eurydice, 2007). The forms of educational decentralization are various, like for example, charter schools in the United States, academies in England, free schools in Sweden and independent public schools in Australia (Boyask, 2016). These policies are different in forms but they are all focused on increasing school autonomy. School autonomy refers to the devolution of responsibilities to the school level (Beatriz, Nusche, & Moorman, 2008). It includes several different aspects of school management (Eurydice, 2007), and emphasizes the degree to which the decision making authority in certain areas is held at the school level, rather than at a local or national government level (OECD, 2014). Different terms are used in various research, for example, local autonomy for decision-making, site-based or school-based management, which are generally seen as synonyms for school autonomy (Caldwell, 2005; Hanushek et al., 2013).

The concept of autonomy is popular in contemporary research of public administration, and is considered a core element of New Public Management (OECD, 2002; Verhoest et al., 2004). Decentralization in public management has been argued to improve the efficiency of resource allocation and to increase public accountability (Azfar, Kahkonen, Lanyi, Meagher, & Rutherford, 1999). In a school setting, increased school autonomy has been often linked to school effectiveness and improvement, because educational decentralization encourages greater sensitivity to local needs, enhances innovation and local knowledge, and reduces the inefficiency and rigidity of centralized bureaucracies (Wöbmann, Lüdemann, Schütz, & West, 2007). The main assertion inherent in this reform is that increased school autonomy will better and more effectively enable the conduct of educational processes (Nir, 2002). Therefore, it has been believed to lead more effective resource allocation, to enhance teachers’ professional independence and accountability for their performance, to increase their organizational commitment and job satisfaction, and consequently, to improve student performance (Nir, 2002; Rosenholtz, 1989; Rosenholtz & Simpson, 1990; Wohlstetter & Chau, 2004). In a recent research, a principal of a public school in Queensland, Australia described school autonomy reform as “the way of the future” which is “unstoppable and inevitable” (Keddie, 2015).

However, empirical findings have shown a rather mixed picture of potential contribution of autonomy to school effectiveness and for teachers’ outcomes (Beck & Murphy, 1998; Firestone & Pennell, 1993; Leithwood & Menzies, 1998b). Some

researchers claimed that if autonomy is poorly implemented at the school level, it will not improve school effectiveness but could have negative influences through overburdening school leaders and increasing the risk of the misuse of resources at the local level (Wöbmann et al., 2007). For example, Beck and Murphy (1998) examined a large body of research on the impact of school autonomy reform and concluded that the intervention of this reform on student learning outcomes is rather weak among school reform measures. In some research little differences have been found between the effectiveness of schools that have been involved in school autonomy reform and schools that have not been involved (Brinson & Rosch, 2010; Nir, 2002). Finn, Manno, and Vanourek's analysis on charter schools found the main reasons for charter schools' closure include "organizational chaos, management meltdown, and fiscal misuse"(Finn, Manno, & Vanourek, 2000). Some researchers even concluded that school autonomy reform has failed because it is unlikely to "trigger changes in the chain of factors connecting school autonomy to students' learning outcomes" (Fullan & Watson, 2000; Leithwood & Menzies, 1998b).

The school autonomy reform is not a one-size-fits-for-all approach, but a complex phenomenon that can be implemented in a variety of ways because of the great variability among policy incentives and local contexts. Nevertheless, some consensus have also been forged in previous research with regard to the directions to decipher the mixed results. First, the concept and measurement of school autonomy used in previous studies needs to be reconsidered when its effect on school effectiveness and organizational outcomes is explored. Verhoest (2004) pointed out that different concepts and measures of autonomy used in previous studies can be a cause for the mixed results. This introduces the key question of which definition and measure of autonomy should be used. Second, the effect of school autonomy reform on teachers' outcomes depends heavily on the school context and the local implementation, requiring a holistic research design integrating factors related to school leaders capacity, school organizational characteristics, and individual teacher's psychological characteristics. To contribute to the literature, in this dissertation we explored how school leaders perceive and use school autonomy. In addition, when examining teachers' organizational outcomes under the school autonomy reform, we also took other variables at the organizational and the individual level into account, e.g. school climate, teachers' self-efficacy, and teacher autonomy.

In the following sections, different approaches to examine school autonomy, the measurement of school autonomy used in the present dissertation, as well as the key

variables related to school leaders, organization environment and teachers are discussed.

Different approaches to examine school autonomy: Perceived autonomy, preferred autonomy and the autonomy gap in between

School autonomy is a complex concept to measure. Different ways of measurement have been used in the previous literature. The first approach examines autonomy from an organizational perspective and focuses on the level of autonomy provided in the workplace. Through this perspective, autonomy represents how much decision-making power, authority, responsibility and tasks have been transferred from the upper level to the local site. For example, according to Job-Demand-Resource Theory, autonomy is viewed as a job resource characteristic, and one of the most crucial predictors of work motivation and engagement (Bakker & Demerouti, 2001; Karasek, 1979). Earlier research tried to measure organization autonomy independently of the employee through documentary analysis and using types or classification of formal-legal status of organization autonomy (Jonge, 1995; Verhoest et al., 2004). However, the concept of autonomy is a hypothetical construct which strongly depends on individual's subjective judgment (Jonge, 1995). Some studies explored the employees' perceptions of the level of organizational autonomy and found a substantial level of heterogeneity in perceived autonomy among organizations with the same formal-legal status (Verhoest et al., 2004). Though there is still no agreement on this issue yet, researchers have suggested that if the research interest is to understand the attitudes and behavior, "perceived autonomy" is preferred as measurement of school autonomy (Hackman & Oldham, 1975; Jonge, 1995). In a school setting, "perceived autonomy" focuses on how school leaders "perceive" the school environment in terms of how much decision making power the schools are given by the government (Maslowski et al., 2007). This perceived degree of school autonomy has also been adopted frequently by international surveys, such as PISA and Eurydices studies (Eurydice, 2007; OECD, 2011).

The second approach takes autonomy as an inherent psychological need and depicts how much autonomy an individual prefers. Through this perspective autonomy refers to the extent to which people are capable to make choices based on personal interests and needs (Van den Broeck, Vansteenkiste, De Witte, Soenens, & Lens, 2010). According to Self-Determination Theory, need for autonomy is used and defined as individuals' desire to experience a sense of control, choice and psychological freedom (Deci & Ryan, 2008; Van Yperen, Rietzschel, & De Jonge, 2014). The need for autonomy was found significantly linked to employees' intrinsic motivation, satisfaction,

commitment, and performance (Deci & Ryan, 1985; Van den Broeck et al., 2010). For school leaders, they might possess different opinions of school autonomy, and perceive different levels of need for school autonomy. In other words, this perspective explains how much autonomy school leaders think is sufficient to achieve the goal of school development, representing their individual preference on school autonomy.

The integrated perspective, autonomy gap, combines these two approaches, and has been increasingly adopted in recent research (Adamowski et al., 2007; Meyerson et al., 2014; Van Yperen et al., 2014; Van Yperen, Wörtler, & De Jonge, 2016). School autonomy gap is defined as the difference between perceived and preferred autonomy. In particular, for school leaders facing a school autonomy reform, autonomy gap is the distance between the amount of autonomy they think they possess and the amount of autonomy they believe is needed to successfully implement a reform (Adamowski et al., 2007). Adamowski, Therriault, and Cavanna (2007) demonstrated the salient autonomy gaps reported by principals. This was also confirmed by Adamson's study, which compared autonomy in charter, public and private schools (Adamson, 2012). Though only a few studies in the field of education have explored the school autonomy gap, research in public organization administration confirmed the importance of this gap and provided further explanations. It is assumed that when the work environment is aligned with people's own needs, they are more motivated and perform best (Cable & Judge, 1996; Edwards, 1991). For example, for employees with higher preferred autonomy, the more autonomy they perceive in their work, the less emotional exhaustion and health complaints they have (Van Yperen et al., 2016). By contrast, a mismatch can either disappoint those expecting positive influences of increased autonomy on work outcomes, or even cause negative influences like work stress and low effectiveness (Van Yperen et al., 2014). A research about the autonomy gap reported by doctors revealed a huge discrepancy between expectations for autonomy and perceived autonomy, which consequently jeopardized the professional performance (Meyerson et al., 2014).

The concept of autonomy gap integrates the governmental arrangements versus the school leaders' demands, reflecting real demands of decision-making power of the school leaders. It does not assume that abundant autonomy will definitely be welcomed at the local level, and allows a deeper understanding of how school leaders' capacity and perceptions work together to influence organizational outcomes.

The leadership models of school leaders in a changing environment

Most research on school autonomy reform has strongly emphasized the irreplaceable role of the school leader for a successful reform implementation (Gawlik, 2012; Judge & Bono, 2001; Judge & Kammeyer-Mueller, 2011). School leadership has become important to successfully transform organizations, and have often been used in literature to better understand the leaders' role in shaping followers' responses to change (Herold, Fedor, Caldwell, & Liu, 2008; Leithwood, Harris, & Hopkins, 2008).

Two leadership models have been most widely used in the literature: instructional and transformational leadership (Bush, 2014; Hallinger, 2003; Printy, Marks, & Bowers, 2009). Instructional leadership mainly focuses on improving teachers' classroom teaching practices and has often been linked to teachers' professional development, commitment, involvement and innovation (Sheppard, 1996). School leaders with strong instructional leadership would enhance teacher's feelings of support and satisfaction (Blase & Blase, 1999). Large body of research identified principal instructional leadership as a key factor in instructionally effective schools (Hallinger, 2010; Rigby, 2013). Instructional leadership has been emphasized by its positive influence on student achievements directly and indirectly (Printy et al., 2009). As instructional principals were goal-oriented and sought to create an academic pressure, they are able to define a clear vision and motivate students and teachers to focus on the improvement of student academic outcomes (Hallinger, 2005; Hallinger & Murphy, 1987).

Transformational leadership draws attention to organizational changes and personnel development (Geijsel, Slegers, Leithwood, & Jantzi, 2003). School leaders possessing strong transformational leadership provide support for teachers, foster cooperation, and assist their adaptation and affect their organizational commitment (Geijsel et al., 2003). Transformational leadership behavior includes paying attention to teachers' individual needs and interests, improving their motivations, and increasing their work attitudes and satisfaction (Bogler, 2001). To conclude, transformational leadership is about issues around the processes of transformation and change, and reflects a rather long term relationship between leader and followers (Bass & Riggio, 2006; Herold et al., 2008).

Instructional and transformational leadership have been identified as two main types of educational leadership reflecting a strong relationship with teacher performance and attitudes in previous literature (Bogler, 2001; Hallinger, 2003; Koh, Steers, &

Terborg, 1995; Nguni, Slegers, & Denessen, 2006; Shatzer, Caldarella, Hallam, & Brown, 2013). Though they have been often considered to be alternative strategies in earlier literature, an integrated leadership perspective has been increasingly suggested in this field, indicating that both instructional and transformational leadership should be taken into account (Bush, 2014; De Maeyer, Rymenans, Van Petegem, Van den Bergh, & Rijlaarsdam, 2007; Louis, Dretzke, & Wahlstrom, 2010; Printy et al., 2009). As rightfully stated by Day, Gu and Sammons (2016), both transformational and instructional leadership are necessary for school success. In the current study both instructional and transformational leadership were explored.

Teachers' organizational outcomes

Among various variables of teachers' organizational outcomes, teachers' job satisfaction and organizational commitment have been as important, and as critical determinants of school effectiveness and improvement (Dee, Henkin, & Singleton, 2006; Firestone & Pennell, 1993; Fullan & Watson, 2000; Leithwood & Menzies, 1998a).

Job satisfaction is defined by Locke (1976) as "the emotional state resulting from perceiving one's job as fulfilling or allowing the fulfillment of one's job values". It is an attitudinal construct, representing a pleasurable emotional state resulting from one's job experience. A large body of research has assumed a positive correlation between job satisfaction and job performance (Judge, Thoresen, Bono, & Patton, 2001). Teachers' job satisfaction has been confirmed to have a variety of consequences on both teacher work attitudes and their performance. As teaching is one of the most stressful jobs due to the emotional involvement of teachers with their students (Spilt, Koomen, & Thijs, 2011; Veldman, van Tartwijk, Brekelmans, & Wubbels, 2013), the literature has pointed out the importance of teachers' job satisfaction in order to prevent burnout and reduce work-stress (Skaalvik & Skaalvik, 2009; Veldman et al., 2013). In addition, a higher level of teachers' job satisfaction often predicts less absence and reduced interpersonal conflict, which may lead to higher performance (Somech & Drach-Zahavy, 2000). Research on Chinese teachers' job satisfaction have shown that the level of Chinese secondary school teachers' job satisfaction is generally low, which indicates the need for research on this issue in a Chinese context (Chen, 2007).

Organizational commitment has been defined by Mowday, Porter, & Steers as "the relative strength of an individual's identification with, and involvement in a particular

organization” (Mowday, Steers, & Porter, 1979). Teachers’ organizational commitment represents their psychological bond to their school (Meyer, Paunonen, Gellatly, Goffin, & Jackson, 1989). Teachers’ organizational commitment has been found to predict school effectiveness (Bogler & Somech, 2004; Hulpia, Devos, & Van Keer, 2011; Rosenholtz, 1989; Rosenholtz & Simpson, 1990). A large number of studies indicated that organizational commitment strongly predicts employees’ work attitude and behavior (Dee et al., 2006; Mowday, Porter, & Steers, 1983). For example, a positive relationship has been found between organizational commitment and teachers’ attendance and motivation (Dee et al., 2006). It is also negatively linked to teachers’ turnover (Mowday et al., 1983). In addition, previous research has found a significant relationship between teachers’ commitment and students’ academic achievement (Kushman, 1992; Rosenholtz, 1989). Moreover, teachers’ organizational commitment can also be considered as an important organizational outcome itself (Hulpia et al., 2011). According to Allen and Meyer (1990), organizational commitment contains three components: affective, continuance, and normative commitment. Empirical research has found that affective commitment, which refers to the emotional attachment to the organization individuals identify with, want to be involved in, and enjoy membership of, has the strongest relationship with teacher performance among the three components (Allen & Meyer, 1990; Meyer et al., 1989; Ware & Kitsantas, 2007). In China, teacher retention has become a growing concern. Therefore, several have been made for further study to improve teachers’ organizational commitment (Sargent & Hannum, 2005).

Mediating variables at the organizational and the individual level

Though the tremendous influence of leadership on teachers’ organizational outcomes has been confirmed in numerous studies, previous research has also found this relationship seems indirect, and several variables at both the organizational and the individual level play an important role in mediating the relationship between leadership and teachers’ organizational outcomes.

School climate has been regarded as an important mediating variable. It is a broad term that refers to school members' shared perceptions of the school environment (Hoy, Tarter, & Bliss, 1990). School climate can be an important variable in school autonomy reform. A large body of studies have stressed the importance of organizational culture and school climate for school development and improvement (Krüger, Witziers, & Slegers, 2007; McCarley, Peters, & Decman, 2016). It has been confirmed to have a direct influence on teachers’ organizational commitment and job

satisfaction for one thing, and it also serves as a mediating variable in the effects of principal leadership on teachers' outcomes for another thing (Firestone & Pennell, 1993; Hoy & Hannum, 1997; Hoy et al., 1990; Kushman, 1992; Lok & Crawford, 1999, 2004; Taylor & Tashakkori, 1995). Different dimensions have been identified as being part of the concept of school climate, for example, formal collaboration, decision-making participation and innovation. Teachers who receive more assistance and encouragement from fellow teachers, participate more in school decision-making and adopt an open attitude toward innovation tend to have a higher sense of satisfaction and trust in the organization (Hulpia, Devos, & Rosseel, 2009; Louis & Smith, 1991; Somech & Bogler, 2002).

Teachers' organizational outcomes are not only influenced by factors at the school organizational level, but also by factors at the teacher individual level (Allen & Meyer, 1990; Mowday et al., 1979). Self-efficacy, defined by Bandura (1977) as "people's judgments of their capabilities to organize and execute courses of action required to attain designated types of performances", is one of the most important constructs mediating between human learning and behavior. Numerous research has shown that teachers with a high sense of self-efficacy tend to be more creative, humanistic, engaging and less risk-averse (Gibson & Dembo, 1984; Tschannen-Moran, 1998; Tschannen-Moran & Hoy, 2001; Woolfolk, Rosoff, & Hoy, 1990). Empirical research has confirmed that teachers with a higher level of self-efficacy tend to be more satisfied with their job and committed to their school (Caprara, Barbaranelli, Steca, & Malone, 2006; Coladarci, 1992; Judge & Bono, 2001; Kushman, 1992; Skaalvik & Skaalvik, 2010).

Contextual factors

There is no doubt that school autonomy implementation is affected by the characteristics of the educational system and cannot be understood apart from the school context (Adamson, 2012). Contextual variables are also important in explaining the variance of teachers' organizational outcomes (Hulpia et al., 2011). Previous research on educational reform and school leadership in China has suggested the following contextual factors that should be taken into account: the level of economic development and school reputation (Chen, 2010; Liu, Liu, Stronge, & Xu, 2016; Liu & Onwuegbuzie, 2012).

As described earlier, decentralization reform has caused a regional economic resource disparity in the educational system in China. More specifically, major cities and coastal regions have benefited more from the rapid growth of education than their

counterparts (Ngok, 2007). Some research claimed this reform has promoted rapid and continual growth in the coastal areas and continually widened the gap between the developed and undeveloped areas (Sargent & Hannum, 2005). Teachers working in remote schools in China tended to receive low salary and fewer professional development opportunities compared with teachers in developed areas (Liu & Onwuegbuzie, 2012). The trend of teachers' moving from the undeveloped areas to the developed areas has been observed (Meng, 2004). For schools in undeveloped areas of China, certified teachers are difficult to recruit and to retain (Sargent & Hannum, 2005). Teachers tend to be more satisfied and committed in schools with greater economic and social resources than their counterparts (Liu & Onwuegbuzie, 2012).

The resources disparity is also observed between schools with different reputation. Chinese schools with a higher reputation tend to be more autonomous and also enjoy additional resources (Liu & Onwuegbuzie, 2012; OECD, 2010). For example, for autonomy in teacher hiring, schools with a higher reputation set higher hiring requirements than ordinary schools (Liu et al., 2016). Schools with a higher reputation often provide a better salary, require teachers with a more advanced teacher education, and demonstrate a stronger ability to apply knowledge to solve new problems and a stronger ability to think creatively (OECD, 2010). Schools compete for the best reputation to attract more students with higher academic performance (Liu & Onwuegbuzie, 2012). In addition, an organization's reputation has been considered an important factor influencing employees' feeling toward the organization (Turban & Cable, 2003; Turban, Forret, & Hendrickson, 1998). School reputation has been found to influence teachers' job decision and their perception (Bowman & Bastedo, 2009; Turban et al., 1998). McGinn and Welsh's research (1999), for example, found that schools with a higher reputation are more attractive in the teacher labor market. Social identity theory has also suggested that because employees feel proud to identify with organizations that have a positive external reputation, they may be more committed working in an organization with a favorable reputation (Peterson, 2004).

Research problems

A large number of studies examining the implementation of school autonomy have emphasized the complexity of the process on how this reform leads to the

improvement of teachers' organizational outcomes. Some urgent needs for further research emerged from the conceptual framework.

The need for conceptualizing and measuring school autonomy

As discussed above, two perspectives were mainly adopted in existing literature when measuring school autonomy. The first approach relies on organizational theory and measures the school autonomy by depicting how much decision-making power schools have. Another perspective, derived from the theory of individual psychological needs, takes autonomy as a basic need closely connecting with individual motivation and goal fulfillment. Recent research has increasingly suggested an integration of these two perspectives by examining the distance between these two perceptions (Meyerson et al., 2014; Van Yperen et al., 2014, 2016). Few empirical studies on this topic confirmed the importance of examining the distance in between these two perspective and emphasized the exploration on autonomy gap in untangling the relationship between variables involving school autonomy implementation (Adamowski et al., 2007; Adamson, 2012). In addition, it is also important to take the heterogeneity of the effects of school autonomy in different domains into account. Various domains of school autonomy can be perceived and preferred differently by school leaders on the one hand, and these domains differ in their effects on school organization and teachers' outcomes (Maslowski et al., 2007).

The need for developing a framework exploring the path of the influence of school autonomy reform on teachers' organizational outcomes

So far little attention has been paid to the relationship between school autonomy and teachers' outcomes (Nir, 2002). First, most large-scale studies on school autonomy have focused on its influence on students' learning outcomes. Empirical research investigating teachers' organizational outcomes under an educational decentralization context is scarce. Considering the important role of teachers and the lack of research, it is important to contribute to the current literature by adding insights to this issue. In addition, current studies have not set up a holistic framework including critical factors at school leaders, organizational and teacher individual level. Finally, despite the growing attention paid to the wave of school autonomy, empirical research investigating how school leaders could improve school effectiveness or school improvement under this reform is relatively limited (Nir, 2002).

The need for understanding school autonomy reform implementation in a Chinese context

As discussed earlier, the Chinese educational system has been continuously characterized as a “decentralized centralization” in recent years (Chen & Ke, 2014; Hawkins, 2000, 2006). To tackle the inequality widened by educational decentralization, the governments adopted a more rigorous accountability system with regard to decision making in funds and personnel management at the school level (Chen & Ke, 2014). Schools have been left with relatively very limited autonomy to focus on improve students’ learning performance under the strict regulation set by governments (Walker, Qian, & Zhang, 2011; Zheng, Walker, & Chen, 2013). In addition, though the “New Curriculum Reform” launched around 2000 rhetorically granted school more autonomy in curriculum, these practices were often ill implemented at the school level due to the contradiction with traditionally embedded practices such as the emphasis on examinations, and teacher-centered approach (Walker, Hu, & Qian, 2012). Moreover, previous study has pointed out that leadership of change is particularly difficult for Chinese principals (Chen & Ke, 2014). Principals in Chinese schools are more representatives of their in-charge educational officials rather than instructional leaders, and the path from leadership to impact students through teachers is also elusive (Chen & Ke, 2014).

In this regard, the present study will move the agenda a step forward by inquiring onto the relation between school autonomy and organizational outcomes in senior secondary schools in China.

Research objectives

The general aim of this dissertation is to gain insight in the perception and reaction of school leaders on school autonomy reform and how this influences teachers’ organizational outcomes. More specifically, how school leaders’ perceptions of school autonomy and their leadership behavior influence teachers’ job satisfaction and organizational commitment through school climate and teachers’ psychological factors. In addition, the level of economic development and school reputation are taken into account. Based on the theoretical framework, this aim contains three research objectives (RO).

Research objective 1 (RO1) is to measure school leaders' perception of school autonomy from an organizational perspective.

Research objective 2 (RO2) is to examine the school autonomy gap, and the relationship between this gap and school leadership.

Research objective 3 (RO3) is to examine how the school autonomy gap and school leadership styles are related to teachers' job satisfaction and organizational commitment.

In order to achieve these research objectives, specific methods are used in the dissertation and are described below.

Research design

School autonomy is a complex concept. As stated in the literature review, there is no one "best" way to examine it. This dissertation tries to measure and analyze school autonomy in several ways. It was explored by school leaders' perception through an organizational perspective, as well as through a school autonomy gap perspective, combining school leaders' perceptions and preference. In addition, the autonomy gap was examined through both individual and collective perspective. Moreover, we focused on different domains of school autonomy. Both quantitative and qualitative methods were used in the dissertation. The results of these different analyses are presented in two quantitative studies, one qualitative study and one mixed-method study (see Table 1).

To achieve the first research objective, Chapter 2 explored the school leaders' perceptions of autonomy through an organizational perspective. We used a qualitative method to gain a general picture of school autonomy reform in China. Interviews with school leaders indicated there is a salient gap between their perceived and preferred autonomy, which led to the rationale of measuring this autonomy gap in the following studies.

Table 1. Research objectives, methodology, design and analysis techniques for different studies.

Chapter	Research objective	Methodology	Research design	Research techniques
1	General introduction (conceptual framework, problem statement, research objectives, research design, relevance of the study, overview of the dissertation)			
2	RO1	Qualitative research	School leaders (n=12)	Within and cross case interview analysis (NVivo)
3	RO2	Quantitative research	School leaders (n=51) Teachers (n=182)	Correlation analysis (SPSS)
		Qualitative research	Principals (n=10) Teachers (n=50)	Within and Cross case interview analysis (NVivo)
4	RO2	Quantitative research	School leaders (n=50) & Teachers (n=472)	EFA (SPSS)
	RO3		Multilevel analysis (SPSS)	
5	RO2	Quantitative research	School leaders (n=48) & Teachers (n=472)	EFA (SPSS)
	RO3		Multi-group Structural Equation Modeling (AMOS)	
6	General conclusion (overview of the results, research limitations, implications, directions for future research)			

The second research objective involves the school autonomy gap and the relation between this gap and leadership. This objective is achieved through different angles in Chapter 3, 4 and 5. Chapter 3 used a mixed method to explore the relations between school leaders' perception of autonomy gap, their self-rated leadership and leadership behavior at an individual level. In addition, the school autonomy gap was examined separately for different domains. We collected the data by a survey administered to school leaders (N=50) and teachers (N=128), and interviews involving school leaders (N=10) and teachers (N=50). In Chapter 4 and 5 this gap was analyzed from a collective perspective of the school leaders. More specifically, in each school we aggregated the autonomy gap perceived by several school leaders, and used it as a school characteristic in the analysis. Chapter 4 focused on the autonomy in personnel policy. The data were obtained from a school leader questionnaire (N=50) and a teacher questionnaire (N=472). Chapter 5 adopted a general integrated perspective and included all domains of the autonomy gap. The data were collected from survey administered to school leaders (N=48) and teachers (N=472).

The third research objective is tackled by two studies in Chapter 4 and 5. Chapter 4 examined the relation between autonomy gap in personnel domains and teacher outcomes, focusing on the direct influence of school leaders on teacher outcomes. In this chapter we focused on personnel management because it had the strongest relationship with teachers' organizational outcomes. As interplay can be assumed between teachers and the school environment, multilevel analysis was used in Chapter 4. In the study described in Chapter 5 a structural equation model was tested. Here, we examined the relations between autonomy gap, school climate and teacher outcomes with a focus on the indirect influence of the school leader on teacher outcomes. A path model was developed to define the relationships between principal leadership styles and teachers' job satisfaction and organizational commitment via mediating variables at both the organizational and the individual level. Multiple-group comparison was used to explore the effect of school autonomy gap in this process.

Relevance of the study

From a theoretical perspective, this dissertation contributes to the clarification of the concept "autonomy gap". We distinguish the difference between perceived autonomy and preferred autonomy deprived from theories at organizational and psychological level. We believe that this is an important contribution to the field of school

effectiveness and improvement, particularly for developing counties like China which face a transforming educational system from a centralized system.

The methodological relevance of this dissertation concerns the development of measurement of autonomy gap. In addition, we combined quantitative and qualitative data, adding further information and value into the dissertation. Multiple sources of information and vast geographic distribution are also the strengths of this dissertation.

From a practical perspective, we demonstrated the relations between autonomy gap, leadership, school climate and teachers' outcomes. This has important practical implications for local education policy maker and for school leaders themselves.

Overview of the dissertation

This dissertation is structured in six chapters. Apart from the first chapter (introductory chapter) and the last chapter (concluding chapter), all other four chapters are based on empirical studies, and have been published or submitted in international peer-reviewed journals. The structure of the dissertation is presented in Figure 1, which shows the connections between the studies. Hereby the framework of each study is presented below with the highlights of the relevance.

In Chapter 1, the general picture of the dissertation is provided. The conceptual framework clarifies the status of school autonomy in a Chinese context, the concept and measurement of autonomy gap, and the relationship between autonomy gap, principal leadership, and teachers' organizational outcomes. In addition, research problems, objectives, design and an overview of the dissertation highlighting the relevancy of all the studies are introduced in Chapter 1.

Chapter 2 explored the principals' perception of school autonomy in senior secondary schools in China. Based on principal interviews in 12 senior secondary schools in two cities in China, this study tries to probe principals' perceptions of the current policy arrangements under the "re-centralization" trend in China since 2000. This chapter is accepted for publication in *EDULEARN15 Proceedings*.

Chapter 3 examined how principals' perception of autonomy gap, their self-rated transformational leadership and the capacity to cope with change contribute to a better understanding of their leadership behavior in the context of school autonomy reform. The data were collected by survey administered to school leaders and

teachers, interviews involving school leaders and teachers. The results of this chapter are presented in a manuscript will be submitted to *Asia Pacific Education Review*.

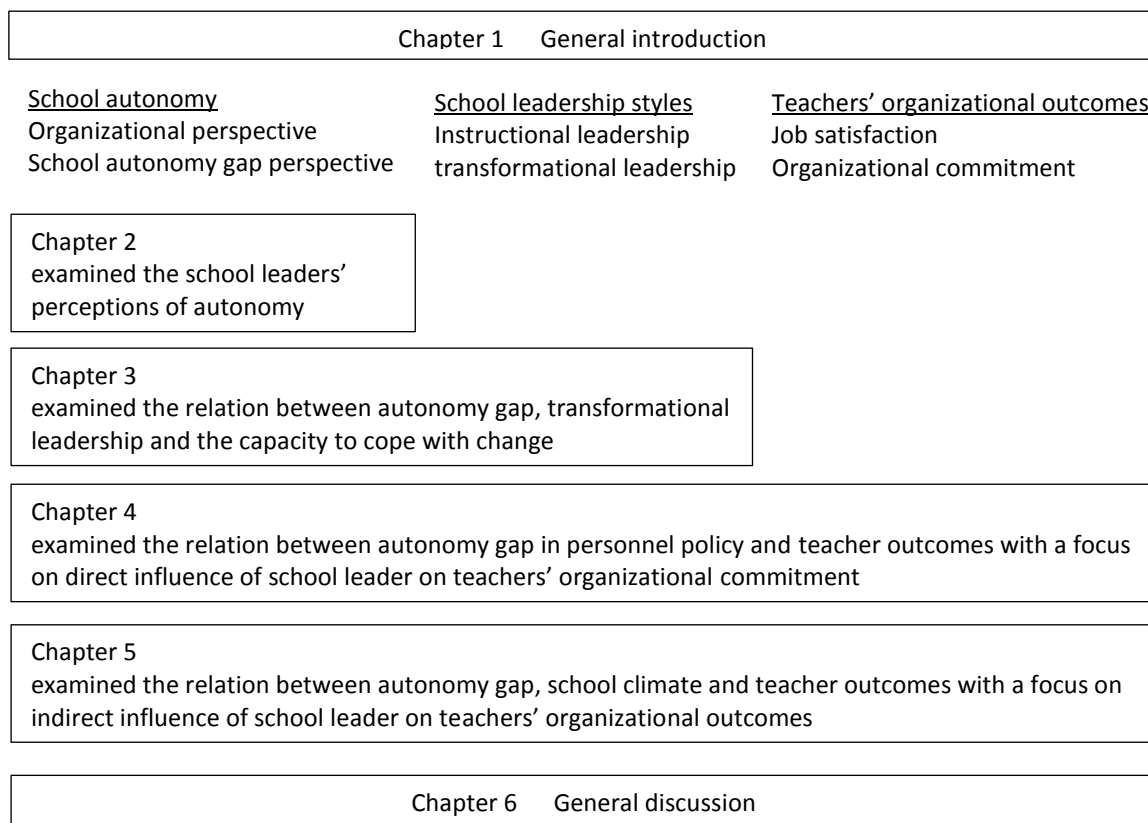


Figure 1. Schematic overview of the relationships between variables used in the chapters in this dissertation.

Chapter 4 explored the autonomy gap in personnel policy, and the influence of each domains of autonomy gap in personnel policy and leadership on teachers' organizational commitment. The data were collected through a survey carried out in 26 senior secondary schools in China. Multilevel analysis was used. This chapter is based on a manuscript accepted for publication in *Asia Pacific Education Review*.

Chapter 5 examined the relationship between school autonomy gap, principal leadership, school climate, teacher psychological factors, teachers' job satisfaction and organizational commitment under the context of school autonomy reform. A path model has been developed to define the relationships between principal leadership and teachers' outcomes via mediating variables. Multiple-group comparison was used to explore the effect of school autonomy gap in this process. The data were collected through a survey carried out in 26 senior secondary schools in China. This chapter is

based on a manuscript accepted for publication in *Educational Management Administration & Leadership*.

Chapter 6 integrates the findings of previous chapters, provides the general conclusion and discussion, also indicates some research limitations and directions for future research. Theoretical and empirical implications are addressed.

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2

Re-centralization in decentralization: School autonomy in senior secondary schools in China

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Chapter 2

Re-centralization in decentralization: School autonomy in senior secondary schools in China

Abstract

China has experienced a decentralization reform since the 1980s. However, a trend of “re-centralization” in education has been observed by researchers around 2000. Though some researches explained this oscillation from different perspectives, there is still a lack of empirical study at school level focusing on how autonomy has been interpreted and implemented in practice. This study investigates the objective policy arrangements under this “re-centralization” trend, the subjective perception of principals towards the policy shifts and their reaction in school practice. Based on principal interviews in 12 senior secondary schools in two cities in China, we find the arrangements and implementation of school autonomy are deeply embedded in the school context. Both the local development level and the school performance reframe the policy implementation at the school level. Moreover, both examination and market pressure play critical roles in this mechanism, defining the schools' factual decision making in some key domains. The results also highlight the potential of school leadership to keep a good balance among conflicting demands and to convert the disadvantages under a given policy setting. In the discussion, we highlight the need to improve the effectiveness and efficiency of the current policy of school autonomy through well-aimed pathways.

Introduction

The education system in China has experienced a decentralization reform over the past three decades. However, at the beginning of the new century, researchers have observed a salient on-going policy shift from decentralization to “re-centralization” in education reform in China, noting that certain autonomy has been retracted from school level and shifted towards upper governmental authorities (Cheng, 1994;

Hanson, 1998; Hawkins, 2000; Ornelas, 2000; Painter & Mok, 2008; Tsang, 2003; Zhao, 2009).

This trend poses new challenges to school principals, in particular the principals of senior secondary schools. For one thing, senior secondary schools have enjoyed a relatively higher degree of autonomy during the decentralization reform, therefore, this “re-centralization” trend may jeopardize the autonomy the senior secondary schools were given. For another thing, a “New Curriculum Reform” has been introduced into Chinese schools, attempting to change the previous exam-oriented system into a system focusing on students’ overall development by giving principals more curriculum autonomy. However, as the exam-orientation is still prevails in senior secondary schools, principals’ hands actually have been tied tightly by the exam pressure. Many researchers have described processes and provided rationales about this re-centralization trend in China’s education system (Hawkins, 2000; Ornelas, 2000; Painter & Mok, 2008; Tsang, 2003). However, there is a lack of empirical studies about how school autonomy policies have been interpreted and implemented at the school level in China (Wong, 2006).

We start this paper by providing an overview of the educational decentralization reform and the recent re-centralization trend in China, as well as the important role of principal in this reform. Then we briefly introduce the research method, which is based on interviews involving 12 senior secondary school principals from schools in two cities in China. As school practices are radically related to the socioeconomic context, we present the findings in the two cities separately. Building on two school cases, we discuss feasible strategies of principals to tackle the recent policy shift. In the conclusion section, we reassess this policy shift, propose tentative policy suggestions and emphasize the critical role of school leadership in China’s autonomy reform.

Theoretical framework

An overview of educational decentralization in China

China began its educational decentralization reform in the 1980s. Realizing that the state was financially unable to provide sufficient educational services to the whole country under a planned economic system, the Communist Party of China (CPC) issued in 1985 the “Decision on the Structural Reform of China’s Education System”. This initiated the financial reform as a key element of the educational decentralization agenda. Tsang (1996) stresses two characteristics of the reform: decentralization in

financing structure, and diversification in financing sources. In other words, local authorities (government at and below the provincial level) became empowered with the autonomy and responsibility for running schools, and were encouraged to raise funds from multiple sources apart from the governmental budget (Hawkins, 2000; Ngok & David, 2004). As a result, instead of the central government, the local governments had to cover the main cost of financing education (Lin & Zhang, 2006). The county/district became responsible for the provision and administration of senior secondary education. As a consequence, the bulk of the financial responsibility was taken up by the county/district government, receiving only limited transfer payments from upper governments. To broaden their financial resources, local governments increased surcharge taxes and embraced non-governmental investments from enterprises and individuals, also encouraged schools to generate income. For instance, schools could rent vacant building or provide training program to the public, and charge fees from self-financing students. In the early 1990s, roughly 40 % of compulsory and senior secondary education costs were funded on the base of non-governmental sources (National Bureau of Statistics of China, 1999).

Later on, schools have more say besides fiscal decision making. For example, schools with proper resources were permitted to increase student intakes. Thus many schools enrolled more fee-paying students to yield revenue (Painter & Mok, 2008). This profit-oriented enrollment practice alluring both schools and local governments reflected an ideological transformation in educational provision. Also, as a result of student increase, schools can recruit more teachers as long as the school budget was sufficient to pay them.

The impact of the financial decentralization reform on China's education is ambiguous. The decentralized financial system was successful in mobilizing new education resources and helped to increase the provision of both public and non-public educational services. But, an important side-effect was the rapid growth in educational inequity. Resource availability and local authorities' competences varied dramatically among and even within regions. Schools in developed regions became self-sustaining, receiving sufficient financial support from local governments and additional social donations, and were successful in generating their own revenue. In contrast, schools in underdeveloped regions received an inadequate governmental budget and were struggling in a despairing fiscal plight. Therefore, the richer areas were doing well as a result of the decentralization reform, while the poorer areas needed state involvement to cope with the financial burden (Cheng, 1994; Zhang & Zou, 1998). In addition, the

educational decentralization not only jeopardized equity but also caused related social problems. For example, market-oriented schools scrambled for students and revenue, leading to abuse such as over-charging and corruption (Mok, Wong, & Zhang, 2009).

Recognizing the growing inequality and the potential for social unrest related to the decentralization reform, the CPC retrieved certain autonomy and responsibility from the local governments and schools in the late 1990s (Hanson, 1998; Hawkins, 2000; Tsang, 2003). One momentous policy decision was the implementation of the Law of Education, in which the responsibility of the government at each level of compulsory education was restated (*Education Law of the People's Republic of China*, 1995). The CPC also initiated a new payment method called "one-fee system" (*yi fei zhi*) in 2004 to curb the outrageous increase in tuition fees, allowing schools to charge only a fixed fee covering all school related costs. This reform deprived local governments largely of their fiscal and administrative autonomy, and established a strict monitoring system of school revenue expenditure at the upper administrative levels to constrain abuses (Liu & Dunne, 2009).

Despite the diverse notions used to describe the recent policy shift in China's educational reform, such as "re-centralization" (Hawkins 2000; Ornelas 2000), "decentralized centralism" (Karlsen, 2000) and "de-marketization" (Painter & Mok, 2008), there is a consensus that the degree and range of autonomy at the school level has been shrinking in key domains of school decision making. Hawkins (2000) states that the process of re-centralization has illustrated the fragility of China's decentralization reform. More recently, some researchers stress that re-centralization has not been a fundamental reversal but rather reflects a pause in an on-going decentralization process, aiming to redress some flaws of the reform and to establish a more stable and sustained mechanism to guarantee education equity (Painter & Mok, 2008; Zhao, 2009). Especially due to the lack of empirical research in this domain, the latter discussion stresses the need for research to reassess the implications of recent policy shifts by exploring its effects and local practices, particularly at the school level.

Principals' role in the school autonomy reform: A Chinese context

Educational decentralization requires principals wielding a strong leadership and translating the policy to meet the local demands and situations. Principal has become a requisite under the educational decentralization reform. Under the trend of "re-centralization", principals with stronger leadership know how to cope with change and

find solutions to tackle with the challenge. In contrast, principals with a weak leadership might confront serious problems in improving schools.

As part of the decentralization reform, China officially implemented a principal responsibility system in 1993, stipulating that the principal holds primary responsibility for school management. Principals are expected to be the main decision maker. However, the nature of a principal's autonomy and accountability have not been made very explicitly nor defined in a detailed way. For example, according to the Law of Education, "the principal is responsible for teaching and learning and other administrative management." Whereas the notion of "teaching and learning" is relatively clear, the concept of "other administrative management" can be interpreted in many ways and shaped differently, mostly depending the characteristics of local differences in context and capacities of the principal. As a result, when the policy shift towards "re-centralization" took place, the boundary between the responsibilities and the autonomy of a principal versus those of the local government became rather obscure. In the eyes of principals, they have limited autonomy to fulfill the tasks assigned by governments, but governments and teachers hold an opposite view and consider a principals' power to be unconstrained (Bao, 2004). Generally speaking, despite the controversy about optimal policy arrangements, on the one hand most principals feel shackled by constraints originating from the government and/or market mechanisms outside school, and on the other hand they have an unimpeachable strong say inside school (Feng, 2002).

To conclude, we witness in the Chinese context increased tensions and dilemmas in the educational system that shackle both local governments and individual schools and result from the on-going oscillation between centralization and decentralization in senior secondary schools. Facing the "back and forth" policy shifts and the complexity of their working environment, principals use their autonomy to orchestrate the resources and keep a balance in meeting the demands of central and local governments, teachers, parents and students in a variety of contexts. The present study tries to answer three questions: 1) to what extent has autonomy in senior secondary schools' key decision making been reduced under the current policy arrangements, 2) how has this been perceived by the principals from schools with divergent characteristics, and 3) what are the principals' strategies, if any, to respond to the challenge. In the present study, we reconsider the concrete effects of re-centralization at the school level, as well as the ways in which principals adopt strategies as part of their implementation of school autonomy.

Research design

Sites and participants

This study is based on interviews with principals about school autonomy reform of school autonomy in 12 senior secondary schools in Beijing and Zibo in 2011. Beijing, as the capital of China, represents a developed municipality with sufficient financial resources and higher education provision. Zibo is a moderately-developed city in Shandong province, listed among areas with the fiercest competition in the College Entrance examination. School autonomy implementation is assumed to differ in these two cities when trying to fit local conditions.

The selection of sample schools in each city was based on the public reputation of the school's performance. The high-performing schools are more successful considering students' performance in College Entrance examination than low-performing schools. As explained before, examination success is considered the paramount indicator for the public and local government to evaluate school performance, and plays an important role in fund raising. It is assumed that resource availability varies among schools with high and low performance. In Beijing, all senior secondary schools are linked to the district educational bureau and preeminent schools are labeled as "demonstrative school". In Zibo, the top-performing schools are linked to the municipal educational bureau; other schools are linked to the district. All schools in the sample were recommended by local educational researchers who were familiar with each schools' public reputation. In total, four Beijing schools were selected, with two high-performing schools and two low-performing schools. In Zibo, eight schools were selected, with four schools in each performance category. Table 1 shows the codes which will consistently be used when referring to particular schools.

Data collection and Analysis

In each school, a semi-structured open-ended interview was conducted with the principal in his or her office. Each interview was transcribed verbatim. A coding scheme was developed based on the theoretical framework of the present study, highlighting principals' attitude and their coping strategies. In the process of data analysis, the analysis scheme and the research objectives were firstly explicitly explained to the two coders, and two interviews were coded together to improve and confirm coding reliability. Then eight interviews were coded and analyzed independently (inter-coder reliability=82%). The interview transcripts were analyzed by applying both within-and cross-case analysis methods with NVivo 9.

Table 1. School codes and background information.

Code	City	Performance
BH1	Beijing	High
BH2	Beijing	High
BL1	Beijing	Low
BL2	Beijing	Low
ZH1	Zibo	High
ZH2	Zibo	High
ZH3	Zibo	High
ZH4	Zibo	High
ZL1	Zibo	Low
ZL2	Zibo	Low
ZL3	Zibo	Low
ZL4	Zibo	Low

Besides interviews, we also gathered information about local conditions from local researchers and documents and statistical data from government website.

The concept of school autonomy in this article refers to the power schools are given to make decisions on several aspects of school management (Eurydice, 2007; Wöbmann et al., 2007). Researchers have focused on different categories of school autonomy and its structured framework has consequently been built up (Gunnarsson, Orazem, Sanchez, & Verdisco, 2004; McGinn & Welsh, 1999; Wöbmann et al., 2007). In each category, we further developed subcategories to capture the specifics of the autonomy utilization. The analysis categories include funding (raise and use), student policy (enrolment and assessment), curriculum and textbook, personnel management (employment, salary, development, evaluation, and dismiss) and the accountability system.

Results

In the following section we present our findings. First, we describe the actual situation and the principals' perception of their school autonomy in Beijing and Zibo. Second, we illustrate - on the base of two cases - strategies adopted by principals when coping with school autonomy in their school setting.

School autonomy in senior secondary schools in Beijing

Generally speaking, schools in Beijing enjoyed a resourceful environment during the decentralization reform. They benefited financial support from both the government and the market. For example, in 1998, the ratio of average expenditure of non-governmental budget funding per senior secondary student in Beijing to that in Shandong province, where Zibo was located, was 3:1. Moreover, three quarters of funding for general secondary schools in Beijing was covered by non-governmental budget origins in the same year (National Bureau of Statistics of China, 1999). Following the trend towards re-centralization, the government, replacing the market power, continuously provided sufficient fiscal support, together with the implementation of a strict accountability system over school management to enhance its bureaucratic control.

Funding

Since the beginning of the decentralization reform, senior secondary schools in Beijing have full autonomy to raise and use funds. However, a new national financial system – the separation of revenue and expenditure (*shou zhi liang tiao xian*) - was introduced around 2000, requiring schools to turn in all their revenues to the government being accountable to and to list all its expenditures in a public budgeting system. In Beijing, all revenues from tuition fees, expenses, choice fees and donations are controlled by the district government and all school expenditures are checked by the district government. The main idea of the new financial system is to install control of not-accounted-for-funding in order to reduce abuse.

Different from the previous policies encouraging schools to enlarge their financial resources, the current system limits the sources of school fund raising to three channels: (1) tuition fees, (2) expenses and (3) choice fees. The size of fund raising along these three channels is defined by the municipal price bureau and supervised by the district. Particularly, the choice fee, in view of paying for market driven competitive educational services, has been under strict governmental control. The enrolment of choice-fee paying students (*san xian sheng*) are regulated by three restrictions: a maximum amount of choice fee per student, the quota for the number of fee-paying students and a minimum score of applicants' senior secondary school entrance examination. School expenditure is not related to school revenues and mainly depends on funds allocated at district level. An annual school budget plan must be submitted to the district, one year in advance. If ratified, the school will receive the related funds

next year. The district educational bureau supervises the school's financial management to assure funds are used appropriately.

Principals from both high- and low-performing schools were positive about the amount of funds allocated. For example, the principal of school BH1 stated: "the government has increased educational investment in recent years. Most of our budget plans related to e.g., students' activities and teacher development programs receive financial support and are encouraged by the district government". The principal of school BL1 also pointed out: "the government has paid much attention to educational equality and gave fiscal priority to rural areas. We are no longer worried about funds, especially when it comes to infrastructure construction." However, the disparity of fiscal availability between high- and low-performing schools still exists, as the principal of BH2 commented: "Although the three restrictions of choice fee seem strict, they are essentially futile to regulate high-performing schools since they have a high reputation on the market. According to municipal policy, the maximum amount of choice fee is 30,000 RMB. But as far as I know, the minimum of a donation could be 500,000 RMB in some preeminent schools." As Chinese parents put every effort in providing their children a better educational environment, they will sidestep the regulations of choice fee, that are limited to a maximum amount, and turn the payment into a donation. The district governors turn a blind eye on this practice because - eventually - these donations will be turned over to them as a complementary funding resource next to governmental budget (Principal of BL2).

Principals also reported some constrains as to the use of funds. The principal of BH2 explained, "you have to plan EVERYTHING well a year in advance otherwise you cannot receive a penny from the government. The procedure of funds allocation is complicated and protracted, which to some extent hinders school development." Moreover, as a teachers' salary is directly paid to the individual teacher, principals also complain about limited autonomy in using funds to manage teacher salary (see section personnel management). For example, "the school is not allowed to reward teachers with high performance" (Principal of BH1), and "the average salary level in rural schools is lower than in urban schools" (Principal of BL2).

Curriculum and textbook

The curriculum in senior secondary schools comprises provincial, local (city and district) and school-based curricula, of which the subjects, content, textbooks and evaluation are decided upon by the respective authorities.

Principals in both high- and low-performing schools in Beijing take the school-based curriculum as an important platform to foster the school's long term development and to strengthen the school's competitiveness. As principal of BH2 noted: "most schools in Beijing, as it is the capital they are located in after all, are aware of the importance of the school-based curriculum and develop it conscientiously." In school BH1, school-based curricula are carefully designed and delivered differently in each grade to adapt to students' demands and abilities. Moreover, the principal in BH1 integrated the school-based curriculum into the framework of the "New Curriculum Reform", emphasizing the cultivation of students' logic and creative thinking, as well as its reciprocal positive effects on teacher academic capacities. Principals in low-performing schools reported a positive attitude towards the current autonomy of the school-based curriculum but felt shackled by constraints related to students' and teachers' abilities. Principal of BL2 deplored that: "the current problem is not 'what courses we would like to supply' but 'what courses we can supply'. Few teachers in our school are capable to take on the school-based curriculum."

Student Policy

Generally speaking, student enrolment policies (e.g. senior secondary school entrance examination, enrolment area and student quota) are defined by the district educational bureau in a hierarchical way. As senior secondary education is not universal and rather seen as a competitive educational service, every junior high school student in China needs to pass an entrance examination to get enrolled. For most senior secondary schools, the student enrollment quota are allocated on the base of a school's neighborhood. In addition, high-performing schools require a higher minimum score than low-performing schools. Therefore, the examination has become a filter, reinforcing the performance gap between schools.

Some principals mentioned side effects of student stratification. For example, the principal of BL2 regarded student ability, which shaped school-based curriculum, as a constraint. They have to provide courses on "design" and "civilized behavior" to cultivate school discipline rather than courses about arts and high-tech, because these seem beyond the students' reach.

Personnel management

Prior to the trend of "re-centralization", senior secondary schools had full autonomy with regard to personnel management, including teacher recruitment, assessment, payment and dismissal. Particularly, teachers' salary varied among schools, depending

the school's financial situation. Since 2005, the district educational bureau retracted related autonomy and exerted a stronger control on personnel management in three aspects: 1) definition of the quota of teachers on the government payroll, depending on school size and curriculum requirements, 2) final decision as to who will be employed when choosing from candidates recommended by the school, 3) teachers' salary is directly paid by district government, sidestepping a redistribution inside schools. The standard of teachers' basic salary generally reflects previous levels set by the individual school, which was highly correlated with school ability to raise funds, thus varied among schools during the decentralization reform. However, later in the trend of re-centralization, though government has retrieved the autonomy of teachers' salary, the variation of teachers' salary among schools still exists. As to bonuses and rewards, these are defined by the district bureau, following an "equalitarianism" ideology. As a result, the differences in teachers' payment have still not been mitigated despite new policy arrangements. At school level, autonomy is given – only nominally – in teacher evaluation and dismissal. Extra financial rewards beyond district control are not allowed. To dismiss a teacher in practice is difficult for principals due to cumbersome procedures.

The principals in high-performing schools reported a relatively negative attitude towards the limited autonomy to recruit teachers, because their specific needs for teacher skills or characteristics were hardly met by the current recruitment approach. For example, high-performing schools might be looking for a teacher with advanced ICT skills, or for teachers who are experienced to teach talented students. As the principal of BH2 reported: "once there were two candidates applying for a position in our school. I preferred the one more sociable and competitive, but the district appointed the other one. I have to accept the decision of the district."

The principals of low-performing schools expressed an urgent need for more autonomy to reward teachers to be able to keep high-performing teachers. As these schools are disadvantaged in the teacher labor market due to inferior payment and working conditions, most newly employed teachers are novices. When they become experts, these teachers easily transfer to a higher-performance school pursuing higher payments and better working conditions. Therefore, principals of low-performing schools suggested to differentiate the salary system, based on teachers' performance. They expected this would be an effective way to retain highly effective teachers.

Accountability

Senior secondary schools in Beijing are accountable to the district educational bureau. Recently, most district educational bureaus start supervising schools in a scrutinized way and emphasize a principal's accountability. In our interviews, most principals in Beijing mentioned the tension between autonomy and accountability, resulting in decreasing autonomy and increasing accountability. Schools have to tackle "countless" inspections about every aspect of school management, such as finance, teaching and learning, school discipline, safety and hygiene by numerous governmental agents.

Most principals of high-performing schools experience these inspections as a burden. The principal of BH1 indicated that: "the inspections are taken up in such an fastidious manner, even regulating how the documents should be recorded." The principal of BH2 also complained: "the district governors want to control everything and put all aspects of school management under their jurisdiction, even including the principal's way of talking. I understand their intentions to support school development, but a governor, in contrast to a professional educator, holds insufficient knowledge about schooling in practice."

However, according to the principals of the low-performing schools, inspections from the district could result in support and are rather welcomed. As the principal of BL1 said: "in the past we used to manage our teaching schedule to some extent arbitrarily. Now the strict and clear regulations, set up by government, allow our teachers to attain explicit objects by following precise procedures. We have to play our role inside the policy framework set by the government. As autonomy is always combined with accountability, limited autonomy means getting rid of redundant responsibilities and foster concentrating on teaching and learning. To my great satisfaction, I am no longer a businessman negotiating with companies and investors."

School autonomy in Zibo

Interviews of principals in Zibo tell a different story. Compared to their counterparts in Beijing, the governmental budget is more stringent. Moreover, in Zibo the pressure from examinations and parents is fiercer. This reshapes the policy characteristics and the implementation of autonomy in school practice.

Funding

In 2000, the financial system - the separation of revenue and expenditure (*shou zhi liang tiao xian*) - was also implemented in Zibo. However, the process of fiscal

recentralization has been taken up slowly and flexibly. Compared to Beijing, Zibo is a less developed provincial city. Different from the arrangement in Beijing that all choice fee and donations collected by schools are submitted to the district, schools in Zibo only submit one-third of the choice fee and the donations to the local educational bureau and keep the remaining two-third of the extra funding in an independent school account. Although the utilization of the left off-budget funding in school account follows a governmental ratification procedure and is supervised by the local government, it is essentially “decided by the school” (principals of ZH2, ZH3, ZL1, ZL3). The part submitted to the government “will be used to give financial support to disadvantageous schools” (principal of ZH4). In addition, although schools have been required to separate its public and private departments fiscally and stop off-school classes around 2006, the policy has not yet been completely implemented. As the principal of ZH2 admitted: “Our school constitutes of a private junior department and a public senior department, and the private provides financial support to the public, reducing the latter’s fiscal burden. This setting is kind of ‘out of line’ because of the educational regulations that a private department should be fiscally detached from the public. We may transform into a complete public school in the future.”

Most principals of high-performing schools, though receiving increasing governmental funds and enjoying a loose policy environment, reported the school budget is still stringent because of the payment of off-budget teachers who are excluded from the government payroll. As these high performing schools encountered a student increase during the decentralization reform, they recruited extra teachers to keep an acceptable teacher-student ratio, and paid their salary with off-budget funds. In our study, only the high-performing schools in Zibo who are accountable to the municipal educational bureau employ off-budget teachers, whereas schools accountable to the district are not bothered by this problem. Although government - yearly - puts off-budget teachers on the government payroll, the current ratio of in- to off-budget teachers in senior secondary schools in Zibo is approximately 3 : 2. The principal of ZH2 reported: “We receive more funds from government than before but the school budget is still tight. As a high-performing school, our school has dramatically expanded due to market demands in the past years. Consequently, we employed extra teachers to maintain an appropriate student-teacher ratio. However, affording the increase of teacher salary is beyond our local fiscal ability. Off-budget teachers’ salary is therefore paid by the school itself from the choice fee. Indeed we can decide on the utilization of the bulk of choice fee, but nothing is left after we paid the off-budget teachers’ salaries.”

In contrast, principals of low-performing schools felt relieved the responsibility of raising funds was removed from them. Considering the weak school capacity to attract funds, fiscal autonomy for those disadvantageous schools is rather a burden. Some schools have even over-loaned from the bank, or “borrowed money from the teachers to struggle through hard times” (principal of ZL2). As the principal of ZL4 reported: “Before the district bureau took the responsibility of funding around the year 2000, the school budget was difficult to guarantee regular schooling. Now, although we don’t have the autonomy to attract funds from various sources, at least we receive stable government funding. The district government even helped us getting rid of financial problems through paying off our debts. Moreover, since the district government thinks highly of educational equity, district funding policy even favors rural schools to urban schools.”

Curricula and textbook

The curriculum structure of senior secondary schools in Zibo follows the approach adopted in Beijing. However, school-based curricula in most senior secondary schools in Zibo seem to exist merely on paper. Although the value of a school-based curriculum is completely acknowledged by principals being interviewed, school-based curricula mostly only reflected the backbone of the compulsory curriculum. The differences in school choice in Zibo as compared to Beijing, seems to be essentially related to the pressure of the College Entrance examination (principals of ZH1, ZH2, ZL2). The pressure is compellingly high due to the scant local higher education resources and the large student population. The strong market demands influencing high performing schools, reinforce the exam-oriented structure, and as a result reshape school policies with regard to curricula and textbooks.

In practice, to meet parents’ expectations to improve student academic performance, the majority of high-performing schools in Zibo do not support moves to develop school-based curricula. They fear such innovations will impede a student’s examination scores and lower the school’s academic prestige. Conforming examination requirements, most schools adopt the textbooks recommended by the municipal educational bureau, and in some schools enrich this with additional textbooks containing advanced learning content. For example, the principal of ZH2 explained: “Although the state policy encourages us to develop a local curriculum, we have to concentrate all available resources, both tangible and intangible, targeting the compulsory curricula to improve student academic performance due to the large pressure of the exam-oriented system. There is a conflict between policy and practice.

The policy is good, but sort of idealistic. In the past we used to design school-based curricula to broaden student's knowledge and overall ability, but we cancelled this because of parents' complaints. They are very anxious that non-compulsory curricula elements usurp the class hour of examination subjects and occupy their children's time and energy."

Most principals in low-performing schools in Zibo indicate they meet significant problems implementing the curriculum reform with inadequate teachers' and students' abilities. The principal of ZL4 said: "Some high-performing schools offer students hundreds of school-based courses but we can only provide very few of them. The reasons are not only related to the limitations of our teachers to develop local curriculum, but also to our students' abilities. Even if our school-based curricula were the same as in high-performing schools, they are beyond our students' abilities. In our school, a school-based curriculum is just a supplementary of the compulsory curriculum, and plays a less important role."

Student policy

Prior to 2005, senior secondary schools in Zibo could enroll students in schools all over the city. But later, driven by competition in educational services, preeminent students gathered in one or two elite schools. As a result, extra resources - the high-performing students, the extra off-budget funds and the good teachers - were all found in these elite schools. In order to break the monopoly and to achieve equilibrium in school academic performance, the municipal educational bureau set up a new policy in 2005. Senior secondary schools are expected to enroll students living in the neighborhood. Only off-budget students from other districts are allowed to enroll, but three restrictions are imposed by the municipal educational bureau. These are based on the same principles as in Beijing, only differed in details. This new policy restrains student mobilization, limits the competition within each district, and mitigates the over-concentration of resources. Meanwhile, in each district the top performing school falls within the municipal educational bureau's jurisdiction, whereas other schools remain accountable to the district.

In the eyes of the principals of high-performing schools, this new policy feels like a double-edged sword. For one thing, retaining high performing neighborhood students guarantees the school's future academic success and competitiveness. For another thing, this policy breaks the competition among schools and essentially impedes school's long-term improvement. For example, the principal of ZH2 commented, "In

recent years we have enrolled the best students from our district, who are intelligent, strongly motivated and with good learning strategies. However, because students get high scores by themselves, our teachers are demotivated and experience a low self-efficacy, especially when witnessing students sleeping in the class and still achieving examination success. This new policy maintains top students of the district in our school, but it also negatively influences school's long-term development."

For low-performing schools who are disadvantaged when competing for high capacity students, the new policy hardly influences them. They remain entrenched in a vicious circle, lacking the capacity to attract students, off-budget funds and good teachers. They increasingly become places for students from economically and socially disadvantaged families. The principal of ZL3 said: "As our school's academic reputation is not high, it is difficult to attract off-budget students. Choice fee is the only source of off-budget funds in our school. Most of the incumbent off-budget students come from a low socioeconomic background and pay the choice fee by installments."

Personnel management

Similar to what happened in Beijing, a new personnel management policy has been introduced in Zibo around mid-2000. This implies that teacher recruitment and payment are under governmental control, aiming to eliminate the phenomenon of salary debts occurring in the decentralization reform era. The municipal and the district educational bureau in Zibo defined teacher professional standards by organizing examinations and interviews to employ new teachers. Also, all teachers within their jurisdiction are on the governmental payroll. Schools have the autonomy to arrange personnel affairs such as the teaching schedule, the workload, the school-based teacher development program, the evaluation and the dismissal of teachers.

The principals of both high- and low-performing schools in Zibo hold a positive attitude towards the new personnel recruitment policy but complain about the current teacher payment system. The principal of ZH1 commented: "In the past only local undergraduates applied for positions in our school, but now the municipal government attracted also other graduates working here." The principal of ZL1 also remarked: "The examinations and interviews organized by the district are professional and effective. There is no doubt that the teachers who passed the exam are qualified. Our teaching capacity improved since the new policy was implemented."

As for the teacher salary system, the principals report a lack of autonomy to reward excellent teachers. The current salary system, mainly based on teachers' professional

experience and workload rather than on their performance, is perceived by principals as “stiff” and “egalitarian”, impairing teachers’ enthusiasm and morale. Some high-performing schools sidestep the problem by providing excellent teachers the opportunity to attend professional development programs, including high-quality academic seminars or school visiting abroad. In contrast, low-performing schools face difficulties to organize these activities due to insufficient governmental budget. They risk losing excellent teachers due to the strict rewarding system. As the principal of ZL2 reported: “while a novice teacher becomes proficient, it is so difficult to retain him or her because we cannot offer them either a competitive basic salary or appropriate extra rewards. It is understandable that some excellent teachers turn to high-performing schools for higher payment and a better working environment. But if we had the autonomy to pay off excellent hard working teachers and retain them, the school’s disadvantaged situation will be reversed gradually.”

Accountability

The principals of senior secondary schools in Zibo tend to hold a neutral attitude towards the accountability system, perceiving the autonomy and accountability “kind of balanced”. Although some principals regarded governmental inspections “countless”, few of them complain about them. Different from the principals in Beijing, many principals in Zibo appreciated the curtailed autonomy and reduced accountability. As the principal of ZH2 remarked: “we got rid of the unnecessary burden and focus more on teaching and learning. I understand school autonomy is a good thing but it's hard to manage and easily causes chaos.” Moreover, some of principals in Zibo “rarely think about autonomy consciously” and “just follow the regulations and accomplish the duties allocated by the government” (Principals of ZH2, ZH3, ZL4). The interviews suggest two possible explanations for the differences in attitude. Firstly, the accountability system in Zibo is less strict and gives room to principals, especially as to matters of off-budget affairs. For example, some principals remarked that the procedure of governmental ratification of the school annual budget is “a mere formality” (Principal of ZH4), and: “principals have an overwhelming say in decision making inside the school” (Principal of ZL1). Secondly, the heavy pressure from market results in a convergence of what both schools and the local government pursue: to improve students’ academic performance. The market, the local government and the schools have made a “silent pact” that examination success is at the very center of schooling. All other issues are peripheral to this central aim. For example, schools will not be punished for replacing the school-based curriculum by

compulsory classes. In addition, though the official policy forbids off-school class, some schools continue this practice in a concealed way. This is silently permitted by the local government (Principal of ZH4).

Strategies

Next to the factual information about school autonomy and principals' subjective attitudes towards school autonomy, our interview data also reveals attempts of principals to tackle problems emerging from the re-centralization. This is mainly related to insufficient funds, ill-prepared school-based curricula and the stringent teacher reward system. In the following section, we present two cases of such strategies as they are embedded in the school context.

Case 1: School BH1

The principal of school BH1 is female and 55 years old. Because she studied and worked in this school for many years, she feels deeply affiliated and strongly motivated for the school.

Different from other schools concentrating on student academic success, the vision of school BH1 is to facilitate students becoming mature and responsible citizens. When some teachers complained that new students are not top-ranked in the school district, the principal replied that: "An educator shouldn't complain about students' initial performance because we can do much more than just improving their marks. I am glad to see students achieving higher scores in exams, but it brings me in ecstasy that a child has grown up and matured gradually in his character development during three years in our school, which is the best interpretation of the meaning of education."

In school BH1, the school-based curricula are considered as a crucial platform to implement this vision. The teachers are encouraged to be strongly developed in their subject area, rather than concentrating on textbooks. They are not only expected to provide students with a well-structured knowledge base, but also expected to unravel the logic of knowledge hidden behind and its connection with students' real lives. This should result in students learning as a way of thinking, to be highly interested, and to be aware of their own intellectual development. For example, under the principal's guidance a PE teacher developed a basketball course, introducing the basketball culture and spirit through an elaborate analysis of NBA advertisements. This went far beyond the technical training commonly found in traditional PE class. Another course titled "Movie and humanity" was developed in line with the same principles. It allowed

students to discover and contemplate the moral dilemma in a movie, and rethink the function of a movie as an effective medium agency. These school-based curricula were not only welcomed by students but also enthused other teachers to become more creative. The principal further provided institutional support to cultivate the school's innovative ethos, resulting for instance in a revised assessment system. Consequently, the school-based curriculum of school BH1 is of high repute in the neighborhood and has been rewarded frequently by the district educational bureau.

As to personnel management, the principal gives high priority to the improvement of teachers' job satisfaction. While adopting a democratic leadership style, she trusts teachers and gives large autonomy to them. She is also a supportive leader, caring about teachers' personal professional development, encouraging them to set and attain personal goals. Although the principal is dissatisfied with the insufficient autonomy to reward better performing teachers, her alternative is to motivate teachers through non-remunerative ways. She organized an annual ceremony to reward those teachers attaining high performance and with outstanding capacities. In the beginning the teachers didn't take these prizes seriously, as they perceived this to be not related to an extra bonus. But due to the principal's efforts, teachers' attitudes have changed over time. The principal linked student achievement - such as academic performance, competition prizes, learning motivation, creative thinking and social responsibility - to her teachers' hard work. Teachers receiving a reward were asked to give a speech, which always turned out to be touching and inspiring due to their emotional involvement. Nowadays, the prizes are recognized as a great honor by the teachers. The prize ceremony helped to cultivate a cohesive professional community with a shared vision.

The principal of BH1 is not trapped in either stereotyped administrative commands or the objective constraints at school level. She conceptualized school autonomy as: "making the biggest attempts to develop school and personnel under the current restrictions".

Case 2: School BL1

The principal of BL1, a leader almost fifty years old and experienced in school management, has worked in eight schools for 22 years. School BL1 is located in a rural area of Beijing, where most neighborhood students come from economically and socially disadvantageous families.

The vision of school BL1 is to develop students' overall ability, and particularly, to prepare rural students to adapt to urban modern society. Like other low-performing schools, school BL1 is constrained by students' and teachers' abilities. To solve the problems, the principal took several initiatives. For example, the principal introduced classical music in the school as a life style and as a cultural element very different from rural students' daily life. Instead of developing an official school-based curriculum, he supported students to set up a classical music radio station in the school. The station was hosted on a daily base by the students themselves who played classical music collected from the Internet, and accompanied with a short introduction. This strategy, through encouraging students' participation, provoked students' interests in cultural differences, and helped to circumvent teachers' insufficient capacity to develop a "western culture and classical music" course. Notwithstanding, the principal expressed a strong need to develop teachers' ability in view of the school's long-term development. He successively cooperated with a partner school with high performing teachers. His teachers worked in pairs with the teachers of the partner school and had frequent professional communication. Teachers benefited greatly from this type of professional learning community.

The principal also mentioned strategies to deal with strict budget regulations. He designed a school budget plan matching exactly the district directives. As a consequence, the school budget plan is easily ratified and supported by the district.

Although the principal considered the inspections from different governmental agencies as "countless", he expressed a positive attitude towards governmental inspections and the re-centralized school autonomy policy. As he believed: "A principal, no matter in a demonstrative school or a common school, has to adapt to the environment. In a rural school like ours, a principal talking in a pedantic manner is by no means capable to handle all idiosyncratic problems in rural schools. The leadership style has to be adjusted to meet the different conditions."

The strategies found in the two school cases reveal possible measures to reconcile local demands with the limited autonomy within the particular policy setting. The strategies also confirm the importance of principals' leadership when implementing school autonomy. The two principals reflect a strong leadership, actively adaptation to the changing environment, a positive attitude, and a good balance between fulfilling tasks relegated by the government and aiming for the school's long-term development.

Discussion and Conclusion

In line with previous studies, this study reconfirms the recent trend of re-centralization in school autonomy reform in China's senior secondary schools. To be sure, principals of senior secondary schools are no longer enjoying substantial freedom to use their autonomy after 2000. This re-centralization trend in China is not a unique instance. Researchers observe the oscillation between centralization and decentralization in other countries as well, like Mongolia, Mexico and Nicaragua (Gershberg, 1998; Steiner-Khamsi & Stolpe, 2004). Since these processes are fluid and in motion, some researchers point out that the co-existence of centralization, decentralization and re-centralization, or "centralized decentralization" is common in educational governance in some countries (Mok, 2003; Tatto, 1999).

Moreover, the interviews reveal the retraction of autonomy is not a simplistic retrogress of power, but a policy adjustment aiming at retrieving a balance between autonomy and accountability. For example, the decreased autonomy of funds relieves school's fiscal burden and reduces the risk of abuse. Other strict regulations and inspections serve as baselines guaranteeing personnel quality and school discipline, though in some cases they fail to meet local demands. The present study indicates that "the more the better" fallacy should be avoided in the process of school autonomy policy making and unlimited autonomy will not lead to the success of decentralization reform.

The results also confirm our hypotheses that that local economic level and school performance influenced school autonomy implementation. Generally speaking, the local conditions, such as economic status or development level, have a great influence on schools' funding availability, and the school performance serves as a key indicator to stratify students and teachers by their capacity. Other objective external factors, such as market forces and the pressure from examinations, also reshape the school policy setting at governmental level and its implementation at school level. The pressure from examinations and markets (parents and students) confines schools' choice set of curriculum. Thus, school autonomy is embedded in a web of constrains, rules and regulations that involves government, school actors and parents.

The different perceptions of principals provide some evidence of the deficiency of current unified policy arrangements to some degree. Thus, improving the effectiveness and efficiency of the current policy of school autonomy through well-aimed pathways are urgently needed. As more and more recent research stresses that the reform

success is highly depending on local capacity (Honig & Rainey, 2011; Mok, 2003), a set of elastic policy arrangements could be designed to authorize autonomy to the school level based on local conditions and demands, accompanied by a corresponding accountability system. For advantageous schools with sufficient resources and capacity, a high degree of autonomy curbed by an appropriate accountability system may be appreciated, whereas in disadvantageous schools more policy support can be provided to scaffold school capacity building, and eventually to narrow the gap among schools enhanced by the education decentralization reform. The importance of external support from governments on school capacity building in school autonomy implementation was highlighted by many researchers. They addressed that the success of school self-management must be supported by the appropriate external conditions including a persistent decentralization policy, support to build the ability to act independently, external accountability mechanisms and encouragement of innovation and development (Senge, Cambron-McCabe, Lucas, Smith, & Dutton, 2012).

Based on our interviews, the principal leadership demonstrates its significant importance to school autonomy implementation under a given objective environment. Many researchers have given attention to the role of the principal in the context of school-based management. Under the background of decentralization reform, the principal takes on broader and more complex responsibilities in maintaining effective schools and implementing changes, which require both new skills and attitudes. The results of our interviews provide feasible strategies to improve school management under specific constrains. Also, some critical characteristics of leadership should be considered as important aspects of capacity building, like a positive attitude, a strong leadership, and keeping a good balance between conflicting demands.

The present study has limitations that should be kept in mind and need further research. One is that the sample size is not enough to provide a whole picture of school autonomy implementation in China. In addition, as we mainly focus on principals' perceptions, the teachers' participation in autonomy implementation inside school is not included in this study. Third, though we have found that school leadership matters, little is known about how a particular type of school leadership can influence organizational outcomes. In further extensive research, a large scale survey might be deployed to explore the specific type of leadership and its relationship with school outcomes.

Despite these limitations, this study has several implications for further research, policy making and school practice. First, the study expands the existing research of the

trend of “re-centralization” in education in China by examining it at the individual school level. Second, our study suggests that many objective conditions, e.g. the local economic development level, the school reputation and the market pressure, have a considerable influence on the individual school’s autonomy implementation. These conditions must be taken into account in educational policy making. Third, our study illustrates the potential of school leadership in order to keep a good balance among different conflicting demands and to convert the disadvantages under a given policy setting. We believe that our study results provide feasible paths for both future policy making at government level and for implementing this policy at school level.

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3

Delving deeper into the school autonomy gap: Linking the school autonomy gap with school leaders' transformational leadership approach and their capacity to cope with change

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Chapter 3

Delving deeper into the school autonomy gap: Linking the school autonomy gap with school leaders' transformational leadership approach and their capacity to cope with change

Abstract

This exploratory study examines how school leaders' perceptions of autonomy gap and their self-rated transformational leadership and the capacity to cope with change, contribute to a better understanding of their leadership behavior in the context of a school autonomy reform in China. Survey and interview data were collected from school leaders and teachers in 26 senior secondary schools in China. Analysis of the survey data reveals that school leaders' perception of autonomy gap varies according to the domains in school autonomy. This gap is also positively related to school leaders' self-rated capacity to cope with change and transformational leadership. The interview data provide further explanations for the survey results. Three representative case studies were selected according to the level of school leaders' perceived autonomy gap. Principals reporting a large autonomy, tend to adopt a stronger transformational leadership approach and reflect a higher capacity to cope with change. These school leaders adopt a positive attitude towards school changes, respond to the policy changes with active and dynamic strategies, and present a low level of risk-aversion. In contrast, school leaders perceiving a small autonomy gap, reflect a weaker transformational leadership and a weaker capacity to cope with change. They consider the external environment as unchangeable and are rather passive when handling their autonomy. They reflect a lower capacity in coping with change and a lower transformational leadership approach.

Introduction

During recent decades there is a growing international trend towards educational decentralization, devolution and greater autonomy for public schools, with the goal of improving education quality and school effectiveness. This decentralization reform not only opens opportunities for school development, but also invokes large organizational changes calling for highly motivated school leaders, capable of leading their staff and managing their school. As the persons “who know best what needs to be done”, school leaders are expected to use their increased autonomy to make critical decisions about how to run their school effectively.

Though the link between increased autonomy and school improvement is less clear yet, numerous studies highlight the role of the principal in view of successful school reform implementation (Beck & Murphy, 1998; Leithwood & Menzies, 1998a). In particular, school leaders’ psychological needs for autonomy and leadership to cope with school transformation, gained increasing attention. Autonomy is considered a basic psychological human need (Deci & Ryan, 1985). However, individuals differ in their desire for autonomy (Burger & Cooper, 1979). In addition, school leaders seem to perceive given autonomy differently. Therefore, an autonomy gap may occur when there is a discrepancy between their autonomy perception and their autonomy preference (Adamowski et al., 2007). Besides school leaders’ perceptions of autonomy, their capacity to cope with change and their level of adoption of a transformational leadership approach have been viewed as important in shaping responses to changing school environments (Herold et al., 2008). In particular, school leaders’ rating of their own capacity to cope with change and transformational leadership might be linked to their view about the autonomy gap. According to self-evaluation theory, positive self-evaluations are often linked to stronger motivation and performance (Bono & Judge, 2003). However, little research has focused on the relationship between school leaders’ perception of the autonomy gap, their self-rated capacity to cope with change and transformational leadership, and how these factors contribute to school leaders’ leadership behavior when implementing given autonomy. This study attempts to address this issue based on survey and interview data collected from 26 schools in China. In the following sections, we describe the conceptual and theoretical background related to the autonomy gap and how it is related to the capacity to cope with change and transformational leadership.

Theoretical framework

Autonomy gap: The discrepancy between perceived and preferred autonomy

Autonomy refers to the extent to which people are capable to make choices based on personal interests. Generally speaking, researchers have adopted two approaches to examine the functions of autonomy in the workplace (Van den Broeck et al., 2010).

The first approach focuses on the level of autonomy provided by the workplace. For example, according to Job-Demand-Resource Theory, autonomy is viewed as a job resource characteristic, and one of the most crucial predictors of work motivation and engagement (Bakker & Demerouti, 2001; Karasek, 1979). In a school setting, this perspective focuses on how principals “perceive” the school environment in terms of how much decision making power the schools are given by the government (Maslowski et al., 2007).

The second approach takes autonomy as an inherent psychological need and depicts how much autonomy an individual prefers. According to Self-Determination Theory, need for autonomy is used and defined as an individuals’ desire to experience a sense of control, choice and psychological freedom (Deci & Ryan, 2008; Van Yperen et al., 2014). The need for autonomy seems significantly linked to employees’ intrinsic motivation, satisfaction, commitment, and performance (Deci & Ryan, 1985; Van den Broeck et al., 2010). In a school setting, this explains how much decision making power school leaders “prefer” to have in order to achieve the goal of school development.

Increasingly, an integrated perspective, combining the latter two approaches, has been adopted. It is assumed when the work environment is aligned with people’s own needs, they are more motivated and perform better. For example, for employees with higher autonomy preferences, the more autonomy they perceived in their work, the less emotional exhaustion and health complaints they reported (Van Yperen et al., 2016). By contrast, a mismatch can either disappoint those expecting positive influences of increased autonomy on work outcomes, or even cause negative influences, like work stress and low effectiveness (Van Yperen et al., 2014).

A small body of earlier work has stepped further to explore this mismatch by measuring the autonomy gap – the discrepancy between preferred autonomy and perceived autonomy – and examining its influence on work attitudes and outcomes. For example, a research about the autonomy gap reported by resident doctors

revealed a huge discrepancy between preferred autonomy and actual autonomy, which consequently jeopardized the work performance (Meyerson et al., 2014). In the field of education, Gaziel (1989) investigated the perceived deficiency of autonomy among elementary school administrators, and found that in school leaders with a low need for autonomy, job autonomy was not related to motivation and job satisfaction. In contrast, in school leaders with a high need for autonomy, the researchers found a positive relation between job autonomy and the outcome. Adamowski, Therriault, and Cavanna (2007) demonstrated the salient autonomy gaps reported by principals, which was also confirmed by Adamson's study, which compared autonomy in charter, public and private schools (Adamson, 2012).

Previous research has linked principals' capacities with the autonomy gap they perceived (Adamowski et al., 2007; Adamson, 2012). In the following section, two important principal capacities – the capacity to cope with change and transformational leadership - are discussed.

School leaders' capacity to cope with change and their transformational leadership in an autonomy reform context

In the context of school autonomy reforms, school leaders' capacity to cope with change and transformational leadership are important to successfully transform organizations (Judge & Bono, 2001; Judge & Kammeyer-Mueller, 2011). These two capacities are often used to understand leaders' roles in shaping followers' responses to change (Herold et al., 2008).

The capacity to cope with change is defined by Folkman, Lazarus, Gruen and DeLongis (1986) as "the person's cognitive and behavioral efforts to manage the internal and external demands of the person-environment transaction that is appraised as taxing or exceeding the person's resources". Lau and Woodman defined these individual change processes as "mental maps, representing knowledge structures of change attributes, and relationships among different change events" (Lau & Woodman, 1995). Research has demonstrated that people with a higher ability to cope with change tend to be more active and dynamic. For example, the capacity to cope with change explained variance in job satisfaction, organizational commitment and work performance, and also mediated the effects of job traits including locus of autonomy on job outcomes (Bretz & Judge, 1994).

Transformational leadership is viewed as an important characteristic of school leaders to amplify followers' understanding, to build stronger connections, to improve school

culture, to legitimize new viewpoints, to empower values and beliefs, and to create a positive “active” work environment (Neck, Nouri, & Godwin, 2003). The adoption of a transformational leadership approach draws the attention to a wider range of conditions that might have to change to improve a school setting. In particular, transformational leadership has been regarded being important in reducing stress and in fostering effective autonomy implementation (Neck et al., 2003). In a reform context, school leaders with higher transformational leadership generally interpret the changing environment as containing fewer threats compared with their counterparts—the former are more likely to see threats as opportunities (Judge & Kammeyer-Mueller, 2011).

Although transformational leadership and the capacity to cope with change are both related to people’s ability to respond to an unstable environment, they also reflect different perspectives. Bass and Riggio (2006) noted that “transformational leadership is about issues around the processes of transformation and change”, while according to Herold et al. (2008) the capacity to cope with change focuses on “what leaders should do when they face a particular change episode” (Bass & Riggio, 2006; Herold et al., 2008). In addition, the capacity to cope with change is a tactical strategy focusing on “here and now”, whereas transformational leadership projects a rather long term relationship between leader and followers (Herold et al., 2008). In Judge and Kammeyer-Mueller’s review about core self-evaluations for a changing organizational context, they suggested that both transformational leadership and the capacity to cope with change should be taken into account in future models (Judge & Kammeyer-Mueller, 2011).

Previous research provides evidence that school leaders’ capacity to cope with change and transformational leadership go hand-in-hand with their perceptions of an autonomy gap. For example, Adamowski and his colleagues’ research found that principals who regarded themselves as middle manager tend to report a small autonomy gap and felt satisfied with limited autonomy, while some other principals who reported a larger autonomy gap tend to regard themselves as revolutionaries, even true entrepreneurs characterized by active coping and strong transformational leadership (Adamowski et al., 2007). Adamson’s study (2012) also suggested that the extent to which principals experienced autonomy gaps was linked to their ability to lead collaboratively and their expertise on the one hand, and some principals used leadership that involved the staff as a way to narrow the autonomy gap on the other hand.

The Chinese context

During the past three decades, the educational decentralization reform and the “principal responsibility system” resulted in an increase in school autonomy in China (Ngok, 2007; Zhu et al., 2014). Schools have more say in decisions about curriculum, funding, and personnel. Meanwhile, the “New Curriculum Reform” was launched in 2000 and stepped in the second round in 2008, aiming to promote a new pedagogic culture to cultivate students’ reasoning ability, innovative consciousness, curiosity, investigative strategies and cooperation (Dello-Iacovo, 2009; Huang, 2004). Schools have received a relative level of autonomy to reconstruct the curriculum, their personnel policies and funding system to challenge a traditional pedagogical culture that did put exams at the center of schooling (Liu & Dunne, 2009; Walker & Qian, 2015). However, research repeats that the nature of the educational system in China has hardly changed yet (Dello-Iacovo, 2009; Walker & Qian, 2015). Teachers still experience problems implementing new teaching approaches or often continue teaching as before (Dello-Iacovo, 2009). Also, a majority of parents do not support schools’ reform to broaden a curriculum that goes beyond the examination subjects for fear this threatens future examination performance. In addition, in order to set up a more stable system to ensure the equality and avoid abuse, the governments established a monitoring system to constrain funding at the school level. As to personnel policy, some governments take charge of teacher selection to ensure the quality of teacher employment (Liu et al., 2016). Moreover, though teacher evaluation was primarily determined by the school, the district educational bureau has the biggest say over teacher promotion and ranking (Liu & Onwuegbuzie, 2012). Since the school autonomy reform rather remains “empty talk”, school leaders in China clearly experience a large autonomy gap in various decision making domains and face challenges to close the gap.

Previous studies pointed out that contextual factors should be taken into account when examining the autonomy reform. This reform is affected by the characteristics of the educational system and cannot be understood apart from the school context (Adamson, 2012). Previous research has indicated that Chinese schools with a higher reputation or in well-developed areas tend to enjoy additional resources compared to their counterparts (Liu & Onwuegbuzie, 2012; OECD, 2010). Therefore, school reputation and the level of economic development were used as two contextual characteristics in the study.

Research design

The present study collected the data by a survey administered to school leaders and teachers, interviews involving school leaders and teachers. The study builds on three data analyses: a survey analysis of 51 school leaders and 182 teachers, interviews with 10 principals and 50 teachers in 10 schools and three school cases.

Research questions

Based on the conceptual and theoretical background, the study tries to answer the following research questions:

RQ1: Do senior secondary school leaders in China experience an autonomy gap in different domains of school autonomy? Does this gap differ in schools with different levels of economic development or reputation?

RQ2: What is the relationship between autonomy gap and school leaders' self-rated capacity to cope with change and transformational leadership?

RQ3: Do school leaders with different perceptions of autonomy gap differ in their leadership behavior?

In view of answering the first and the second research question we build on the data from a survey administered from school leaders. In view of RQ3 we use the data from the teacher survey, the interview with the principal and the teacher group interviews.

Sample

Data were collected from 26 senior secondary schools located in seven cities in China. The level of economic development was based on three economic zones decided by the government in the Seventh Five-Year Plan: east, central and west. The eastern zone covers the most developed regions, the western zone is the least-developed area and the central falls in between (Yao & Liu, 1998). Schools were selected from four cities located in the east (high level of economic development), from one city in the west (low level of economic development) and from two cities in the central zone (Medium level of economic development). After selecting the cities, we focused on selecting schools based on the variable school reputation. The latter depends on the school qualification as defined by the local educational authority. It is either "demonstrative" or "non-demonstrative". The former title implies the school enjoys a higher reputation in the neighbourhood and gets additional resources, next to the assignment of better teachers (OECD, 2010). This information was double-checked,

building on information from school leaders and local researchers familiar with the schools' public reputation in the neighbourhood. Informed consent was obtained from all participants and local education authorities authorized the study. Figure 1 shows the distribution of selected schools in each city with regarding to the level of economic development and school reputation.

Firstly, in each school, we administered the survey to 1 to 3 school leaders (principals/assistant-principals) to map their perceptions of the autonomy gap, their self-rated capacity to cope with change and their transformational leadership.

Secondly, we conducted the school interviews in two different cities to better understand how school leaders perceive the autonomy gap in a specific context. City 1 and City 5 were chosen because 1) they represented different levels of economic development; 2) at least two schools fell into each category of school reputation in these two cities. In each city, 5 principals agreed to participate the interview and helped arranging 1) a group interview with five teachers, 2) a survey with 20 teachers. Figure 1 shows the characteristic of reputation of each school selected in City 1 and City 5 (Step 2).

Thirdly, we selected three representative cases from these 10 schools based on principal's autonomy gap to develop a further understanding of the survey results. School H, school F and school D were chosen, representing schools with a large, a medium and a small autonomy gap, respectively.

Survey and data analysis

To determine school leaders' perceived autonomy gap, two distinct constructs were studied. School leaders were first asked to rate the actual "perceived autonomy" in a particular domain of school autonomy on a 5-point Likert scale. For example: "How much autonomy do you have in personnel hiring?" (1 = very limited autonomy; 5 = very autonomous). Next, they were invited to indicate their level of "preferred autonomy" for each domain of school autonomy. For example: "How much autonomy do you prefer in personnel hiring?" (1 = very limited autonomy; 5 = very autonomous). Autonomy gap was calculated by measuring the distance between the perceived and the preferred autonomy in each domain of the school policy. Existing scales were adopted to determine school leaders' perception of their own transformational leadership (Hulpia, Devos, & Van Keer, 2009) and the capacity to cope with change (Judge, Thoresen, Pucik, & Welbourne, 1999).

Step 1

A survey to 51 school leaders in 26 schools in 7 cities (1-3 school leaders/school)

		School number in total	Demonstrative schools	Non-demonstrative schools
Undeveloped areas	City 1	6	3	3
Developing areas	City 2	4	3	1
	City 3	1	1	0
Developed areas	City 4	3	1	2
	City 5	8	3	5
	City 6	1	1	0
	City 7	3	2	1
Total		26	14	12

Step 2

In 10 schools in city 1 and city 5, we

1. administered a teacher survey with 200 teachers (20 teachers/school),
2. interviewed the principal of each of the 10 schools (1 principal/school),
3. conducted group interview with 50 teachers (5 teachers/school).

	Demonstrative schools	Non-demonstrative schools
City 1	School A	School D
	School B	School E
	School C	
City 5	School F	School H
	School G	School I
		School J

Step 3

Three school cases based on the level of autonomy gap

School D	Small autonomy gap
School F	Medium autonomy gap
School H	Large autonomy gap

Figure 1. Sampling procedure and structure.

Both scales reflected good reliability based on school leaders' responses (Cronbach's alpha = 0.85 for the capacity to cope with change; 0.94 for transformational leadership). From the 62 school leaders participating in the survey part of the study, 51 returned instruments reflecting a minimal 82% completeness rate and were considered as valid in view of subsequent analysis.

In view of answering the research questions, the autonomy gap reported by principals was analyzed by applying descriptive statistics. Next, the correlation between autonomy gap, the capacity to cope with change and transformational leadership was calculated.

In 10 schools from City 1 and City 5, we also invited 20 teachers in each school to rate their principal's transformational leadership and the capacity to cope with change. Parallel versions of the instruments administered to the leaders were used to be able to compare actor perspectives. In total, 182 teacher questionnaires, with a response rate of 91 %, were returned. Both scales reflected good reliability based on teachers' responses (Cronbach's alpha = 0.91 for the capacity to cope with change; 0.93 for transformational leadership). The teacher-rated transformational leadership and capacity to cope with change were used together with principals' autonomy gap to select the school cases. The scales used in the present study are shown in Appendix A.

Semi-structured interviews and data analysis

From 10 schools in 2 cities, we interviewed principals in view of understanding their opinion about perceived autonomy and preferred autonomy, the implementation of autonomy at the school level, the autonomy difficulties they may face and how they use their leadership practices to manage the challenges.

In addition, in each school, five teachers participated in a group interview. We asked teachers about their perceptions in relation to principal leadership behavior and school autonomy implementation. All interviews were recorded and transcribed verbatim. Interview sheets used in the present study are shown in Appendix B.

The 10 principals and the 10 teacher group interviews yielded rich descriptions of principals' perceptions of autonomy gap, their leadership behavior regarding the autonomy implementation. We used an inductive approach. First, we analyzed individual and group interviews in one school. Second, we compared interviews to look for common patterns and differences. Two principal interviews and two teacher group

interviews were randomly chosen and coded separately by two trained coders to ensure the reliability (inter-rater reliability = 0.89).

The case study method and data analysis

To enrich the present study, analysis of typical cases can be helpful to explain analysis results. Critical case sampling was used to select school cases. Patton (1990) asserts this method “becomes particularly useful when one needs to understand some special people, a particular problem, or a unique situation in great depth.” We used critical case sampling, since the present study is rather exploratory and descriptive in nature, and does not focus on hypothesis testing (Tashakkori & Teddlie, 1998). On the base of the autonomy gap scores and teacher-rated leadership, we selected three school cases out of the 10 schools: School D from City 1, school F and school H from City 5. Principal D, Principal F and Principal H reported a large, medium and small autonomy gap, and were perceived to have stronger, medium and weaker leadership, respectively. These three cases were compared to identify differences and similarities in principals’ perceptions of autonomy gap and their self-rated capacity to cope with change and transformational leadership, as well as their leadership behavior.

Results

School leaders’ perception of autonomy gap

To answer the first research question, we checked the mean and standard deviation of perceived autonomy, preferred autonomy and autonomy gap by different domains (see Table 1). Table 1 shows that school leaders enjoyed currently relative high autonomy in school vision and teacher evaluation, as the mean of perceived autonomy in these two domains ranked the highest and the standard deviation ranked the lowest. The means in relation to the other domains of perceived autonomy were lower than 3 on a 5-point Likert scale. In particular, the mean of autonomy in teacher salary is ranked the lowest (mean = 1.96), implying school leaders have little or no say in teacher salary.

As to school leaders’ preferred autonomy, they expressed a relatively high expectation compared to their perceived autonomy. The means of preferred autonomy are higher than 4 (autonomous) in most domains, except for raising funds (mean = 3.5). Notably, the preferred autonomy in raising funds is lower than that in other domains, which means that school leaders seemed to be reluctant to claim a high level of autonomy in

raising funds. In addition, the standard deviation of preferred autonomy in raising funds is relatively high compared to other domains, demonstrating a variance in school leaders' opinions or options.

Table 1. Mean and SD of school leaders' perceptions of autonomy in different domains (N=51).

	Perceived autonomy		Preferred autonomy		Autonomy gap	
	Mean	SD.	Mean	SD.	Mean	SD.
Curriculum	3.80	1.31	4.64	0.69	0.84	1.35
Vision	4.08	1.08	4.74	0.60	0.66	1.10
Raising Funds	2.57	1.27	3.50	1.47	0.84	2.03
Using funds	2.81	1.12	4.61	0.77	1.30	1.33
Student Enrollment	2.37	1.33	4.49	0.77	2.08	1.55
Hiring Teachers	2.67	1.49	4.61	0.73	1.90	1.58
Firing Teachers	2.54	1.51	4.22	1.11	1.68	1.63
Teacher evaluation	4.52	0.68	4.84	0.42	0.32	0.59
Teacher salary	1.96	1.29	4.24	1.17	2.32	1.52

The autonomy gap was calculated based on the distance between school leaders' perceived and preferred autonomy. Student enrollment and teacher salary were the two domains reflecting the largest autonomy gap (mean > 2). The autonomy gap in teacher evaluation was reported to be the lowest, suggesting school leaders seem being satisfied with the autonomy in teacher evaluation (mean = 0.32).

The relationship between autonomy gap and school leaders' self-rated capacity to cope with change and transformational leadership

We checked the correlation between different domains of school autonomy gap as perceived by school leaders; their self-rated transformational leadership and their capacity to cope with change. The results are shown in Table 2. Considering the high correlation between transformational leadership and the capacity to cope with change ($r=.910$, $p<.001$), only correlations between autonomy gap in different domains and transformational leadership are presented. Both transformational leadership and the capacity to cope with change were closely linked to the autonomy gap in student enrollment and teacher salary. In addition, the correlation between autonomy gap in hiring teachers and transformational leadership presented a clear tendency to significance ($r=.227$, $p=.054$), while that for the capacity to cope with change was significant ($r=.316$ $p<.05$).

Table 2. Correlation between school autonomy gaps, self-rated transformational leadership and the capacity to cope with change.

		Transformational leadership	
		r	p
Capacity to cope with change		.910***	.000
Autonomy gap in	Curriculum	.180	.215
	Vision	.134	.357
	Raise Funds	.093	.525
	Use Funds	.217	.135
	Enrollment	.338*	.018
	Hire teacher	.277	.054
	Fire teacher	.178	.221
	Evaluation	.061	.675
	Salary	.304*	.034

***: $p < .001$; *: $p < .05$ (2-tailed).

As shown in Table 2, school leaders' self-rated capacity to cope with change was highly correlated with transformational leadership (0.91). As for the subdomains of autonomy gap, the autonomy gap in student enrollment and teacher salary are positively linked to school leaders' self-rated transformational leadership and the capacity to cope with change. In addition, the autonomy gap in hiring teachers is positively correlated with self-rated capacity to cope with change. In other words, school leaders who reported a large autonomy gap in student enrollment and teacher salary tend to report higher levels of transformational leadership. School leaders who were confident in their capacity to cope with change, reported larger autonomy gaps in student enrollment, teacher hiring and teacher salary.

Case study: schools reflecting a large, medium and small autonomy gap

As the results of the school leader survey reflected a close relationship between autonomy gap and the capacity to cope with change and transformational leadership, we analyzed three schools, reflecting a large, a medium or a small autonomy gap in student enrollment, teacher hiring and teacher salary. The latter values build on the teacher input from these schools. Table 3 summarizes the research variables we compare for each case study. This table is helpful to frame the data obtained during the interviews with the principals.

Table 3. Comparing three school case studies in view of the autonomy gap, transformational leadership scores and the capacity to cope with change.

		Case H (large)	Case F (Medium)	Case D (Small)
		Rating (Rank)	Rating (Rank)	Rating (Rank)
Autonomy gap in	Student enrollment	4 (1/51)	3 (16/51)	0 (44/51)
	Hire teacher	4 (1/51)	2 (20/51)	0 (42/51)
	Teacher salary	4 (1/51)	3 (18/51)	1 (39/51)
Transformational leadership	Self-rated	4.6 (29/51)	4.8 (16/51)	3.8 (47/51)
	Teacher-rated	4.9 (1/10)	4.4 (4/10)	3.5 (10/10)
Capacity to cope with change	Self-rated	4.7 (17/51)	4.3 (28/51)	3.8 (41/51)
	Teacher-rated	4.8 (1/10)	4.3 (5/10)	3.4 (10/10)

Context

Case H. Principal H, male, aged 52, has 14 years of working experience as a principal. He reported a large autonomy gap, a strong capacity to cope with change and a high level of transformational leadership. School H is currently a public school, and was transformed from a state-owned company, reunited with two public schools and one private school in 2007. School H is located in a rural area in a developed city. Many students in school H come from families with a low level of socioeconomic status. It is an ordinary school without any “demonstrative” label issue by local government. It has 3200 student and 200 teachers.

Case F. Principal F, male, aged 57, has 20 years of working experience as a principal. He reported a medium autonomy gap, an average level of self-rated capacity to cope with change and an average level of transformational leadership. School F is located in the urban area in a developed city. It is a municipal demonstrative school with high reputation. It is a large school with 5600 students and 430 teachers.

Case D. Principal D, male, aged 58, has 16 years of working experience as a principal. He reported a relatively small autonomy gap, and a low level of self-rated capacity to cope with change and transformational leadership. School D used to be a secondary normal school, preparing graduates to become future primary school teachers. Around 2000, a national policy has been issued that new employed primary teachers have to obtain at least a college degree; and meanwhile, all secondary normal schools should consequently transform into senior secondary schools, colleges or universities. School D transformed into a senior secondary school in 2003. It is a non-demonstrative school in a suburb of an undeveloped city. It has 900 students and 70 teachers.

Principals' perception of autonomy gap of the three cases

Case H: large autonomy gap

Principal H perceived the current autonomy as “generally very limited, in particular in the personnel management policy”. He was already the principal in school H when it belonged to a state-owned company and he had a much larger say before school H transformed into a pure public school. Principal H considered the current funding system as too restricting and that it was difficult to reward teachers with better performance:

“Overall the autonomy is very limited compared with the extent (of autonomy) we had in the past (when the school belonged to a state-owned company). The autonomy in personnel management is the core of school development.”

Although he could understand to a certain extent the logic behind governmental restrictions, he claimed more autonomy and presented a relatively low level of risk-aversion. He stated:

“Government restriction should not be considered the main cause of limited autonomy. We have to admit the issue of how to transform the examination-oriented system is a social topic rather than a simple educational issue. Examination orientation is harmful for both student's individual development and school organizational development. I tried to make a difference at least within my school, but it feels like ‘dancing with shackles on’. I look forward to more autonomy in personnel management and funding; and even if it means I have to take more responsibility and risks. We already devoted many efforts on school transformation and innovation. I am not sure whether it will be successful eventually, but I am prepared to face all kinds of results.”

Case F: Medium autonomy gap

Principal F perceived a medium level of autonomy gap. School F enjoyed increasing financial support from the local district. Principal F felt happy to be relieved from the burden of attracting funds by the school itself. He stated:

“In the past attracting funds was the school's responsibility, which always makes me feel I am a businessman rather than a school principal. Now as the local economy grows quickly, the district increases the investment in our school. Although we don't have autonomy to differentiate teacher salary – I heard that some teachers have been talking negatively about me behind my back because of that - at least they are listed in the governmental payroll. There is not much we can do about the salary structure.”

Principal F also mentioned the school needs more autonomy in student enrollment. School F used to have autonomy to enroll students from the whole city but now this is limited to the neighborhood district. By restricting student mobility, policy change aimed at easing the competition for best students between schools. However, principal F believed this change has negatively influenced the school performance:

“The academic performance of students we enrolled now is not as good as that in the past as we are not allowed to enroll students from the whole city. We used to be the competitor of another top performing school, but as top students from that district are not allowed to come to our school, we are less competitive now.”

Principal F reported a complex attitude towards school autonomy. Although he believed the intention of autonomy policy is good, it also brought about many problems. He stated:

“The so-called autonomy we were given came together with increased accountability and it was difficult to implement it to fit in our school in practices. For example school-based curriculum should provide different student individual instruction. However, the students’ intelligence and teachers’ capacity are the main obstacles.”

Case D: Small autonomy gap

Principal D reported a small autonomy gap, and expressed a pessimistic attitude towards school the ongoing autonomy reform:

“The school visions before and after the school transformation are completely different. When this school was a secondary normal school, the school vision was to cultivate future teachers through liberal education. But now the school vision is to prepare students to be successfully enrolled in universities. Therefore, our aim is to improve students’ examination scores. Both the intrinsic need of school development and external requirements from the government and the public increase our pressure. However, we have little say in student enrollment. According to the local regulation, the top-performing schools selected all the best students of the neighborhood; while we only have the lower-performing ones. If compared to the top school in our neighborhood in terms of the students’ score of senior secondary school enrollment examination, the highest score in our school is lower than the lowest score in that school. This is extremely unfair. There is not much we can do with it. ‘School autonomy’ is a fake issue under the current examination-oriented system.”

Leadership behavior

Case H: large autonomy gap

Principal H strongly acknowledged the positive and long-term effects of a school-based reform. He identified the changes and tried to manage the change rather than to complain about it:

“Everything is changing and evolving rapidly now, from ICT skills, the way student learn and the way teachers teach, and even the relationship between students and teachers. To achieve school improvement in a long-term, there is no other way but adjust ourselves to it.”

He fully encouraged the development of a school-based curriculum, taking into account students’ background, their interests and long-term needs. In his opinion, test scores are not the first priority in the school vision of school H.

“Most of our students come from a rural area. Although their initial academic performance may not be very high and they might have limited knowledge of civil behavior, we can support their development through our school-based curriculum. Although this curriculum is not directly linked to the examination, it is closely related to students daily lives, which consequently forms their learning habits, increases their motivation, and even improves their sense of responsibility.”

Although principal H was very decisive to implement the reform, initially implementing the reform did not go smoothly. Principal H first reflected on the reform himself and then stressed his involvement of other teachers into the school decision-making process. He stated:

“The reform involves everyone. In the beginning we tried to implement the reform deeply and thoroughly, but some changes were done in a rush. Some teachers complained that the pace was too fast. Afterwards when making important decisions about the school reform, I listened to their opinions. In particular, with regard to pedagogical issues, they have fully autonomy.”

At the beginning, the curriculum reform was not welcomed by parents who were worried it might negatively influence students’ academic performance. Principal H created opportunities to communicate with parents to ease the conflict:

“I let the parents know what is going on inside school. We regularly send school news in brief to parents. Every Monday they could visit me in person in my office. They also

witnessed the improvement of students' learning habit and school climate. Now more and more parents support the school reform."

Case F: Medium autonomy gap

Principal F tried to implement the curriculum reform in responding to the policy changes, though students' test scores still were a priority. It seemed that principal F wanted to change but lacked leadership capacities to develop the appropriate strategies. He also complained about external pressure:

"The implementation of the new curriculum is not bad. We witnessed some changes of teachers' teaching ideas and it seems the examination-oriented system is changing. For example, in the past we only focused on the number of students with top scores, but now we focus on the average score and pass rate. Nevertheless, the biggest problem is that there are too many students in our school. It is not possible to meet everyone's need. If we have fewer students, the new methods including problem-based learning or inquire-based learning will work. All in all, if the whole society continuously judges students solely by their scores, the pressure on our shoulders will never reduce."

School F provides now some school-based curricula, which are "less important compared to the national compulsory subjects". Most curricula are the result of finding a compromise between students' interests and teachers' capacities. Principal F explained:

"Teenagers are fond of music and sports. There are some school-based curricula or student activities for them. However, we have to take teachers' capacity into account. Only teachers possessing enough knowledge and ability will teach these topics. "

Principal F encouraged formal teacher collaboration. One major form of formal collaboration is that teachers from the same subject were required designing the courses together. Principal F stated:

"Although we have these professional development programs, our teachers ability is not high enough. They seemed not interested into it. In particular, if the result of innovation does not improve students' performance significantly, teachers are not motivated anymore."

Case D: Small autonomy gap

Principal D expressed a sense of powerlessness in terms of his leadership responses to the reform:

“There is not much space left for us. Local government will rank schools in its jurisdiction and rewards the top performing ones based on university entrance examination. Student enrollment is out of my control, and the evaluation system is examination-oriented. We don’t have another choice but to focus on that. Besides students’ academic performance, the safety issue occupied much of my energy. We banned many student activities because it may be dangerous to students. The school’s responsibility is too high.”

As to the school-based curriculum reform, school D did not systematically implement this reform at the school level. Principal D stated:

“I am not familiar with the details of the school-based curriculum reform implementation in classroom. It’s more the teachers’ individual experiment in the classroom rather than a school level reform. In general we want to implement a school-based curriculum but in fact this is almost not possible. The pressure from examinations and the public is too high. Parents send their children to us and look forward that they get enrolled in university when the students graduate. The parents’ expectations on us are unrealistic. They don’t think about the students’ initial academic performance. The “New Curriculum Reform” is a good concept, but it only exists on paper. The implementation of the school-based curriculum is very superficial within an examination-oriented system.”

Teacher interview

Case H: large autonomy gap

The teachers in school H were highly involved in and very enthusiastic about the school reform. They said the principal set a clear vision about the reform, took responsibility and encouraged them a lot:

“At the beginning some of us were worried that the reform might fail. But the principal said that teachers only needed to focus on improving our teaching, and leave all the rest to him. He is ready to take the responsibility of any possible failure. He also states he doesn’t believe the reform will ‘fail’. If the reform is the right direction and the way to future, and we are on the right direction, some detours are normal and acceptable. Eventually those innovations will improve school performance.”

Principal H gave autonomy to teachers to organize their professional learning. They collaborated in both a formal and informal way. In particular, they were encouraged to do school-based academic research:

“The principal believes the school-based academic research is the core of a school-based reform. With the data from our students we have found and learned a lot. Now the only problem is the limited availability of academic resources, as we want to read more the most recent scientific articles.”

To conclude, principal H reported a high capacity in coping with change and a high level of transformational leadership. He was also perceived by the teachers to be a transformative leader who introduced positive changes in school H. He generally showed a positive attitude towards school changes, responded to the policy changes with active and dynamic strategies, and presented a low level of risk-aversion. His belief in the reform also positively influenced other stakeholders’ attitudes. Principal H recognized the importance of teacher professional development, encouraged the implementation of school-based academic research, and therefore enhanced school innovation, teacher collaboration and participation in decision-making. The school-based curriculum reform in school H indirectly improved students’ academic performance through developing students’ learning habits and an increase in their motivation.

Case F: Medium autonomy gap

Teachers from school F highlighted the conflict between teaching tasks and inquiry-based learning. This kind of “imposed” innovation increased their workload. They like to innovate but they want to finish the required teaching tasks first. In addition, they are not enthusiastic about academic research because the research topics are completely imposed in a top-down way. They also indicated the research topic did not fit their school and therefore were “less meaningful to their school”. Therefore, the compulsory academic research increased their burden. Moreover, the school evaluation system didn’t pay attention to research involvement, so that teachers would not invest time and energy.

Principal F implemented a top-down reform to restructure the curriculum and to give direction to teacher professional development. Although he tried to push these reforms, he encountered teacher resistance. As a principal, he did not provide sufficient support to teachers. Teachers in school F did not perceive innovation as an intrinsic need.

Case D: Small autonomy gap

The teachers of school D confirmed almost no reform was implemented at the school level:

"We don't have much reform at the school level because the ability of students and teachers are limited in our school. To adapt to radical innovations is beyond our ability. The students are already used to the teacher-dominated approach in junior secondary schools, and now it is difficult to change the approach. Even if they can adapt to new teaching and learning method like inquire-based learning, we cannot complete our teaching duties considering the very tight schedule."

Teachers in school D experienced difficulties in implementing innovations and received limited professional development at the school level:

"In addition, there are some professional activities. For example, teachers of the same subject try different teaching methods, share the experience and discuss the effect. By doing so we try to learn from each other, but actually there is no significant improvement. We don't have the opportunity to communicate with teachers in other schools. We haven't successfully applied any academic projects. "

In general, teachers in school D were also pessimistic about the reform:

"There will always be competition between schools. There is not much space for innovation considering our given condition. In addition, there is no reward for that. Innovation often brings chaos and can be meaningless. "

Compared to principal H and principal F, principal D reported a relatively low level in transformational leadership and a low capacity to cope with change. He perceived a small autonomy gap, which means he did not look forward to an increased autonomy in school decision-making. Principal D also showed a higher level of risk-aversion. He considered the external environment as unchangeable. Therefore, he reflected a pessimistic attitude towards the reform. He did not direct the reform and did not foster teacher professional development. The autonomy reform in school D can hardly be seen as successful.

Conclusion and discussion

The implementation of school autonomy in the Chinese context seems to mirror a complex picture. Our study tried to contribute to the autonomy gap discussion by exploring principals' perceptions of the autonomy gap, their self-rated capacity to cope with change and the extent to which they adopt a transformational leadership approach. In addition, we analysed how these perceptions differ between schools and

principals, and how this could be linked to principal leadership and autonomy implementation.

The findings from the survey indicate there is a salient gap between perceived autonomy and preferred autonomy. It is not surprising that principals perceived - in general - a lack of autonomy in many domains in the Chinese context. But, we also found a high heterogeneity in principal perceptions towards school autonomy, depending on the domain. This confirms the findings of Verhoest (2004) and the findings of international studies such as PISA (Wöbmann et al., 2007). In general, principals experience a relatively high autonomy in school vision and teacher evaluation, and little or very little say in teacher salary. Although they generally preferred receiving more autonomy in most of the domains, they were prudent to insist on autonomy in fund raising. The comparison between autonomy domain related gaps indicates that student enrollment and teacher salary were domains representing the largest autonomy gap.

Our research found a close relationship between school leaders' perceptions of the autonomy gap, their self-rated transformational leadership and the capacity to cope with change. In particular, principals who perceived a small autonomy gap tend to report a relatively low level of transformational leadership and a low capacity to cope with change. These findings are in line with previous research (Beck & Murphy, 1998; Herold et al., 2008). When principals feel less capable to wield the autonomy, increased autonomy seems to be a burden that goes beyond the school leaders' capacities. Beck and Murphy (1998) found that principals often experienced stress in this reform due to the heavy responsibility and the fear of losing control. In some extreme cases, some principals preferred structured and procedural managing (Beck & Murphy, 1998). The results from both our principal and teacher interviews demonstrated that principals with a strong leadership are more likely to take responsibility and avoid to a lesser extent risks. They are more capable to use autonomy to support teachers' professional development, and to boost the school climate in response to policy changes. However, in schools with a lower need for autonomy, school leaders might reflect insufficient capacities to make use of autonomy, and adopt a higher level of risk-aversion. When dramatic changes happen in this school, the principal might complain about the changes rather than react in a problem-solving attitude. They are probably more reluctant to receive extra autonomy as it is often combined with increasing responsibility. In this case, extra autonomy is a burden than a blessing for these school leaders.

The results from our interviews and the three case studies indicate that principals with different perceptions of autonomy gap also differ in their leadership behavior. Both school H and school D were non-demonstrative schools with limited resources. Principal H perceived a large autonomy gap and a stronger level in coping with change and level of transformational leadership. Principal H responded to the policy change in a dynamic way with a positive attitude. He knew how to motivate teachers to be prepared for the reform. However, in contrast, principal D was pessimistic about the autonomy reform and perceived a small autonomy gap. He believed school results rely on external environment – such as external requirements and resources – which were unchangeable. He had no leadership strategy to lead the school towards change. Principal H and principal D used different ways to deal with the school reform, the issue of the examination system and the pressure from parents. Aspiring principals, like principal H, feel better equipped to meet external pressure. They reflect a positive picture of themselves and believe in the benefits of school reforms. Therefore they stick to the school vision, even when they experience heavy pressure, and focus on a long-term development strategy. In sharp contrast, principals with a weak belief in reforms and in their own capacities, when confronted with heavy pressure from the examination system and the parents, tend to be buried under the responsibility, the heavier workload and reflect a feeling of being incapable of leading school changes. These principals see that meeting external pressures depends on the environment and unchangeable criteria. Therefore, reforms are framed as challenges that often go beyond the school's capacity. Reforms are not seen as opportunities. This echoes the findings of Adamowski's and colleagues (Adamowski et al., 2007). They found that principals who perceived themselves as middle managers satisfied with limited autonomy, tended to work within a given policy framework rather than leading clear school changes. In contrast, principals who yearned to be chief executives and dynamic school leaders, tend to report a larger autonomy gap and tend to cope actively with school reforms. The results of the three case studies showed that contextual characteristics might play a role, but that principal leadership behaviour seems to be key to lead to successful school autonomy reforms.

The current study contributes to the existing literature in a twofold way. Firstly, we examined the school leaders' perceptions of the autonomy gap in different autonomy domains, and explored its relationship with leadership behavior. We found that the perceived autonomy gap was clearly related to the level of the capacity to cope with change and transformational leadership. Furthermore, we adopted case studies to describe in more detail the nature of these relationships. Autonomy reforms seem only

to be successful when school leaders are psychologically prepared and wield leadership responsibilities appropriately.

Our results point at a number of policy implications. In large-scale reforms that build on school autonomy, educational authorities should invest in supporting school leaders to use their autonomy by providing training programs and setting up an appropriate accountability system. In the case a school is less capable to implement its autonomy, authorities could support school leaders in a transition from a “command-and-control” to an “autonomy- in-return-for-accountability” system (Adamowski et al., 2007). In addition, educational authorities could pay better attention to the nature of the school leader selection procedures. Selecting a school leader should not be a purely administrative procedure.

The following limitations of the present study should be noted. First, this is an exploratory case study set up in the Chinese context. Future research could build on a larger number of schools from a larger and representative sample of schools. In addition, future studies could be linked to leadership and school autonomy in the context of other reforms, and in other countries. This can help to study the same phenomena in different conditions and settings. Second, our teacher interviews showed that school leaders’ perceptions towards autonomy gap and their leadership behaviour influence teacher working attitudes. However, given the small sample of teachers, a large-scale study that integrates factors at both the organizational and the teacher individual level, could help expanding our understanding of related issues. Despite the limitation, the present study showed that schools did adopt different ways to implement school autonomy, which provides a new perspective to explore the effects of school autonomy reforms at the school level.

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Appendix A

Survey questions used in school leader questionnaire and teacher questionnaire.

Capacity to cope with change:

School leader survey:	Teacher survey:
As a school leader, When dramatic changes happen in this school, I feel I handle them with ease.	The principal in our school When dramatic changes happen in this school, the principal handles them with ease.
I have led transformation efforts within this school.	The principal has led transformation efforts within this school.
When changes happen in this school, I react by trying to manage the change rather than complain about it	When changes happen in this school, the principal reacts by trying to manage the change rather than complain about it
I see the rapid changes that are occurring in this school as opening up new career opportunities for me	The principal sees the rapid changes that are occurring in this school as opening up new career opportunities for him or her
Deep changes ultimately better the school	The principal believes that deep changes ultimately better the school
Environmental turbulence presents opportunities to make overdue changes in this school	Environmental turbulence presents opportunities to make overdue changes in this school
When changes are announced, I try to react in a problem-solving, rather than an emotional, mode	When changes are announced, the principal tries to react in a problem-solving, rather than an emotional, mode
I often find myself leading change efforts in this school.	The principal often leads change efforts in this school.
I think I cope with change better than most of those with whom I work	The principal copes with change better than most of those with whom he works

Appendix A (continued)

Survey questions used in school leader questionnaire and teacher questionnaire.

Transformational leadership:

School leader survey:	Teacher survey:
As a school leader, I premise a long term vision debate the school vision compliment teachers help teachers explain my reason for criticism to teachers is available after school to help teachers when assistance is needed look out for the personal welfare of teachers encourage teachers to pursue their own goals for professional learning encourage teachers to try new practices consistent with their own interests	The principal premises a long term vision debates the school vision compliments teachers helps teachers explains his / her reason for criticism to teachers is available after school to help teachers when assistance is needed looks out for the personal welfare of teachers encourages me to pursue my own goals for professional learning encourages me to try new practices consistent with my own interests

Autonomy gap perceived by school leaders:

How much autonomy do you perceive to have in your school in the following domains?" (1 = very limited autonomy; 5 = very autonomous)	How much autonomy do you prefer to have in your school in the following domains?" (1 = very limited autonomy; 5 = very autonomous)
Curriculum Vision Raise funds Use funds Student enrollment Teacher hiring Teacher firing Teacher evaluation Teacher salary	Curriculum Vision Raise funds Use funds Student enrollment Teacher hiring Teacher firing Teacher evaluation Teacher salary

Appendix B

Interview protocol

Principal interview questions:

- How much autonomy do you have at the school level?
- Do you think you have enough autonomy in, e.g. funding, student enrollment and personnel management?
 - If not, in which domain you think the difference between what you perceive and what you prefer is the largest?
- Is there any school-based autonomy reform in your school?
 - If yes, what kind of reform? How does it go?
 - If no, why not? Do you experience any difficulty or challenge?
- Does the autonomy reform bring transformation or changes in your school? How do you feel about it?
- Did you lead transformation or change in your school? How did you do it? Do you think it is successful?

Teacher interview questions:

- Is there any school-based autonomy reform in your school?
 - If yes, what kind of reform? How does it go?
 - If no, why not?
- How do you describe the leadership capacity of your principal?
- Does your principal lead any school transformation or school change?
 - If yes, what kind of transformation or change? How does it go?
 - If no, what kind of transformation or change you think is necessary in your school?

4

The effects of autonomy gap in personnel policy, principal leadership and teachers' self-efficacy on their organizational commitment

This chapter is based on:

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Chapter 4

The effects of autonomy gap in personnel policy, principal leadership and teachers' self-efficacy on their organizational commitment

Abstract

School autonomy in personnel policy is important to effective personnel management. With increased autonomy in personnel policy, principals could wield their leadership to improve teachers' organizational commitment. However, little is known about whether the given autonomy in personnel policy meets principals' expectation, and whether and how the gap in between has an effect on teachers' organizational commitment. This research explores the effects of autonomy gap in personnel policy, principal leadership, teachers' self-efficacy and school contextual factors on teachers' organizational commitment. Multilevel analysis was used. The results show the effects of autonomy gap in personnel policy differ among areas. Especially, the autonomy gap in salary was found to be a significant antecedent of teachers' organizational commitment. The results also highlight the importance of principal leadership in this process. Principals with a stronger leadership tend to perceive generally a larger autonomy gap in personnel policy. In addition, when transformational leadership increased, its positive influence on teachers' organizational commitment became even stronger. Implications for developing efficacious leadership and autonomy policy in personnel management were discussed.

Introduction

For three decades, the educational system in China has undergone a decentralization reform. This decentralization policy was successful in increasing the provision of educational services but also affected educational inequities (Ngok, 2007). The – now – very different school conditions and decentralized personnel policies resulting from

this reform caused a continuously evolving teacher labor market, resulting in teacher migration to schools presenting better work conditions (Chen, 2010). This trend provided individual teachers greater flexibility to move. This also implied schools face challenges in maintaining a quality teacher workforce (Liu & Dunne, 2009; Sargent & Hannum, 2005). Keeping qualified teachers in school and improving their commitment to the organization has become critical for school principals under this decentralization reform in China.

In a school setting, the personnel policy is important to attract and retain qualified and committed teachers (Kwan, 2009). With the recent trend of educational decentralization reform, principals are supposed to gain increased autonomy in personnel decision making to enhance the teachers' identification with, involvement in and attachment to the organization. However, little is known about whether the principals think they possess a proper level of autonomy in personnel policy. Recent research has noticed a significant autonomy gap between the amount of authority that school principals think they need in order to be effective leaders and the amount they actually have (Adamowski et al., 2007; Adamson, 2012). The autonomy gap in personnel decision making, reported by principals as the biggest barrier to effective reform (Adamowski et al., 2007), may consequently have an impact on teachers' commitment to their school.

Previous studies have identified several important antecedents of teachers' organizational commitment, including factors at both the organizational level (e.g. principal instructional and transformational leadership) and the individual level (e.g. teachers' self-efficacy). This study tries to contribute to the literature by identifying the autonomy gap in personnel policy perceived by principals, which may be related to teachers' organizational commitment, together with their leadership. In addition, considering the Chinese context, we also pay attention to three contextual factors: the level of economic development, school reputation and school size. In the following sections, we first provide the contextual background of China, followed by the theoretical framework clarifying all the concepts and the connections between the research variables we chose based on previous research. A range of findings will be used to illustrate and discuss the effects of different domains of autonomy gap in personnel policy and teachers' commitment, as well as the role of leadership in this process.

A Chinese Context

Education decentralization in China has started in the 1980s, as a strategy to counter resource scarcity (Ngok, 2007). This policy reduced the rigid governmental control over schools and devolved power to local levels. As a result, local governments and school principals gained major decision-making powers and responsibilities regarding resource allocation for and in schools (Tsang, 1996).

Regarding personnel policy, schools have more power to make decisions about teacher recruitment, assessment, remuneration and dismissal under the decentralized system. According to the Interim Regulations for Government-run Institutions to Recruit Staff (Ministry of Personnel, 2005), the government's personnel department, educational departments and the school are collectively responsible for teacher hiring. Also, the evaluation system integrated teacher self-evaluation, and perceptions from school leaders, peers, parents, and students (Liu and Onwuegbuzie 2012). Additionally, increased extra- and off-budget sources from the private sector allowed schools to pay teachers salary supplements, bonuses and benefits (Painter & Mok, 2008). The teacher profession was traditionally considered a permanent employment in China, but has now been challenged due to the implementation of teaching contracts under the umbrella of educational decentralization (Zhou & Reed, 2005). If teachers fail to meet regular inspection and evaluation standards, they actually can be dismissed (Paine & Fang, 2006).

The general decentralization policy was successful in mobilizing new educational resources and helped increase the provision of educational services. However, an important side-effect of the reform was the rapid growth in educational inequity, as resource availability and local authorities' competences varied between and within regions, resulting in a highly fragmented, localized personnel employment system (Painter & Mok, 2008). For example, principals of schools with a higher reputation or in well-developed areas, tend to be more autonomous in hiring than principals of city regular schools or county schools (Liu and Onwuegbuzie 2012). A salient gap of teacher salary has also emerged, not only between regions but even between schools in the same city, due to the highly differentiated school conditions (Liu and Onwuegbuzie 2012; Liu and Dunne 2009).

To redress the education inequality, some local governments have deprived schools of their fiscal and administrative autonomy in recent years, and established a monitoring system to constrain abuses, and to set up a more stable and sustained mechanism to

guarantee education equity (Painter and Mok, 2008; Zhao 2009). For example, in some areas a teacher selection has been incorporated within a transparent examination-based hiring system, aiming to ensure the quality of teacher employment (Liu et al. 2016). In addition, teacher evaluation was primarily determined by the school, but when it came to teacher promotion and ranking, it was also subject to endorsement from the district educational bureau (Liu and Onwuegbuzie 2012). The higher level of government set tougher regulation of fees and charges, and provided increased financial support to cover the payment of teachers who used to be off-governmental payroll, especially in rural and western regions (Painter & Mok, 2008). These policy shifts helped to redefine the decision-making power at the school level in coping with flaws resulting from educational decentralization. In this regard, examining principals' perceptions towards the current autonomy arrangements at the school level would add more insights to the current debate from a bottom-up perspective.

Theoretical background

In the theoretical background section we introduce the key variables used in the study. In the present reform era in which schools get more opportunities to attract teachers from other schools, it is of major importance that schools increase or maintain the organizational commitment of their teachers. As organizational commitment builds on the person-organization relationship, factors at both the organizational and the individual level should be taken into account (Hulpia, Devos, & Rosseel, 2009; Little & Bartlett, 2002). At the organizational level, previous research underpins the critical role of principals in improving teachers' organizational commitment (Hallinger, 2003; Nguni et al., 2006). In the present study principals' perceptions of autonomy in personnel policy and teachers' perceptions of their principal's leadership were considered the principal-related factors. At the individual level, teachers' self-efficacy is – in line with the related literature – adopted as the antecedent of teachers' organizational commitment (Crocco & Costigan, 2007; Skaalvik & Skaalvik, 2010; Ware & Kitsantas, 2007). Already Hong found that Chinese teachers who leave the school show weaker self-efficacy beliefs than stayers (Hong, 2012). As to additional contextual variables, we include the following variables: the level of economic development, school reputation and school size. As explained above, the level of economic development of the region where schools are located will affect our research variables. Second, we incorporate school reputation since available research shows that when teachers identify with organizations with a positive external reputation, they are more committed to this

organization (OECD, 2010; Peterson, 2004). Third, school size is used as a contextual variable. Available research points at the linkage between this variable and teacher commitment (Leithwood & Jantzi, 2009; Rosenblatt, 2001). However, available empirical evidence is still inconclusive as to the influence of this variable on teachers' organizational commitment (Hulpia et al., 2011). For example, Rosenblatt (2001) associated smaller schools with higher levels of teacher commitment. However, Vieno, Perkins, Smith and Santinello (2005) claimed there is no significant relation between the school size and teachers' sense of community. In this regard, the present study, set up in the Chinese context, may contribute to the current debate. Figure 1 integrates the research variables into a research framework for the present study. In the following sections we will further introduce all variables and elaborate the connections between the variables, building on the available literature.

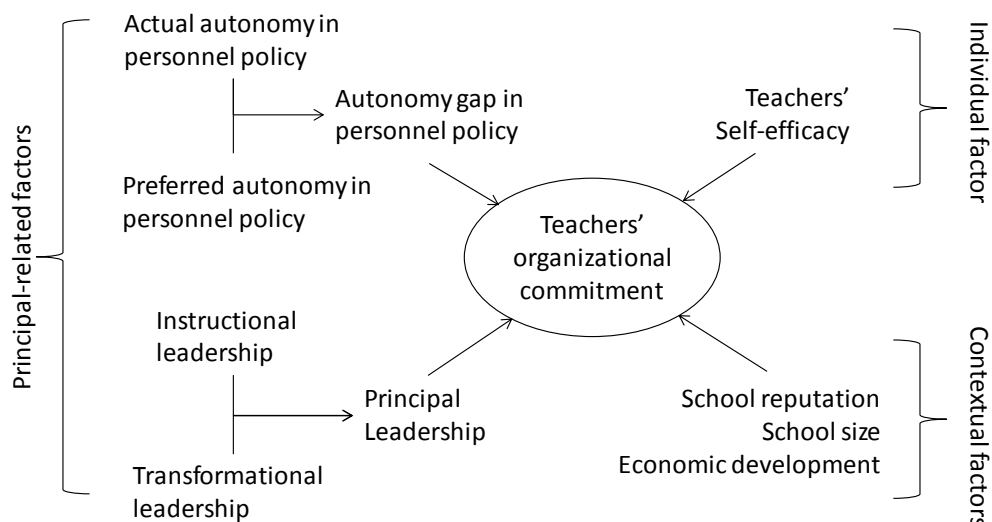


Figure 1. Research framework.

Teachers' organizational commitment

Organizational commitment refers to a psychological state that links the individual to the organization (Allen & Meyer, 1990). Mowday Steers and Porter (1979) defined organizational commitment as "the relative strength of an individual's identification with and involvement in a particular organization". Previous research regarded organizational commitment as an important organizational outcome, and as a critical determinant of school effectiveness and improvement (Dee et al., 2006; Firestone & Pennell, 1993; Fullan & Watson, 2000). This emotional attachment to the school has been found to have a strong relationship with teacher performance (Allen & Meyer,

1990; Meyer, Paunonen, Gellatly, Goffin, & Jackson, 1989; Ware & Kitsantas, 2007). Previous research also detected a significant relationship between teachers' commitment and students' achievement (Kushman, 1992; Rosenholtz, 1989). Commitment is also commonly found to be linked to turnover. Teachers who are strongly committed are those who are least likely to leave the school (Allen & Meyer, 1990). As we already indicated, the retention of teachers is an important element in an era of decentralization and increased teacher mobility among schools. In the Chinese context, teacher retention becomes a growing concern (Sargent & Hannum, 2005). A recent research collected data from 510 teachers in Jilin Province of China, and found 40.4% of the participated teachers reported turnover intention if the opportunity arose (Liu & Onwuegbuzie, 2012). Another study in the west regions of China surveyed 1097 teachers from Gansu province, and found that the organizational commitment of most teachers participated was at middle level, and a proportion of teachers with low organizational commitment (Wang & Zhao, 2010). In this regard, as a strategy in coping with teacher moving and attrition, improving teachers' organizational commitment has become increasingly critical in the Chinese context. Building on this conceptual and empirical base, we consider organizational commitment as a dependent variable in our study.

School autonomy in personnel policy and teachers' organizational commitment

Due to the recent educational decentralization reform, principals are supposed to exert increased autonomy in personnel decision-making to enhance teachers' commitment. Though the effects of increased school autonomy or educational decentralization remain unclear (Maslowski et al., 2007), autonomy in personnel management seems to have "non-negative effects" on school effectiveness (Hanushek et al., 2013). For example, Zigarelli (1996) found that principals' decision-making in hiring and firing of teachers is one of the variables characterizing effective schools. Based on PISA 2000, Robin and Sprietsma (2003) found that school autonomy in teacher recruitment is positively related to student achievement. Similarly, using the data from PISA 2003, a recent cross-country analysis indicated students tend to perform better when schools are more autonomous in personnel decisions, especially in hiring teachers (Wöbmann et al., 2007). Thus, the autonomy in personnel decision-making at the school level, as an important facet of school autonomy reform, opens the possibility for principals to set up an effective allocation of human resources.

The link between autonomy in personnel policy and employee's organizational commitment has been well discussed and supported in the more general literature on for-profit organizations. Previous studies have suggested autonomy in personnel policy is important to organization-individual fit, which is believed a strong predictor of employees' organizational commitment (Bogler & Nir, 2014; Charles, Chatman, & Caldwell, 1991; Kristof, 1996). The organization-individual fit represents the compatibility between individuals and organizations. For one thing, organizations can select and retain those candidates more in line with the organizational vision, value and culture (Kristof, 1996). For another thing, job candidates are also more likely to accept offers from organizations whose values match their own than those counterparts (Bretz & Judge, 1994).

In the educational field, rare existing educational research directly focused on the relationship between school autonomy in personnel-decision making and teachers' organizational commitment (Bogler & Nir, 2014). Maslowski, Scheerens and Luyten (Maslowski et al., 2007) found that school autonomy in personnel policy has a slightly positive correlation with teachers' morale and commitment. In another research examining a new policy of teacher hiring in New York City, over 80% of teachers eligible for transfer or rehire agreed that it is important for the principal of a new school where they seeked to work to want them to work there. Also, teachers were more satisfied with positions where the teacher and principal mutually agreed to a recruitment, rather than a forced placement by the government (Daly, Keeling, Grainger, & Grundies, 2008). Their research also found only 50% of the teachers who were assigned to their position by the government were satisfied enough to consider staying in that position. Most other related research either explores the effects of school autonomy in personnel policy on school effectiveness in general (e.g. Woessmann et al., 2009), or has not distinguished autonomy in personnel policy from other areas (e.g. Nir, 2002). Bogler and Nir (2014) claimed that one possible reason may be that in public education, teacher placement is often a top-down process, especially in education systems where school principals have no authority to recruit or dismiss teachers. Moreover, as decentralization reform is often a top-down policy, little is known about whether the autonomy in personnel policy is proper at the school level (Adamowski et al., 2007). Some recent research has explored the difference between the actual autonomy and preferred autonomy reported by principals, and found these autonomy gaps vary among schools and could become a barrier to successful leadership (Adamowski et al., 2007; Adamson, 2012). Especially, the autonomy gap in personnel policy has been reported by the principals to be the largest

gap among all areas (Adamowski et al., 2007; Adamson, 2012). This echoes previous research that school principals look forward to more autonomy in rewarding teachers and dismissing ineffective teachers (Farkas, Johnson, Duffet, Foleno, & Foley, 2001). A more nuanced understanding can be gained from examining how schools operate and respond to various aspects of autonomy (OECD, 2014). We will introduce this concept in the following part.

Autonomy gap: the distance between actual and preferred level of autonomy

Few recent research has probed the principals' perceptions of autonomy by distinguishing two close but different concepts: 1) the level of autonomy school leaders have, and 2) the autonomy school leaders prefer (e.g. Adamowski et al., 2007; Adamson, 2012). Adamowski and colleagues defined the concept of autonomy gap as the difference between the amount of autonomy principals think they possess and the amount of autonomy they think is needed to successfully implement a reform. They found the autonomy gaps are real barriers to effective leadership under the school autonomy reform (Adamowski et al., 2007).

The autonomy gap is also related to principal leadership as it portrays principals' willingness to wield the leadership, to be involved and to be accountable. According to Adamowski's research, most public school principals interviewed for his study appeared content with the meager authority they possessed because they seemed to accept their roles as middle managers rather than as CEO. They tended to work with the system rather than change the system. Adamowski and colleagues concluded that autonomy should be given to great leaders who demand true authority. Beck and Murphy's (1998) research supports these linkages. They found that principals experiencing school autonomy reform reported stress about their role, as they felt more likely to be blamed for failures than they were under a centralized structure. In some extreme cases, some principals even felt like abdicating responsibility and welcomed structured and procedural modes of managing (Beck & Murphy, 1998). In their study, stronger leadership represented the opposite of abdication, and additional autonomy was an asset to these school leaders who possessed the potential to use it. In schools where school leaders have a lower expectation, it may reflect insufficient capacities to make use of autonomy, and prefer a less strict accountability system. In this case, further autonomy is rather considered a burden that goes beyond school leaders' capacities. In this regard, exploring the autonomy gap allows a deeper

understanding of how principal leadership and perceptions work together to influence organizational outcomes.

Principal leadership and teachers' organizational commitment

In general, previous studies have identified principal leadership as an important antecedence of teachers' organizational commitment (Hallinger, 2003; Nguni et al., 2006). Instructional and transformational leadership have been identified as two main types of educational leadership in previous literature (Hallinger, 2003). Instructional leadership, on the one hand, focuses on improving the classroom practices of teachers; transformational leadership, on the other hand, draws attention to a wider range of conditions that may need to be changed if learning is to improve (Geijsel et al., 2003). Previous research has found positive influences of both instructional and transformational leadership on teachers' organizational commitment (Bogler & Somech, 2004). Sheppard's (1996) synthesis of the existing research has demonstrated that principals as instructional leaders help teachers in their professional development, and consequently enhance their commitment, professional involvement and innovation. Blase and Blase (1999) also found principals' instructional suggestions strongly enhanced teacher's feelings of support and satisfaction. Similarly, transformational leadership has been found to positively influence teachers' organizational commitment (Bogler, 2001; Geijsel et al., 2003). Leithwood and his colleagues have indicated that principals with strong transformational leadership provide support for individual teachers, foster cooperation, and assist them to work together, therefore it affects teachers' commitment to school (Geijsel et al., 2003). Bogler (2001) has pointed out that transformational leadership behaviors, including paying personal attention to the needs and interests of the teachers and raising teachers' expectations and motivation can improve teachers' occupation perception. Though instructional and transformational leadership are often considered to be alternative strategies, they are de facto complementary approaches (Louis et al., 2010). An integrated leadership perspective has been increasingly suggested in this field, indicating that both instructional and transformational leadership should be taken into account (Bush, 2014; Printy et al., 2009).

Self-efficacy and teachers' organizational commitment

Teachers' organizational commitment is not only influenced by factors at the school level, also by factors at the teacher level (Allen & Meyer, 1990; Mowday et al., 1979). Antecedent research has demonstrated the importance of teachers' self-efficacy on

teachers' organizational commitment (Coladarci, 1992; Kushman, 1992). Bandura's social cognitive theory (Bandura, 1977) provides a theoretical framework to explain the path between teachers' self-efficacy and their organizational outcomes. Bandura defines self-efficacy as people's judgments of their capabilities to organize and execute courses of action required to attain designated types of performances. His research confirmed that people who see themselves as efficacious are more willing to take risks, more involved in activities, and more committed to their organization (Caprara et al., 2006; Skaalvik & Skaalvik, 2010).

Contextual factors

Contextual variables are also important in explaining the variance of teachers' organizational commitment (Hulpia et al., 2011). The present study will mainly focus on the level of economic development, school reputation and school size.

As stated above, due to the decentralization reform, economic resources of schools differ by region in China. Major cities and coastal regions have benefited much from the rapid growth of education (Ngok, 2007). Some previous research claimed this reform has promoted rapid and continual growth in the coastal areas, and continually widened the gap between the coastal and interior areas (Sargent & Hannum, 2005). The resources highly concentrated in the eastern coastal areas have promoted regional economic development, and consequently generated numerous employment opportunities (Chen & Zheng, 2008). This further causes teacher migration from the less developed interior regions to the prosperous coastal areas (Chen, 2010). Teachers in remote interior areas may experience not only the salient gap of salary comparing with their counterparts who work in the east coastal cities. Also, they face a lack of access to cultural resources and educational facilities (Sargent & Hannum, 2005). In the present study, we hypothesize that teachers' organizational commitment is positively related to the level of economic development.

In the organizational management literature, an organization's reputation has been considered an important factor influencing employees' feeling towards the organization (Turban et al., 1998). In the school setting, school reputation also influences teachers' job decision and their perception (Bowman & Bastedo, 2009; Turban et al., 1998). McGinn and Welsh's research (1999), for example, found that schools with a higher reputation are more attractive in the teacher labor market. Since social identity theory suggests that employees will be proud to identify with organizations that have a positive external reputation, research has hypothesized that

employees are more committed when they work in an organization that has a favorable reputation (Peterson, 2004). In the present study, we hypothesize that teachers in schools with a higher reputation, experience a higher level of organizational commitment.

As to school size, Bryk, Camburn, and Louis (Bryk, Camburn, & Louis, 1999) have claimed that school size plays an important role in structuring the social dynamics of the school workplace. Available research points at the linkage between this variable and teacher commitment (Leithwood & Jantzi, 2009; Rosenblatt, 2001). However, available empirical evidence is still inconclusive as to the influence of this variable on teachers' organizational commitment (Hulpia et al., 2011). For example, Green, Anderson, and Shivers (1996) claimed that organizational size has been considered negatively related to employees' organizational commitment, because the distance between leaders and employees may cause difficulties to manage. Rosenblatt (2001) associated smaller schools with higher levels of teacher commitment. Also, Lee, Dedrick, and Smith (1991) found that in small schools, teachers have a more positive attitude about their responsibility. In contrast, a nationally representative survey conducted in the U.S. found that there is no significant relation between the school size and the teachers' organizational commitment (U.S. Department of Education, 1997). Vieno, Perkins, Smith and Santinello (2005) also found that there is no significant relation between the school size and teachers' sense of community. In the present study, we will include this variable and check its influence on teachers' organizational commitment.

Method

Sample

Data were collected from 26 senior secondary schools within 7 cities in China over a period of 6 months within the same school year. Figure 2 shows the geographic distribution of the 7 cities, as well as the average school size and gross domestic product (GDP) per capita (RMB Yuan, 2013) based on the data of the province in which each city is located (National Bureau of Statistics of China, 2014).

According to the levels of economic development, the Chinese government divided the country into three economic zones in the Seventh Five-Year Plan (1985-1990): east, central and west. The eastern zone is the most developed, the western zone is the

least developed and poorest, and the central zone falls between the former two (Yao & Liu, 1998). We selected schools from these three different zones in our study. Beijing, Zibo, Weifang and Guangzhou are located at the east coast of China (developed regions); Dali belongs to the western regions (least developed regions); and Hefei and Harbin are located in central China (developing regions).

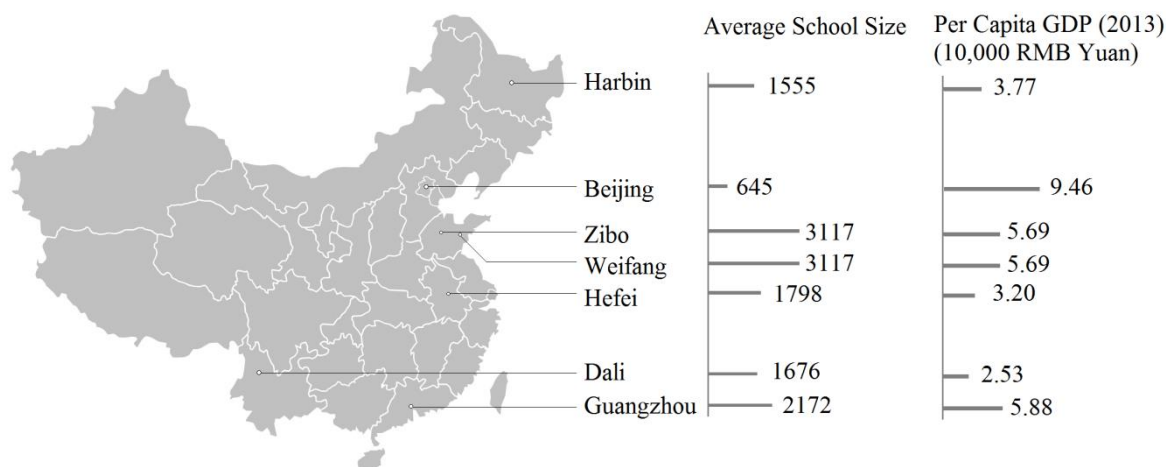


Figure 2. Geographic distribution, average school size and Per Capita GDP by province-level of the 7 cities.

In each school, we invited 1 to 3 principals/assistant principals to fill in a paper and pencil questionnaire. With the principals' permission, 20 teachers were selected randomly and were invited to fill in a paper and pencil questionnaire. In total, 50 school leader questionnaires, with a response rate of 81%, and 472 teacher questionnaires, with a response rate of 91%, were returned. Schools in the sample vary in background characteristics, such as size (ranging from 680 students to 5900 students), size of teaching staff (ranging from 70 to 545) and number of teachers with a Master's degree (ranging from 0 to 230). School leaders in the sample varied in age (ranging from 36 years to 58 years), years of experience as principal (ranging from 1 year to 27 years) and years working as principal in the current school (ranging from 1 year to 12 years). Teachers in the sample varied in age (ranging from 21 years to 60 years), years of experience (ranging from 1 year to 35 years) and years working in the current school (ranging from 1 year to 30 years).

Research instruments

We administered a school leader questionnaire and a teacher questionnaire. The school leader questionnaire focused on determining the level of the autonomy gap and collecting school background information. The measure of autonomy gap in personnel

policy was adapted from the PISA and Adamowski's research about the autonomy gap (Adamowski et al., 2007; Schleicher, Zimmer, Evans, & Clements, 2009). The autonomy gap is defined as a set of expectation-related judgments by principals and assistant principals with regard to the distance between the actual and the preferred school autonomy in the following four personnel policy domains: hiring, evaluating, salary and firing. Considering the Chinese context, we added the item "teacher evaluation" into the scale. Teachers' ranking is seen as a label of their competence, and has earlier been linked to their organizational commitment (Wang & Zhao, 2010). School leaders were asked to rate the amount of autonomy of their school in each policy domain on a five-point Likert scale (e.g. "According to THE REALITY, how much autonomy does the school ACTUALLY have in personnel hiring? 1 = not autonomous at all; 5 = very autonomous"). Building on the same structure, we developed the scale "preferred autonomy": what is the principals' preferred amount of autonomy in each domain (e.g. "According to YOUR PREFERENCE, how much autonomy do you WISH the school to have in personnel hiring? 1 = not autonomous at all; 5 = very autonomous"). We emphasized explicitly the words "the reality", "actually", "your preference" and "wish" in the scale items to focus the principals on the differences between related questions." The school leader questionnaire also collected information of school size and reputation. The principals indicated the number of students and the school title ("demonstrative" or "non-demonstrative"). Demonstrative schools enjoy a higher reputation in the neighbourhood, selected by local education authorities to be given additional resources and assigned better teachers (OECD, 2010). We also double-checked the school title with local researchers who were familiar with the schools' public reputation in the neighborhood.

We used existing scales in a teacher questionnaire to collect data about teachers' perceptions of principals' transformational leadership (Hulpia et al., 2009), principals' instructional leadership (Louis et al., 2010), teachers' self-efficacy (Gibson & Dembo, 1984), and teachers' organizational commitment (Allen & Meyer, 1990).

Analysis approach

As all the school leaders of the same school share the same objective conditions, the autonomy gap in personnel policy has been calculated at the school level. We opted for the behavioral average option of the school leaders, which is the mean score of the autonomy gap in each domain of personnel policy of all school leaders in one school, including principals and the assistant principals. We checked the standard deviation of principals' perceptions. If the standard deviation of any sub-domain of the autonomy

gap in personnel policy was larger than 1, we excluded the school for further analysis, because it suggested a relatively strong disagreement among school leaders. Finally, 24 schools were included in the analysis.

For each scale in the teacher questionnaire, we applied reliability analysis with SPSS version 20.0 and a confirmatory factor analysis with AMOS version 21.0. Some reverse-worded items reflected relatively low factor loadings. Previous studies suggested in Asian cultures, appearing polite is expected and agreeableness seems to be an important social norm, prompting subjects to agree to both positive items and reverse-worded counterparts (Johnson, 2005; Wong, Rindfleisch, & Burroughs, 2003). After removing these items, a significant improvement in goodness-of-fit was observed. Then we removed few items reflecting double factor loadings or a strong residual covariance with other items or factors, and additional fit was achieved. Next, one integrated measurement model was studied combining all subscales to check the relationships between the items, between the items and factors, and between factors. Final scales were all reflecting a good fit (see Hu & Bentler, 1999 for benchmarks). Table 1 shows the reliability and validity of all existing scales used in the teacher questionnaire.

Table 1. Reliability and validity of principal leadership, teachers' self-efficacy and organizational commitment.

	Cronbach's α	CFI ^a	GFI	RMSEA	SRMR	RMR
Transformational Leadership	.875	.995	.991	.050	.017	.013
Instructional Leadership	.904	.996	.994	.079	.010	.016
Teachers' self-efficacy	.871	.972	.967	.077	.033	.022
Organizational commitment	.738	1.000	.999	.000	.008	.006

^a CFI: Comparative Fit Index; GFI: Goodness-of-Fit Index; RMSEA: Root Mean Square Error of Approximation; SRMR: Standardized Root Mean square Residuals; RMR: Root Mean square Residuals.

As the data have an inherent hierarchical structure, multilevel analysis was used. We fitted a number of multilevel models and gradually designed the best fitting model by HLM. First, the unconditional null model including only intercepts at the individual and school level was set up. This null model served as a baseline with which more complex models were compared. Second, the research variables were added into the model. All determining variables were centered around their grand mean (Hox, 2002). A dummy variable was created for school reputation (0 = "Non-Demonstrative" and 1=

“Demonstrative”). To represent the three levels of economic development, two dummy variables were created to be included in the regression model: “Developed regions” (1= “Developed regions” and 0 = “Developing regions or least developed regions”), and “Least developed regions” (1= “Least developed regions” and 0 = “Developed regions or developing regions”). Initially, the variables were included in the model as fixed effects. Then we examined the random effects and variation among schools. The decrease in the deviance values of the different models was used to assess model improvement.

Results

Descriptive analysis

Table 2 presents the individual- and group-level descriptive statistics and correlations. At the individual level, teachers' organizational commitment was significantly related to all three explanatory variables: instructional leadership ($r=.442, p<.001$), transformational leadership ($r=.403, p<.001$), and self-efficacy ($r=.451, p<.001$). At the school level, teachers' organizational commitment was positively linked to the autonomy gap in hiring, firing and salary ($r=.193, p<.001$; $r=.156, p<.01$; $r=.251, p<.001$, respectively). School size was positively related to organizational commitment ($r=.243, p<.001$), but school reputation and the level of economic development were not significant antecedents.

We checked the correlations between each sub-domain of the autonomy gap in personnel policy. All sub-domains were positively related to other domains. Especially the autonomy gap in hiring and the autonomy gap in firing reflected the highest intercorrelation ($r=.823, p<.001$).

The autonomy gap in personnel policy was also closely related to principal leadership. The autonomy gaps in hiring, firing and salary were closely related to transformational leadership ($r=.274, p<.001$; $r=.187, p<.001$; $r=.108, p<.05$, respectively) and instructional leadership ($r=.318, p<.001$; $r=.285, p<.001$; $r=.135, p<.001$, respectively).

Table 2. Mean, standard deviation (SD) and correlations of the research variables.

	Mean	SD	1	2	3	4	5	6	7	8	9	10
1 OC	4.22	0.66	1									
2 Autonomy gap (hire)	2.03	1.36	.193***	1								
3 Autonomy gap (fire)	1.73	1.34	.156**	.823***	1							
4 Autonomy gap (evaluation)	0.46	0.90	.062	.334***	.351***	1						
5 Autonomy gap (salary)	2.36	1.16	.251***	.457***	.513***	.221***	1					
6 Transformational leadership	4.28	0.73	.403***	.274***	.187***	.064	.108*	1				
7 Instructional leadership	3.44	1.04	.442***	.318***	.285***	.065	.135**	.537***	1			
8 Self-efficacy	4.13	0.57	.451***	.207***	.168***	.087	.212***	.323***	.441***	1		
9 School size	2545	1535	.243***	.187***	.022	-.183***	.352***	.142**	.102*	.159**	1	
10 School reputation	-	-	.069	-.122*	-.318***	-.248***	-.202***	.064	.012	-.028	.347***	1
11 Economic development	-	-	.072	.313***	.319***	.069	-.108*	.162***	.212***	.145**	-.011	.009

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

Multilevel analysis

Null model

An unconditional two-level null model was developed to serve as the baseline model. This intercept-only model provides a benchmark value of the deviance at both the school and individual level. The intercept of 4.22 represents the overall mean of the teachers' organizational commitment across schools. This indicates that in the sample teachers in general are committed to their school. The analysis estimates the total variance of teachers' organizational commitment, namely 0.439, which is the sum of the two variance components at the school level and individual level (0.074 and 0.365, respectively). The null model shows that the variance at the school level and teacher level is significantly different from zero, which provides justification for using multilevel models. It appears that 17% of the variation in organizational commitment is situated at the school level, while 83% is attributable to differences between individuals.

Model 1 (principal-related variables)

As the descriptive results indicated a close relationship between the autonomy gap in personnel policy and principal leadership, they were added into model 1. As the group size at the second level (school) was relatively small ($n < 30$), a conservative method was used (Hox, 2010).

First, we checked the effect of the autonomy gap in personnel policy on teachers' organizational commitment domain-by-domain. The results show that the effects of the autonomy gap in hiring and salary were significant. The non-significant sub-domains, firing and evaluation, were removed. This indicated that the autonomy gaps in hiring and salary positively estimated teachers' organizational commitment. The bigger the difference between actual and preferred autonomy in hiring or in salary is, the higher teachers' organizational commitment is.

Next, we added principal instructional and transformational leadership into the model. The variance components of the slopes were fixed at zero. When instructional and transformational leadership were added into the model, however, autonomy gap in hiring lost its significance, but in the model with the autonomy gap in salary, all principal-related variables have significant positive influences on teachers' organizational commitment. Thus, only the autonomy gap in salary, instructional and transformational leadership were retained in our model. Stronger principal leadership

significantly improves teachers' organizational commitment, which is in line with the existing literature in this field (Hallinger, 2003; Nguni et al., 2006). Compared to the null model, Model 1 resulted in a significant model improvement ($\chi^2 = 178.205$, $df = 3$; $p < .001$).

Model 2

In Model 2, we added the teachers' individual psychological variable – self-efficacy – into the model. The results indicated that self-efficacy strongly estimated teachers' organizational commitment. Teachers with higher self-efficacy presented higher organizational commitment. Model 2 shows that 31% of the variance of teachers' organizational commitment can be explained by teacher self-efficacy. The autonomy gap in teacher salary, instructional leadership and transformational leadership explains 8.1%, 13.4% and 17.2% of the variance of teachers' organizational commitment, respectively. The results indicated that teachers' self-efficacy has the strongest relationship with their organizational commitment among the research variables. As to the effect of principal-related variables, principal leadership presented a stronger influence than their perceptions of autonomy gap in personnel policy did. Compared to the Model 1, Model 2 resulted in a significant model improvement ($\chi^2 = 35.999$, $df = 1$; $p < .001$).

Model 3

Next we checked the effects of the level of economic development, school size and reputation as the school-level explanatory variables. The result indicated that school size significantly positively influenced teachers' organizational commitment. School reputation and the level of economic development were not significant estimates, and were therefore removed from the model. As to the autonomy gap in salary, it accounts for 6% of the variance of teachers' organizational commitment. Comparing the deviances of model 2, model 3 has a significantly better fit than model 2 ($\chi^2 = 5.08$, $df = 1$; $p < .05$).

Final model

The final model assessed whether any of the slopes of any of the explanatory variables has a significant variance component between schools. Therefore, random slopes of the explanatory variables were allowed. Similarly, testing for random slope variation was also done on a variable-by-variable basis to decide which of the slopes have a significant variance between groups (Hox, 2010). The result indicated that the slope of

transformational leadership significantly varied between schools. Compared with Model 3, the deviance of the final model decreases significantly by allowing random variance ($\chi^2= 13.989$, $df = 1$; $p<.001$).

As to the fixed part of the final model, the intercept of 3.94 represents the overall mean in organizational commitment for teachers with a mean score on all the independent variables included in the model. Unstructured assumption was used to estimate the variance of intercepts, variances of slopes and the covariance between intercepts and slopes of the effects of transformational leadership on teachers' organizational commitment. Therefore, according to the results we can conclude that the slopes for the relationship between transformational leadership and teachers' organizational commitment vary among schools. As the relationship between slope and intercept was positive, it appears that the variance of organizational commitment between schools increases as teachers' perception of the transformational leadership increases, implying a closer relationship between a stronger transformational leadership and teachers' commitment. Table 3 presents the model estimates of the two-level analysis of teachers' organizational commitment.

Discussion

The present study examined the effect of the autonomy gaps in hiring, firing, evaluation and salary perceived by the school leaders on teachers' organizational commitment, as well as the influences of instructional and transformational leadership, self-efficacy and contextual variables. Based on the results presented above, we discuss several findings in this section.

The results suggested that the teachers in Chinese senior secondary schools were generally committed to the school. The multilevel analysis indicated explanatory variables significantly estimated teachers' organizational commitment.

Among different sub-domains of the school autonomy gap in personnel policy, the gap in salary was significantly related to the degree of teachers' organizational commitment. In other words, in schools where principals experience a bigger autonomy gap in salary, the teachers seem to report a higher level of organizational commitment.

Table 3. Model Estimates of the Two-level Analysis of Teachers' Organizational Commitment.

Parameter	Null Model		Model 1 Principal-related factors		Model 2 Individual factor		Model 3 Contextual factors		Final Model	
	Estimates	S.E.	Estimates	S.E.	Estimates	S.E.	Estimates	S.E.	Estimates	S.E.
<i>Fixed</i>										
Intercept	4.220	.060***	3.974	.084***	4.031	.078***	3.956	.077***	3.941	.079***
Autonomy gap (salary)			.104	.032**	.081	.030*	.059	.028*	.050	.030
Autonomy gap (evaluation)			NS							
Autonomy gap (hire)			NS							
Autonomy gap (fire)			NS							
Transformational leadership			.197	.043***	.172	.042***	.168	.041***	.197	.062**
Instructional leadership			.195	.030***	.134	.031***	.136	.031***	.113	.030***
Self-efficacy					.310	.051***	.306	.050***	.313	.050***
School size							.000	.000*	.000	.000*
School reputation							NS			
Developed regions							NS			
Least developed regions							NS			
<i>Random</i>										
PTL slope										
Level 2 - school										
σ^2_{u0}	.074	.026**	.016	.009	.012	.008	.007	.006	.046	.023*
Level 1 - teacher										
σ^2_{e0}	.365	.024***	.295	.020***	.273	.019***	.273	.019***	.250	.018***
Model fit										
Deviance	904.232		726.027		690.028		684.948		670.959	
χ^2			178.205		35.999		5.08		13.989	
df			3		1		1		1	
p<			.001		.001		.05		.001	

NS Not significant; S.E. Standard error; ***: $p < .001$; **: $p < .01$; *: $p < .05$

Previous studies have stated that pay satisfaction has correlated positively with organizational commitment (Dulebohn & Martocchio, 1998; Vandenberghe & Tremblay, 2008). Liu and Onwuegbuzie (2012) have identified low salary and heavy workload as possible reasons for teacher turnover intention in China. A survey conducted in China shows that 77.8% of the secondary school teachers in Guangzhou maintain that teachers leave their jobs mainly because of their small salary and other unsatisfied working conditions (Li, 1986). An extra pay was seen as a compensation to teachers' heavy workload (Liu & Onwuegbuzie, 2012). Besides, Sargent and Hannum (2005) have pointed out that educational decentralization led to the late payment and underpayment of teachers' salaries in some interior areas. They argued that reliability of salary payment maybe even more important than the amount of the salary itself in the Chinese context. Liu and Onwuegbuzie (2012) also found that more satisfied teachers appear to teach in schools where for teacher and student welfare are more available and where payment of salary is received on time. Principals' demands of further autonomy in teacher salary may enhance teachers' feeling of security, therefore, presenting a positive relationship with their organizational commitment. Probably, principals perceiving a larger autonomy gap in salary may clearly be aware of the importance of pay satisfaction to teachers' organizational commitment, therefore place teachers' welfare in an important position, acknowledge their attribution, stand for their monetary rights, more likely to try to close the gap in their practices, and motivate teachers appropriately through a well-designed salary system. However, the present study revealed that the effect of autonomy gap in salary was small, compared with the effects of the principal leadership and self-efficacy. Introducing more exploratory variables to the model resulted in a slight reduction of the estimates of autonomy gap in salary. The model remains significant until the slope of transformational leadership is allowed to be random. This implies that principals' perception of autonomy gap in salary is less influential in teachers' organizational commitment than are their perceptions concerning the leadership and their self-efficacy. As argued by Maslowski, Scheerens, and Luyten (Maslowski et al., 2007), it is hard to decipher the particular impact of the school autonomy reform on teacher outcomes, as such reform is often set up in combination with other policies that either hinder or foster it. One explanation is that principal leadership diminished the effect of autonomy gap on teachers' organizational commitment. According to Adamowski, Therriault and Cavanna's findings (2007), principals with stronger leadership knew how to "knock down the barriers in their way". Another possible explanation is that Chinese teachers tend to hold a low confidence in educational laws, policies, and reforms (Liu

& Onwuegbuzie, 2012). It is possible though principals were enthusiastic about more autonomy in personnel policy, teachers presented obedience in a high power distance culture like China (Yin, 2013), but were actually less involved. In this regard, autonomy is not an end in itself. The results indicated that principals' perceptions of autonomy are important, but their leadership and schooling practices are more influential to teachers' organizational commitment.

The autonomy gap in hiring also has an effect on teachers' organizational commitment in model 1, suggesting that teachers feel more committed to schools where school leaders are looking for more autonomy in hiring teachers. However, this gap became non-significant when leadership had been added into the model. The cause for this may be the overlap that naturally occurs between the autonomy gap in hiring and principal leadership constructs. Among four sub-domains of the autonomy gap, gap in hiring presented the highest correlation with principal leadership. Transformational and instructional leadership seemed to have a stronger influence on teachers' organizational commitment in a long term.

As for the effect of principal leadership, the results support the idea that both instructional and transformational leadership are important explanatory variables of teachers' organizational commitment, which is in line with previous studies (Beck & Murphy, 1998; Geijsel et al., 2003) and echos the integrating perspective (Bush, 2014). Our results show that the effect of principal transformational leadership on teachers' organizational commitment presents different patterns among schools. When transformational leadership increased, its positive relationship with teachers' organizational commitment became stronger. The results highlight the potential role of transformational leadership in developing teachers' organizational commitment under a school autonomy reform.

The results also confirm that teachers with higher level of self-efficacy were more committed to the school, which is in line with previous research (Bogler & Somech, 2004). As for the contextual variables, teachers in large schools seemed more committed than their counterparts. The correlations between variables show that in large schools principals seemed to have a stronger leadership, which might be the reason to the difference of teachers' organizational commitment between large and small schools. To our surprise, school reputation was not a significant antecedent of teachers' organizational commitment. Though a number of previous articles addressed the positive linkage between organization reputation and employees' commitment (Dutton, Dukerich, & Harquail, 1994; Peterson, 2004), the results of our study do not

support this finding. School reputation in China is still mainly based on students' exam scores (Dello-Iacovo, 2009). If teachers work in schools with a higher reputation, they might suffer higher pressure from the parents and the public with the risk of reducing their level of commitment. Similarly, the level of economic development was not significantly related to teachers' organizational commitment in the multilevel analysis. Sargent and Hannum's study in China (2005) found in some cases in schools with greater economic resources, like schools with a higher reputation or schools in developed areas, teachers tend to be less satisfied. They linked teachers' satisfaction to their expectations of an "ideal work". Teachers in more remote villages are more likely to feel teaching is their ideal career, and are also less likely to wish changing their career. Interestingly, our results suggest principal leadership plays a stronger role than the level of economic development and/or school reputation do in shaping teachers' organizational commitment. Compared to these variables, principal leadership reflects a more direct and significant influence on teachers' organizational commitment. Strong leadership leads to a positive school culture and climate, a supportive teacher community, which will consequently enhance the attachment of teachers to the school. This also echoes Sargent and Hannum's study (2005), in which they found teachers were more satisfied in schools with an organizational climate characterized by experienced leadership that fosters personal and professional advancement and collegial collaboration, while availability of school resources played a less important role in this setting.

Conclusion

The present study contributes to the research literature by adding evidence about the relationships between the school autonomy gap in personnel policy, instructional and transformational leadership, teachers' self-efficacy, and some contextual variables and teachers' organizational commitment. The study was conducted in the context of recent school autonomy reform in China, presenting a unique laboratory in which to study this phenomenon first-hand. Thus far, hardly any research has been conducted in the Chinese context to study the nature and effects of the new school autonomy movement.

Some limitations of this study must be addressed. Firstly, this study was based on quantitative data collected on the base of surveys. In this regard, qualitative data should be collected for a deeper understanding of the autonomy gap and its corresponding influence on principals' school management practices. In addition, the analysis techniques adopted in the present study are helpful to study relationships

between variables, but should not be interpreted as causal relationships. Another limitation is associated with the reliance on survey data. The latter might cause social desirability bias in responses. Principals may tend to misreport their true feelings, especially in the Chinese context where it may be socially desirable to be modest about policy settings. Though we assured the participants that the responses would be treated as confidential to reduce this tendency, this limitation should be taken into account. Moreover, to attain more meaningful results, future studies could add more contextual information to the model in relation to the individual schools. For example, the present study solely explored the effect of regional economic development; and this from a macroeconomic point of view. But also a school's socioeconomic status (SES) could be taken into account in future studies.

Despite these limitations, the current study has implications for policy makers and school leaders. First, policy makers should be aware of the gap between actual and preferred autonomy in personnel policy, and the causes of this unbalanced situation. For those schools with sufficient capacity and strong leadership to wield further autonomy, the gap can be narrowed by delegating increasing autonomy combined with proper accountability. Without an accountability system, the abuse of autonomy can jeopardize retaining a high-quality teacher workforce. For example, principals might build on personal preferences rather than looking at students' needs. As a consequence they might therefore select and keep unqualified teachers at school. In addition, improving teachers' income based on increased non-governmental incomes (e.g., school selection fee), can lead to a scramble for students and revenue, consequently causing over-charging (Painter & Mok, 2008).

Furthermore, as our results demonstrate the critical role of leadership in teacher outcomes, professional development of school leaders is urgently needed. A successful school autonomy implementation requires both structural changes and cultural changes, calling for school leaders' stronger instructional and transformational leadership to lead. Especially the important role of transformational leadership should be emphasized under the school autonomy reform. In parallel to processes leading to an increase in the level of school autonomy, corresponding support measures and principal professional development programs should be provided to attain positive organizational outcomes. In view of future research, we suggest special attention should be paid to other domains of the autonomy gap to enrich the knowledge base for school development and reform implementation (Maslowski, 2001).

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5

The relationships between school autonomy gap, principal leadership, teachers' job satisfaction and organizational commitment

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Chapter 5

The relationships between school autonomy gap, principal leadership, teachers' job satisfaction and organizational commitment

Abstract

This study examines the relationship between school autonomy gap, principal leadership, school climate, teacher psychological factors, teachers' job satisfaction and organizational commitment under the context of school autonomy reform. A path model has been developed to define the relationships between principal leadership and teachers' outcomes via mediating variables. Multiple-group comparison was used to explore the effect of school autonomy gap in this process. We collected the data through a survey carried out in 26 senior secondary schools in China. In total 528 teachers and 59 principals and assistant principals participated. The results suggest a significant influence of instructional and transformational leadership on teachers' job satisfaction and organizational commitment, mediated by the indirect impact of school climate and teachers' self-efficacy. School autonomy gap, which is closely related to principal leadership, emerged as an important influence in the path model.

Introduction

School autonomy has become a hot topic in the context of educational reforms. As "the way of future", greater autonomy has been introduced in educational systems globally (Keddie, 2015). Policy makers consider school autonomy a strategy to ensure school accountability, increase student achievement and parental involvement, and improve school effectiveness (Briggs & Wohlstetter, 2003). School autonomy is also linked with school climate, teachers' job satisfaction and teachers' organizational commitment. From an organizational development perspective, increased school autonomy is believed to enhance an individual's sense of ownership (Bogler & Somech,

2005), reduce uncertainty from the environment (Riehl & Sipple, 1996), provide the opportunity to make a contribution to the organization (Firestone & Pennell, 1993), and consequently improve teachers' job satisfaction and organizational commitment (Leithwood & Menzies, 1998b).

In a school autonomy context, the role of the principal becomes larger. Some authors explicitly state that strong leadership is even a key prerequisite for a successful school autonomy reform (Briggs & Wohlstetter, 2003). However, we know little about whether principals think they have enough autonomy and how this can influence their leadership practices. Recent research has observed a salient autonomy gap between the level of autonomy the principals perceived and the level they preferred. Moreover, the amount of school autonomy can influence the way the school leaders restructure their school and implement the policy. In turn, this can result in varying teacher outcomes (Adamowski et al., 2007; Adamson, 2012). However, large-scale quantitative studies about this issue are missing in the literature.

This study aims to examine the critical role of autonomy gap and principal leadership, school climate and teachers' psychological factors on two teacher outcomes: job satisfaction and organizational commitment. We hypothesize that the impact of leadership on teacher outcomes will be mediated by school climate and teachers' psychological factors.

Theoretical background

School autonomy gap reported by principals: the gap between perceived autonomy and preferred autonomy

From a theoretical point of view, research has argued that school autonomy leads to more effective resource allocation, a strong professional culture and increased staff commitment and job satisfaction (Wohlstetter & Chau, 2004). However, empirical evidence presents a mixed picture of the expected positive outcomes. In addition, available evidence is less clear as to the paths by which these effects are achieved (Firestone & Pennell, 1993; Leithwood & Menzies, 1998a). Based on their analysis of studies about organizational autonomy, Verhoest and his colleagues (2004) pointed out that different conceptions and measures of autonomy used in these studies can explain the mixed results. For example, the emphasis on different facets of autonomy (e.g. managerial or financial autonomy), different data collection methods (e.g.

document analysis versus studying perceptions of actors) and varying analysis techniques (e.g., qualitative case comparison or autonomy indexes) help explaining variation in research results (Verhoest et al., 2004).

This introduces a key question: which definition and measure of autonomy should be used? Earlier theoretical research described autonomy as a formal-legal status by distinguishing how much decision-making power, authority, responsibility, and tasks have been transferred from the upper level to the local site. For example, Hanson (1998) defined three types of educational decentralization: decentralization, delegation and devolution. Decentralization typically only involves the transfer of task and work. Delegation refers to transfers of decision-making authority, which is withdrawable. Devolution refers to transfer of authority to an autonomous unit which can act independently without permission from the centre (Hanson, 1998). Certain international studies also used categorical degrees of school autonomy (e.g. Eurydice, 2007; OECD, 2005).

Some empirical studies increasingly observe that individual local policy implementation may lead to quite different results. This is often related to differences observed between the objective legal-formal status of school autonomy and a school leaders' actual experienced autonomy. Verhoest's research about organizational autonomy reports about a substantial level of heterogeneity in autonomy among organizations with the same legal-formal status, due to their different decision-making competencies (Verhoest et al., 2004). In other words, school leaders' subjective perceptions of a comparable legal-formal status of autonomy can be different. For example, Adamowski and his colleagues (2007) interviewed 30 principals and found that principals with greater longevity in their school districts felt a sense of de facto autonomy, because their long-standing experience allowed them to have a greater say (Adamowski et al., 2007). Some theories help to explain differences in school leaders' perceptions toward autonomy among schools. For example, Simon's Bounded Rationality theory states school leaders' rational decisions are constrained due to given conditions (Simon, 1972), such as given goals, available information, and their own capacities (Bass & Bass, 2009; Leithwood & Jantzi, 1990). In addition, school leaders' self-image, job priorities and leadership role shape their perceptions and resulting behavior. Devos and Bouckenoghe (2009) conducted an exploratory study about school leaders' conceptions about their role as school leaders and identified different school leader profiles. They found that on the one hand "people-minded" principals gave priority to their task as an educational leader, devoting sufficient time to the

development of an educational school policy and to invest in communication and consultation with teachers and students. On the other hand, “administrative-minded” principals devoted most of their time to administration and to the execution of central regulations of educational policy makers. School leaders’ perceptions towards school autonomy are bounded by their rationality and are related to their self-image. Therefore, school leaders’ perception of school autonomy can vary between schools with the same formal-legal status. In addition, this can lead to a different influence on school outcomes.

More recently, research has gotten further ahead in understanding school leaders’ perceptions about school autonomy by distinguishing two close, yet different perspectives (Adamowski et al., 2007; Adamson, 2012): (1) the amount of autonomy principals think they possess, versus (2) the amount of autonomy they think is needed to successfully implement a reform. The distance in between reflects an autonomy gap, which integrates both perspectives - the governmental arrangements versus school demand, and reflects real demands of decision making power stated by principals. Instead of assuming that abundant autonomy will definitely be welcomed at the local level, school autonomy gap reflects principals’ attitudes towards the autonomy, allowing a deeper understanding of how principal leadership and perceptions work together to influence organizational outcomes. For example, if autonomy policy arrangements do not fit local conditions and demands, a high level of autonomy can be a burden for schools rather than a blessing. In Adamowski’s research, researchers found most interviewed public school principals were satisfied with the autonomy granted because they accept their job as it is. Instead of trying to change the system, they learned to work within the system without asking for further autonomy (Adamowski et al., 2007). By revealing the gap, the present research introduces a new perspective to explain the heterogeneous results of autonomy reforms.

The above literature review indicates that without considering school leaders’ needs, adopting either an objective formal-legal status or a solely perceived autonomy perspective might result in a biased picture. Our aim is not to judge whether the autonomy devolved to schools is “limited” or “too much”. Rather, we try to describe the gap between the actual provision of school autonomy and the demand for school autonomy of school leaders, and explore its effects on the way principals influence organizational outcomes. Though some research has noted the importance of this new concept, to our knowledge, no large-scale quantitative research has been set up by

taking school autonomy gap as a key variable in the research design. In the present study, we assume school autonomy gap is closely related to leadership and influences the school organization in a substantial but indirect way. Different levels of school autonomy gap will be identified and linked to the research variables and particular interrelationships.

Principal Leadership

Previous literature has identified a strong relationship between principal leadership and teacher performance and attitudes (Bogler, 2001; Koh et al., 1995). Principal leadership has been regarded as an important antecedence of teachers' job satisfaction and organizational commitment (Hallinger, 2003; Nguni et al., 2006). Instructional and transformational leadership have been identified as two main types of educational leadership in previous literature (Hallinger, 2003; Shatzer et al., 2013). Instructional leadership focuses on improving the classroom practices of teachers. The existing research has demonstrated that principals as instructional leaders help teachers in their professional development, and consequently enhance their commitment, professional involvement and innovation (Sheppard, 1996). Blase and Blase (1999) also found principals' instructional suggestions strongly enhanced teacher's feelings of support and satisfaction. Transformational leadership draws attention to a wider range of conditions that may need to be changed if learning is to improve (Geijsel et al., 2003). Leithwood and his colleagues have indicated that principals with strong transformational leadership provide support for individual teachers, foster cooperation, and assist them to work together. Therefore, it affects teachers' school commitment (Geijsel et al., 2003). Bogler (2001) has pointed out that transformational leadership behavior, including paying personal attention to the needs and interests of the teachers and raising teachers' expectations and motivation, can improve teachers' perception of their occupation.

Though instructional and transformational leadership are often considered to be alternative strategies, they are de facto complementary approaches (Louis et al., 2010). An integrated leadership perspective has been increasingly suggested in this field, indicating that both instructional and transformational leadership should be taken into account (Bush, 2014; Printy et al., 2009). Thus, the present study will combine both instructional and transformational leadership as substantial variables influencing teacher outcomes.

School climate

Though researchers have confirmed the significant influence of the principal on organizational outcomes, a large body of studies have stressed the mediating function of organizational culture and climate (Krüger et al., 2007; McCarley et al., 2016). Previous research argues that school climate has a direct influence on teachers' organizational commitment and job satisfaction, and also serves as a mediating variable in the effects of principal leadership on teacher outcomes (Firestone & Pennell, 1993; Hoy & Hannum, 1997; Lok & Crawford, 2004). Though school climate is a broad term that refers to school members' shared perceptions of the school environment (Hoy et al., 1990), three dimensions have been identified as important characteristics of an effective school climate: formal collaboration, decision-making participation and innovation. Antecedent studies have pointed out that teachers who receive more assistance and encouragement from fellow teachers, participate more in school decision-making and adopt an open attitude toward innovation tend to have a higher sense of satisfaction and trust in the organization (Hulpia, Devos, & Rosseel, 2009; Louis & Smith, 1991; Somech & Bogler, 2002).

Teachers' psychological factors

Bandura's social cognitive theory (Bandura, 1977) and Deci and Ryan's self-determinant theory (Deci & Ryan, 1985) serve to establish the paths between important teachers' psychological factors and their organizational outcomes.

According to Bandura (1977), self-efficacy, defined as "people's judgments of their capabilities to organize and execute courses of action required to attain designated types of performances", is one of the most important constructs mediating between human learning and behavior. Bandura's research confirmed that people who see themselves as efficacious are more willing to take risks, be creative and be involved in activities. Abundant research is available showing that teachers with a high sense of self-efficacy tend to be more creative, humanistic and less critical towards students (Gibson & Dembo, 1984; Tschannen-Moran, 1998; Tschannen-Moran & Hoy, 2001; Woolfolk et al., 1990). The level of teacher self-efficacy is also closely related to job satisfaction and organizational commitment (Caprara et al., 2006; Judge & Bono, 2001; Skaalvik & Skaalvik, 2010).

Though abundant research has demonstrated teachers' self-efficacy is strongly related with work outcomes, some researchers further claim this feeling of competence will only enhance intrinsic motivation unless accompanied by another critical psychological

factor – a sense of autonomy (Ryan & Deci, 2000b). Ryan and Deci's self-determinant theory hypothesizes that people do not only experience self-efficacy but also experience their behavior to be self-determined when intrinsic motivation is maintained or improved (Ryan & Deci, 2000a). As they suggest, autonomy is central in understanding the content and the process of motivation and goal pursuits. Higher motivation, consequently, will lead to desired outcomes and goals. Most previous studies confirm the positive relationship between teacher autonomy and teacher outcomes (Crocco & Costigan, 2007; Skaalvik & Skaalvik, 2010). For example, Rosenholtz and Simpson's research (1990) examined the effects of workplace conditions and teachers' commitment and found that task autonomy is one of the highest correlates of teachers' commitment. Similarly, Perie and Baker (1997) identified workplace-related factors associated with satisfaction and found a profound influence of autonomy on teachers' job satisfaction. In addition, Crocco and Costigan's recent research indicated that teachers' desire for autonomy was strongly related to their desire to do good work (Crocco & Costigan, 2007).

Teachers' job satisfaction and organizational commitment

Among key indicators of school organizational outcomes, teachers' job satisfaction and organizational commitment have been considered crucial (Leithwood & Menzies, 1998a). Job satisfaction is the emotional state resulting from perceiving one's job as fulfilling or allowing the fulfilment of one's job values (Locke, 1976). Teachers' job satisfaction, independently or in interaction with other factors, has a variety of consequences on both teacher attitudes and teacher behavior (Beck & Murphy, 1998; Dee et al., 2006; Fullan & Watson, 2000).

Teachers' organizational commitment represents their psychological bond to their school. Previous research regarded organizational commitment as an important organizational outcome, and as a critical determinant of school effectiveness and improvement (Dee et al., 2006; Firestone & Pennell, 1993; Fullan & Watson, 2000). Kushman (1992), for example, detected a significant relationship between teachers' commitment and students' reading achievement; later confirmed by Rosenholtz (1989). Allen and Meyer (1990) described three components of organizational commitment: affective, continuance, and normative. Among the three components, affective commitment - which refers to the emotional attachment to the organization individuals identify with, want to be involved in, and enjoy membership of - has been found to have a strong relationship with teacher performance (Allen & Meyer, 1990;

Meyer et al., 1989; Ware & Kitsantas, 2007). Thus the present study will solely focus on affective commitment.

The Chinese educational context

This study is situated in Chinese higher secondary education. Traditionally known as a centralized system, Chinese schools are tightly regulated and mainly financed by the government. Over the past three decades, the educational decentralization reform and the “principal responsibility system” have authorized principals more autonomy regarding personnel management, finance management, student enrollment, and other school affairs (Ngok, 2007; Zhu, Devos, & Tondeur, 2014). In addition, the “New Curriculum Reform” defined another critical change in the agenda of China’s educational reform around the year 2000. The “New Curriculum Reform” attempts to cultivate students’ general abilities including creativity, problem-solving skills and life-long learning, which is in clear contrast to the prevailing exam-oriented system (Liu & Dunne, 2009). In the past decades, schools have received a relative level of autonomy to set up school-designed courses. However, the practice of autonomy in school management is limited by a number of other factors (Zhu et al., 2014). For example, principals feel shackled by constraints originating from the government and/or market mechanisms outside school (Feng, 2002). As such, compared to the school principals in most western countries, the level of full decision making of Chinese principals is more constrained (Zhu et al., 2014).

Research framework

This study examines the relationship between the school autonomy gap, principal leadership, school climate, teacher psychological factors, teachers’ job satisfaction and organizational commitment under the context of school autonomy reform in China. The analysis proceeds in two steps. First we examine the relationship between principal leadership, school climate, teacher psychological factors, teachers’ job satisfaction and organizational commitment through a path model (see Figure 1). Secondly, we examine the relationship between school autonomy gap and other variables by contrasting different path models considering different levels in school autonomy gap.

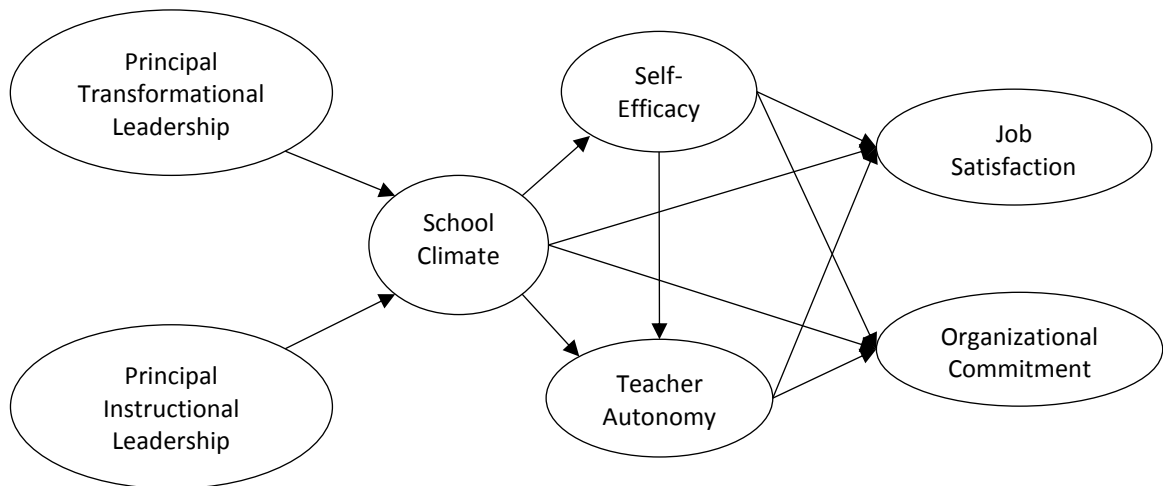


Figure 1. Hypothesized Research Model of the Relations between principal leadership, school climate, teachers' self-efficacy, teacher autonomy, teachers' job satisfaction and organizational commitment.

Method

Participants

Data were collected from 26 senior secondary schools within 7 cities in China: Beijing, Zibo, Dali, Harbin, Weifang, Hefei and Guangzhou. The vast geographic distribution allows us to depict a sufficiently comprehensive picture of school autonomy reform implementation in China. Both cluster sampling and convenience sampling were used. The main purpose of deploying cluster sampling was to include both schools in the developed coastal cities (e.g. Beijing and Guangzhou) and less developed cities (e.g. Dali). Schools in the sample vary in background characteristics, such as size (ranging from 680 students to 5900 students), size of teaching staff (ranging from 70 to 545) and number of teachers with a Master's degree (ranging from 0 to 230). In each school, we invited 2 or 3 principals/assistant-principals and 20 teachers to participate in the survey. In total, 48 principal questionnaires, with a response rate of 81%, and 472 teacher questionnaires, with a response rate of 91%, were returned. School leaders in the sample varied in age (ranging from 36 years to 58 years), years of experience as principal (ranging from 1 year to 27 years) and years working as principal in the current school (ranging from 1 year to 12 years). Teachers in the sample varied

in age (ranging from 21 years to 60 years), years of experience (ranging from 1 year to 35 years) and years working in the current school (ranging from 1 year to 30 years).

Research instruments

We applied a school leader questionnaire and a teacher questionnaire. The school leader questionnaire focused on determining the level of school autonomy gap. It was defined as a set of preference-related judgments by principals and assistant-principals with regard to the distance between the perceived and the preferred school autonomy in several policy domains, namely funding (raise and use), vision, curriculum, student enrolment and personnel management (hiring, evaluating, salary and firing). The resulting scale “perceived autonomy” had nine items. School leaders were asked to rate the amount of autonomy they had in each policy domain on a five-point Likert scale (e.g. “According to THE REALITY, how much autonomy does the school ACTUALLY have in personnel hiring? 1 = not autonomous at all; 5 = very autonomous”). With a similar structure, the scale “preferred autonomy” required principals’ preferred amount of autonomy in each domain (e.g. “According to YOUR PREFERENCE, how much autonomy do you WISH the school to have in personnel hiring? 1 = not autonomous at all; 5 = very autonomous”). In brief, the school autonomy gap was equal to the principals’ preferred autonomy minus their perceived autonomy.

The teacher questionnaire consisted of 73 items rated on five-point Likert scales with seven variables: principals’ transformational and instructional leadership, school climate (formal collaboration, participation and innovation), teachers’ self-efficacy, teacher autonomy, teachers’ job satisfaction and teachers’ organizational commitment. These concepts were operationalized and measured using existing scales (Aelterman et al., 2002; Gibson & Dembo, 1984; Hulpia, Devos, & Rosseel, 2009; Leithwood & Jantzi, 1999; Louis et al., 2010; Maslowski, 2001; Pearson & Hall, 1993; Staessens, 1990). We carefully translated English items and adjusted them to the Chinese context.

Analysis approach

For the school autonomy gap, firstly, we checked the means and standard deviations for the different policy domains in SPSS version 20.0. Secondly, we calculated the mean of the distance between the perceived and the preferred autonomy in each of the remaining policy domains to determine the perceived autonomy gap of each school leader. Next, the mean of autonomy gap of all school leaders of each school was calculated, representing school leaders’ collective perception of autonomy gap.

The autonomy gap scores were only used to place the schools into categories but not in the data analysis (Edwards, 1994). We balanced sample sizes across groups to ensure stable parameter estimates and replicable results. Three groups were consequently identified based on the average autonomy gap at the school level: large gap (School N = 9, Teacher N =149), medium gap (School N = 8, Teacher N =155), and small gap (School N = 9, Teacher N =168).

For each scale in the teacher questionnaire, we calculated reliability and determined validity via factor analysis. Principal leadership, teachers' self-efficacy, teacher autonomy, job satisfaction and organizational commitment were examined in a first-order confirmatory factor analysis. School climate and its three subdomains, collaboration, innovation and participation, was validated through a second-order confirmatory factor analysis. We found that some reversed-worded items reflected relatively low factor loadings. Previous studies provide a cultural explanation (Johnson, 2005; Wong et al., 2003). In Asian cultures, appearing polite is expected and agreeableness seems to be an important social norm. This norm consequently may prompt subjects to agree to both positive items and reverse-worded counterparts. After removing the latter items, a significant improvement in goodness-of-fit was observed. After removal of items reflecting double factor loadings or a strong residual covariance with other items or factors, additional fit was achieved. Next, one integrated measurement model was studied combining all subscales to check the relationships between the items, between the items and factors, and between factors. Finally, 47 items were included in view of path modelling. Table 1 summarizes key quality indicators for each scale, all reflecting a good fit (Hu & Bentler, 1999). This implies the scales are valid. On the base of the Cronbach's α values, we can additionally conclude the scales reflect good to very good reliability.

Table 1. Reliability and validity of the scales.

	Cronbach's α	CFI ^a	GFI	RMSEA	SRMR	RMR
Transformational leadership	.875	.995	.991	.050	.017	.013
Instructional leadership	.904	.996	.994	.079	.010	.016
School climate	.919	.953	.926	.076	.043	.025
Teachers' self-efficacy	.871	.972	.967	.077	.033	.022
Teacher autonomy	.818	.968	.978	.060	.034	.041
Job satisfaction	.711	.994	.995	.058	.020	.034
Organizational commitment	.738	1.000	.999	.000	.008	.006

^a CFI: Comparative Fit Index; GFI: Goodness-of-Fit Index; RMSEA: Root Mean Square Error of Approximation; SRMR: Standardized Root Mean square Residuals; RMR: Root Mean square Residuals.

Structural equation modeling was applied to test the model as depicted in Figure 1. Benchmarks were applied in line with Bentler (1990) and Hu and Bentler (1999) to interpret the results. Based on this baseline model, we analyzed the nature and effects of school autonomy gap in three ways. First, we checked the variance in school autonomy gap between the three groups on the basis of a Kruskal-Wallis test. Second, we studied the differences in the research variables between the three groups using ANOVA. Third, we examined the differences of paired paths between variables in the three models by applying multiple-group comparison in AMOS.

Results

Test of the general path model

The parameter estimates of the baseline model are presented in Figure 2. All indices are in line with recommended benchmarks for an acceptable goodness-of-fit: $\chi^2=24.185$ ($p<.001$); CFI = 0.987; GFI = 0.986; RMSEA = 0.066, SRMR= 0.034 (Hu & Bentler, 1999).

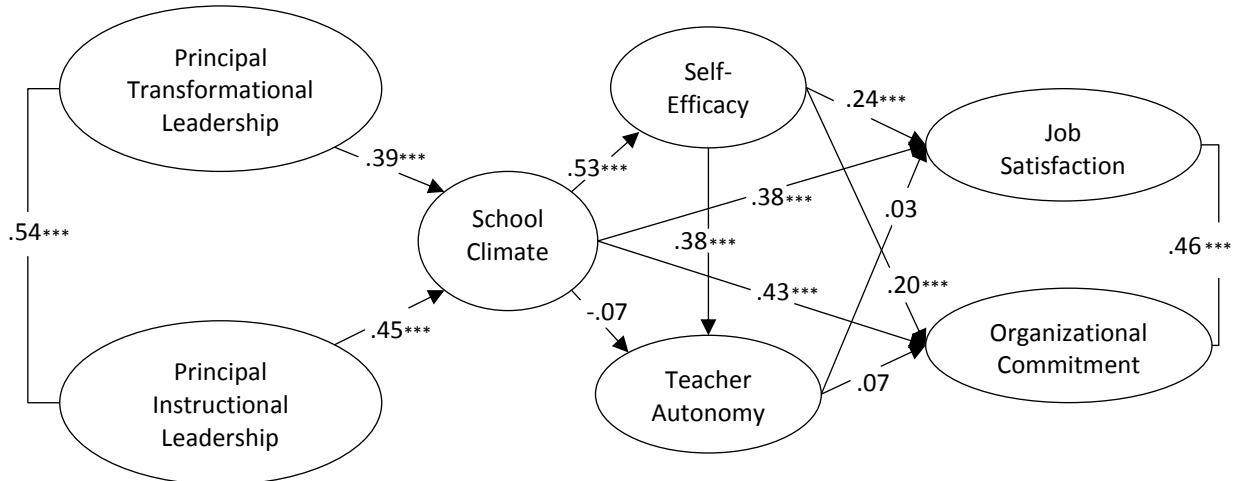


Figure 2. The effect of principal leadership on teacher job satisfaction and organizational commitment as mediated by school climate and teachers' psychological factors.

Test results show that principals' transformational and instructional leadership, school climate, teachers' self-efficacy all have significant and positive effects on teachers' job satisfaction and organizational commitment. In total, the model explains 30% of the

variance in teachers' job satisfaction and 34% in the variance in organizational commitment. In addition to the estimates shown in Figure 2, Table 2 gives a summary of the direct and indirect effects of antecedent variables.

Table 2. Direct, indirect and total effects of antecedent variables on teachers' job satisfaction and organizational commitment.

	Job satisfaction			Organizational commitment		
	Direct	Indirect	Total	Direct	Indirect	Total
Transformational leadership		.20	.20		.21	.21
Instructional leadership		.23	.23		.25	.25
School climate	.38	.13	.51	.43	.11	.54
Teachers' self-efficacy	.24	.01	.25	.20	.03	.22
Teacher autonomy	.03		.03	.07		.07

With regard to principal leadership, the results confirmed that both instructional and transformational leadership play important roles in influencing teachers' job satisfaction and organizational commitment. For transformational leadership, the model presents indirect effects on teachers' job satisfaction and teachers' organizational commitment (.20 and .21, respectively; see Table 2). For instructional leadership, these effects are .23 and .25 respectively (see Table 2). The results also show that transformational leadership and instructional leadership have a significant positive effect on school climate (.39 and .45 respectively; see Figure 2).

As for school climate, the results indicate its positive effect on teachers' job satisfaction and organizational commitment. As shown in Table 2, on the one hand, school climate has a direct positive effect on teachers' job satisfaction (.38; see Table 2) and teachers' organizational commitment (.43; see Table 2). This implies that teachers reporting higher levels of school climate - including higher levels of teacher formal collaboration, innovation and participation - tend to be more satisfied and more committed. On the other hand, school climate also influences teacher outcomes indirectly through teachers' self-efficacy (.13 for teachers' job satisfaction and .11 for teachers' organizational commitment; see Table 2). Teachers' self-efficacy is enhanced through the school's support of teacher formal collaboration, innovation and participation, and subsequently improves teacher outcomes.

With regard to the impact of teacher psychological variables, teachers' self-efficacy has a significant positive direct effect on both job satisfaction and organizational commitment (.24 and .20 respectively; see Table 2). The more teachers feel

efficacious, the higher their job satisfaction and organizational commitment. However, the impact of teacher autonomy does not reflect a similar pattern. No significant effects of teacher autonomy on job satisfaction nor on organizational commitment is identified in the model. It also does not present a mediating function between school climate and teacher outcomes. In our study it is only significantly related to teachers' self-efficacy.

In summary, principals' instructional and transformational leadership have indirect, albeit important, influences on teacher outcomes. School climate reflects a stronger direct than indirect influence, and is the strongest ascendant variable. Teachers' self-efficacy also has a relatively strong direct influence on teacher outcomes. However, we found no significant influence of teacher autonomy in explaining the variance in teacher outcomes.

Comparing different levels in school autonomy gap

To test the role of school autonomy gap, we first provide basic characteristics of the three groups of schools with different levels of autonomy gap. Next, we describe the variances of all variables in the three groups. In addition, based on the baseline model tested above, we identify the effects of school autonomy gap on the paired paths between three groups by multi-group comparison.

Background characteristics of three groups

By measuring the distance between school leaders' perceived autonomy and preferred autonomy, three groups with different levels of school autonomy gap were identified. Though the school autonomy reform has already been launched in China for three decades, all principals in our sample believe the current level of autonomy they have is not enough for a successful reform. Most school leaders expect a relatively high level of autonomy. However, they have significantly different perceptions of the autonomy they possess (see Table 3). Even under similar formal-legal policy arrangements, school leaders perceive school autonomy differently. For example, school leaders' perceived actual autonomy ranges from 1.94 to 3.83 in three schools in Beijing and ranges from 2.00 to 5.00 in six schools in Dali. This confirms that school leaders' perceptions of autonomy are subjective and not only dependent on the formal-legal status of the school.

Table 3. Means, standard deviations of the autonomy gap in the three groups.

	Small Gap Mean (SD)	Medium Gap Mean (SD)	Large Gap Mean (SD)
Autonomy gap	.57(.32)	1.54(.34)	2.63(.60)
Perceived autonomy	3.28(1.07)	2.22(.51)	1.72(.58)
Preferred autonomy	3.85(.90)	3.72(.50)	4.35(.56)

Variable comparison between three levels of school autonomy gap

We examined the differences in teacher related research variables considering the different levels in school autonomy gap by analysis of variance. The results display idiosyncratic characteristics of schools in each group (see Table 4).

Table 4. Means, standard deviations and ANOVA results of the study.

Research variables	ANOVA	Effect size Cohen's <i>f</i>	Small gap Mean (SD)	Medium gap Mean (SD)	Large gap Mean (SD)
Transformational leadership	F=9.16, <i>p</i> <.01	0.20	4.15(.74)	4.20(.81)	4.47(.61)
Instructional leadership	F=8.40, <i>p</i> <.01	0.18	3.23(1.01)	3.37(1.05)	3.67(1.02)
School climate	F=7.65, <i>p</i> <.01	0.18	4.14(.62)	4.20(.57)	4.38(.52)
Teacher autonomy	F=.68, <i>p</i> =.51	0.00	3.59(.69)	3.68(.71)	3.61(.78)
Self-efficacy	F=4.23, <i>p</i> <.01	0.14	4.02(.59)	4.15(.56)	4.20(.56)
Job satisfaction	F=15.83, <i>p</i> <.01	0.26	3.72(.83)	3.86(.92)	4.22(.72)
Organizational commitment	F=11.58, <i>p</i> <.01	0.18	4.09(.66)	4.14(.68)	4.41(.61)

The results indicate a notable pattern in school characteristics among the three groups. In brief, schools with a larger autonomy gap reflect stronger leadership, a more positive school climate, and higher levels of teachers' self-efficacy, teachers' job satisfaction and organizational commitment. In contrast, schools with a smaller autonomy gap reflect a relatively weak leadership and school climate, as well as lower levels of self-efficacy, teachers' job satisfaction and organizational commitment. No significant differences in teacher autonomy are observed between the three groups. As school leaders' perceptions are closely related to their capacity, the pattern shows that principals with stronger leadership tend to reflect a stronger demand for autonomy. The values of Cohen's *f* also indicate the school autonomy gap has a medium effect-size on teachers' job satisfaction and a relatively small-medium effect-size on principals transformational and instructional leadership, school climate, and teachers' organizational commitment (Cohen, 1988).

Multiple-group comparison

The goodness-of-fit of the baseline model allows for conducting multiple group analysis. All indices of the multiple group model are in line with the recommended benchmarks for acceptable fit: $\chi^2 = 56,835$ ($p < .01$), CFI = 0.973, GFI = 0.968; RMSEA = 0.054, SRMR = 0.058 (Hu & Bentler, 1999). Next, the separate model for each group was tested to check the model stability. Again, all goodness-of-fit indices of the three separate models are in line with recommended benchmarks. Subsequently, we conducted nested model comparison. The results show that the factor loadings are not equivalent across the three groups ($\Delta\chi^2_{(22)} = p < .05$) (see Table 5), indicating significant differences between the three models.

Table 5. Model comparison: Assuming model unconstrained to be correct.

Model	df^a	χ^2	p	NFI Delta-1	IFI Delta-2	RFI rho-1	TLI rho2
Structural regression weights	22	36.797	.025	.029	.030	-.016	-.017
Structural co-variances	28	51.899	.004	.041	.042	-.014	-.014
Structural residuals	40	88.193	.000	.069	.071	-.005	-.005

^a df Degrees of Freedom; NFI Normed Fit Index; IFI Incremental Fit Index; TLI Tucker-Lewis Index.

Next, to understand how the paths vary between the three groups, we examined the critical ratio for differences between parameters by multiple-group comparison. The largest significant difference is found in the effects of instructional and transformational leadership on school climate (see Table 6).

Table 6. Path estimates of each group and critical ratios for differences between parameters between multiple groups.

	Estimates comparison	Small gap Estimates	Medium gap Estimates	Large gap Estimates
Transformational leadership on school climate	***	.26***	.40***	.48***
Instructional leadership on school climate	***	.54***	.42***	.40***

***: $p < .01$

The most marked differences are found in the paths between leadership and school climate. On the one hand, the influence of principal transformational leadership on school climate for schools with a large autonomy gap is significantly stronger than in schools with a medium and small autonomy gap. On the other hand, the effect of

principal instructional leadership on school climate in schools with a large autonomy gap is weaker compared to schools with a small and medium autonomy gap. Combined with the results shown earlier, indicating better performance of all research variables, these path comparison results show that in schools with a larger autonomy gap, principals have a stronger capacity to adopt a transformational leadership position to improve school climate and consequently achieve improvement in teachers' self-efficacy, teachers' job satisfaction and organizational commitment.

Conclusion and discussion

In this study, we focused on how school autonomy gap and principal leadership affect a series of organizational and teacher variables. We hypothesized a model that integrated principal leadership, school climate, teachers' self-efficacy and teacher autonomy as the ascendant variables to teachers' job satisfaction and organizational commitment. The school autonomy gap was adopted as a key indicator to depict the fit between perceived and preferred school autonomy. We also expected this gap would influence the effects of principal leadership on other research variables. Based on the results presented above, we discuss several important conclusions in the following section.

The role of principals in school autonomy reform

This study demonstrated the critical role of principals in school autonomy reform by exploring principal leadership and school autonomy gap.

As for principal leadership, the results suggest that leadership has a tremendous yet indirect influence on teacher outcomes through school climate and teachers' self-efficacy, which are in line with previous studies. In addition, the results of the path analysis allow us to reflect on leadership effects as identified in earlier research. Our results confirm the importance of both instructional and transformational leadership in influencing teachers' job satisfaction and organizational commitment. Although previous studies on school autonomy reforms have emphasized principals' transformational leadership, recent research has re-evaluated the importance of instructional leadership and stressed integrating the two dimensions of leadership (Marks & Printy, 2003; Robinson, Lloyd, & Rowe, 2008). Our results support the idea that both instructional and transformational leadership matter.

Besides leadership, we also emphasized the importance of school leaders' perceptions towards autonomy. The findings indicate there is a high heterogeneity in principal perceptions towards school autonomy, even under the same legal–formal status. Even within the same city, some principals perceived limited autonomy and demanded more power in school decision-making, while others were satisfied with the current policy arrangements and reported a weaker demand for more decision making power. This confirms Verhoest's findings (Verhoest et al., 2004).

As for school autonomy gap, our research found a close relationship between school leaders' perceptions and their leadership as perceived by the teachers. In particular, principals with strong leadership seem less satisfied with the current level of autonomy and expect more say. Principals with weaker leadership appear satisfied with the autonomy they have. Beck and Murphy's (1998) research supports these linkages. They found that principals experiencing school autonomy reform reported stress about their role, as they felt more likely to be blamed for failures than they were under a centralized structure. In some extreme cases, some principals even felt like abdicating responsibility and welcomed structured and procedural modes of managing (Beck & Murphy, 1998). In their study, stronger leadership represented the opposite of abdication. Simon's (1972) theory of Bounded Rationality provides an explanation for this phenomenon. As principals face cognitive and information limitations, sufficient capacity is an important prerequisite to counter these limitations at a low cost (e.g., time and energy). Principals with a strong leadership profile are capable and avoid risks to a lesser extent by making use of autonomy to make school decisions. In addition, they try their best to make related optimal decisions, even in complex and uncertain situations. Additional autonomy is an asset to these school leaders who possess the potential to use it. In schools with a smaller autonomy gap, school leaders may reflect insufficient capacities to make use of autonomy, and prefer a less strict accountability system. They tend to look for a satisfactory decision rather than the approximate-best decision. In this case, further autonomy is rather considered a burden that goes beyond school leaders' capacities.

Furthermore, multiple-group comparison unravels the differences in the paths by which leadership influences organizational outcomes between schools with varying levels of autonomy gap. In schools with a larger autonomy gap, the influence of instructional leadership on school climate is relatively the lowest when comparing the three groups, while the effect of transformational leadership is the strongest. Devos and Bouckenooghe (2009) provided a starting point to frame these particular school

leaders' conceptions of their role. Three types of school leader profiles were identified: the "people - minded profile", the "administrative - minded profile" and the "moderate - minded profile". The differences between the three profiles are reflected in differences in school climate. Administrative-minded leaders are not found in schools with strong changes in climate and people-minded leaders are not found in schools with weak school climate. People-minded principals present the key characteristic of transformational leadership focusing on setting directions, developing people and redesigning the organization (Geijsel et al., 2003). In contrast, administrative-minded principals spend most of their energy on administrative affairs, report a lack of time to invest in educational policy and in their relationship with teachers, and do not possess the necessary social skills or policy skills to translate school goals into concrete plans. The results of the present study tell a similar story. Generally speaking, in schools with stronger leadership (both instructional and transformational) and a positive school climate, principals seem to have a stronger influence on school climate and on organizational outcomes through their transformational leadership. These leaders seek more power to develop their school and possess sufficient capacities to implement autonomy in practice. In contrast, in schools with weaker leadership and a lower school climate, principals lack the necessary transformational leadership skills to improve the school climate.

Teacher autonomy

Different from our expectation, it is surprising that teacher autonomy does not strongly influence teachers' job satisfaction or teachers' organizational commitment. In addition, the results show that teacher autonomy is only influenced by teachers' self-efficacy, not by school climate. Moreover, ANOVA analysis results showed no significant variance in teachers autonomy based on school autonomy gap. Though these results are inconsistent with most findings in the literature, some empirical studies have found similar results. For example, Bogler and Somech hypothesized the positive relationship between teacher autonomy and teacher outcomes, but the results indicated teachers' perceived autonomy and impact were the least effective predictors of any of the outcomes examined (Bogler & Somech, 2004). One possible reason is that teacher autonomy might be a very individual feeling, as the variation in teacher autonomy is relatively high. Another possible reason is that teacher autonomy is a complex variable that might only work well when combined with other conditions, such as a clear accountability system and a strong incentive mechanism. In particular, as Chinese schools face strong pressure from the central, standardized exam system,

teachers who try to adopt new methods in their teaching are personally responsible for the risk of failure. In this context, even increase teachers' autonomy would not enhance their job satisfaction or organizational commitment. These results indicate that studies should take more elements into account in understanding teacher autonomy. For example, teachers' perceptions towards autonomy may be influenced by school management policy (e.g. accountability system) and personal traits (e.g. risk aversion). The results actually can be an echo of the failure of school autonomy reform at a personal level, calling for further research.

Implications and limitations

The present study contributes to the research literature by adding further evidence about the relations between school autonomy, organizational and psychological variables and teachers' job satisfaction and commitment. The study was conducted in the context of recent school autonomy reform in China, presenting a unique laboratory in which this phenomenon can be studied first-hand. Thus far, hardly any research has been conducted in the Chinese context to study the nature and effects of the new school autonomy movement.

Our results have implications for policy makers and school leaders. First, policy makers should be aware of the gap between given and preferred autonomy, and take formal-legal status, school capacity and leadership all into account to establish successful autonomy. For school leaders with sufficient capacity and strong leadership, increasing autonomy combined with proper accountability could narrow their autonomy gap. Furthermore, as our results emphasize the critical role of principal leadership in school autonomy reform, professional development of school leaders is urgently needed. A successful school autonomy implementation requires school leaders' stronger instructional and transformational leadership to lead the changes. With this regard, principal professional development programs can be helpful to attain positive organizational outcomes.

Some limitations of this study must be addressed. Firstly, qualitative data should be collected for a deeper understanding of autonomy gap and its corresponding influence on principals' school management practices. Case studies would definitely help enrich the story. Secondly, regional differences should be considered in this and future research, especially in the case of China. Due to fiscal decentralization, economic resources of schools differ by region in China. This has affected teachers' motivation

and resulted in teachers moving to regions with better job opportunities. Empirical research has confirmed that social capital is significantly related to the desire to shift professions in China, where cross-community disparities in social, human, and cultural resources have increasingly defined school conditions (Sargent & Hannum, 2005). Regional differences might have affected our results when looking at the impact on organizational outcomes. Thirdly, the autonomy gap could be elaborated within different policy domains. For example, previous research has also found differences between the autonomy gap in personnel management (Adamowski et al., 2007; Adamson, 2012). Lastly, the results of the structural equation modeling suggest causal relations. The embedded regression techniques nevertheless build on tests about associations and should always be interpreted in the light of this limitation.

Despite these limitations, this study contributes to the research on school autonomy reforms by confirming the important influences of both transformational and instructional leadership on teacher outcomes, clarifying the paths by which these influences are achieved, and exploring the effects of the autonomy gap in this process. We have also developed a better understanding of the complexity of school autonomy by investigating interactions between the formal-legal status of a school and the beliefs, capacities and perceptions of school principals and teachers. For future studies, we suggest that special attention should be paid to autonomy gap to enrich the knowledge base for school development and reform implementation (Maslowski, 2001).

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6

General discussion

Chapter 6

General discussion

Abstract

This dissertation focused on the school autonomy reform in senior secondary schools in China. The goal was to clarify the relations between school autonomy, principal leadership and teachers' organizational outcomes in a Chinese context. This chapter provides a general overview and discussion of the results of each study. A brief introduction of the research objectives of the dissertation is provided, followed by the main findings of the studies. Then an in-depth reflection on some key issues regarding the school autonomy reform in China is discussed. This chapter concludes with some research limitations, directions for future studies and implications.

Introduction

As "the way of future", school autonomy reform has been implemented in many countries (Keddie, 2015). In China, schools have been given increased autonomy since educational decentralization in the 80s. However, no conclusive empirical evidence has been found concerning the positive effect of school autonomy on students' academic performance (Leithwood & Menzies, 1998b; Shin et al., 2012). Previous research have proposed several unsolved issues, including the fuzzy conceptions and measures of autonomy applied, insufficient attention paid on the role of school leaders and teachers in this reform, and the inadequate empirical research systematically exploring various domains of school autonomy (Maslowski et al., 2007; Shin et al., 2012; Verhoest et al., 2004). The central aim of this dissertation was to put forward the research on school autonomy in senior secondary schools in China. The limitations in the current literature about school autonomy have become the main challenges for the present dissertation.

A key issue is to figure out which measurement should be used in exploring school autonomy reform. In this dissertation, we measured school autonomy in two ways to gain further insights into this issue. We explored school leaders' perception of school

autonomy from an organizational perspective, as well as from an autonomy gap perspective. We developed the measurement of school autonomy gap based on previous research. The concept of school autonomy gap was based on the work of Adamowski et al (2007) and Adamson (2012). In addition, the research design of various domains of school autonomy gap first followed the PISA and Eurydice's design and then were tailored to the Chinese context (Eurydice, 2007; OECD, 2013). Another issue concerns the ways in how school autonomy can be translated and implemented at the school level and what the effects of school autonomy can have on school organization and teachers (Eurydice, 2007; Nir, 2002). In this regard, this dissertation explored the relations among school autonomy, school leadership and teachers' organizational outcomes.

The research objectives introduced in chapter 1 were examined in the empirical studies in Chapter 2 to 5. Both qualitative and quantitative methods were used to serve the purpose of each study.

Research objective 1 (RO1) is to measure school leaders' perception of school autonomy from an organizational perspective.

Research objective 2 (RO2) is to examine the school autonomy gap, and the relationship between this gap and school leadership.

Research objective 3 (RO3) is to examine how the school autonomy gap and school leadership styles are related to teachers' job satisfaction and organizational commitment.

These research objectives have been addressed in the previous chapters of the dissertation. In the following section the main results related to these objectives are summarized. In addition, the research limitations, directions for future research, and the implications of each research are also discussed.

Overview of the main results related to the research objectives

Research objective 1 (RO1) measures school leaders' perception of school autonomy from an organizational perspective.

As we explained in the conceptual framework in Chapter 1, school leaders' perceptions have been neglected in the previous literature on school autonomy reform (Adamowski et al., 2007; Adamson, 2012). As the critical role of the school principal in

school change agendas has been greatly emphasized, their perceptions towards this reform should be taken into account to gain a deeper understanding on autonomy implementation at the school level. In addition, empirical studies on school autonomy reform in China are still rare. Therefore, the first research question dealt with school leaders' perceptions of school autonomy in Chinese senior secondary schools from an organizational perspective. We took a closer exploration at school leaders' perceptions of school autonomy, while taking local development level and school reputation into account. To gain a general picture of the policy arrangements of this reform in China, a qualitative study was conducted in 12 schools in two cities in China, Beijing and Zibo, considering they were among the areas where the "New Curriculum Reform" was pioneered. Principals were interviewed about their perceptions towards the current school autonomy in different domains.

The first finding is that this study confirms the recent trend of re-centralization in school autonomy reform in China's senior secondary schools, which is in line with previous studies (Hawkins, 2006). Senior secondary schools were no longer enjoying substantial autonomy after 2000. In particular, the school leaders we interviewed reported the autonomy in funds and personnel have been remarkably retreated back to local government since 2000. More specifically, the separation of the revenue and expenditures system and the increased governmental funds have removed the financial responsibility from the school level to the government level. Meanwhile, some school leaders reported the autonomy in using funds was limited in practice due to the strict regulations set by the local educational bureau. For personnel policy, school leaders used to have a greater say over personnel management before 2000. However, the decisions regarding to personnel were no longer fully made at the school level. In both Beijing and Zibo, the local governments took over certain autonomy in hiring teachers and deciding teacher salary. In particular, teacher salary was strictly controlled by the local government. Principals have little say to reward high-performing teachers.

In addition, our results indicated that the retraction of autonomy is not a simple drawback of power, but policy rearrangements aiming at reducing the disparity between autonomy and accountability. For example, the new financial policy clearly made the governments again responsible for the provision of funds, and relieved the schools' heavy financial burden. In addition, the aim of the strict accountability for using funds is to reduce the abuse that emerged during the educational decentralization. Moreover, the governments took over some of the school autonomy

in personnel policy to improve the quality of new teachers in certain schools and to guarantee teachers' salary payments. Finally, schools were given increased autonomy in curriculum in the "New Curriculum Reform" to change the current exam-oriented system. These measures confirmed previous claims that these policy shifts reduced school autonomy in some domains, but this was not a fundamental reversal (Painter & Mok, 2008). In the trend of "re-centralization" the governments put efforts to address some of the "market failure" emerged in educational decentralization and restructured the responsibility of governments.

The results also highlighted the role of contextual factors in defining schools' external environment. For example, schools in developed areas enjoyed sufficient funds while schools in underdeveloped areas often suffer from a strong fiscal burden (Ngok, 2007). Similarly, compared with schools with a lower reputation, schools with a higher reputation possess stronger capacity to attract resources, including extra funds, better teachers and high-performing students (OECD, 2010). Some school leaders in the non-demonstrative schools reported the school-based curriculum was constrained by the limited ability of teachers and students.

The results revealed that the school leaders reported different perceptions of school autonomy reform. Some school leaders we interviewed were satisfied with the reduced autonomy under the trend of "re-centralization" as their responsibility was also reduced accordingly. In particular, the school leaders from Zibo with a lower reputation were no longer suffering from the financial crisis after the government took over the financial responsibility. In addition, not all of the school leaders we interviewed welcomed the increased autonomy in the curriculum. Some school leaders were worried that the school-based curriculum might have a negative impact on students' academic performance. Though China launched the "New Curriculum Reform" to change the exam-oriented system, senior secondary schools in China still put improving students' academic performance at the core of schooling (Chen & Ke, 2014). Therefore, some schools were not willing to fully embrace the increased autonomy in the curriculum. These results showed that the autonomy itself could not guarantee the success of the reform. School leaders' perception of school autonomy and their leadership behaviour were more important in the successful reform implementation (Honig & Rainey, 2011; Mok, 2003).

The last finding is that though school context constrains the schools' choices, the principal leadership demonstrates its critical importance to school autonomy implementation under a given external environment. The examples of strong

leadership in Chapter 2 provided some strategies to tackle the conflicts and implement the given autonomy effectively. A large number of studies have highlighted the role of the principal leadership in maintaining effective schools and implementing changes (Day et al., 2016; Hallinger, 2011; Leithwood et al., 2008). Our results provide empirical evidence of how strong leadership can improve school management under specific constraints.

In conclusion, our results confirmed the trend of “re-centralization” of school autonomy reform in China, demonstrated the influence of contextual factors on schools’ external environment, and highlighted the importance of school leadership in reform implementation.

Research objective 2 (RO2) is to examine the school autonomy gap, and the relationship between this gap and school leadership.

To better understand the concept of autonomy gap, we explored the autonomy gap in different ways in Chapter 3, 4 and 5. The purpose of the study described in Chapter 3 was to explore the relation between school leaders’ perception of autonomy gap and their self-rated leadership based on a survey of 51 school leaders. Therefore, the autonomy gap was examined at an individual perspective in Chapter 3. In the studies described in Chapter 4 and Chapter 5, we were interested in the relation between the autonomy gap perceived by school leaders and teacher variables. In this regard, the autonomy gap perceived by school leaders was considered as a school characteristic. Therefore, the autonomy gap at the school level was calculated by aggregating several school leaders’ perceptions in each school, and was examined from a collective perspective. In addition, the study described in Chapter 4 zoomed in on the autonomy in personnel policy. The study reported in Chapter 5 explored this gap of all domains from a broader perspective.

The study in Chapter 3 revealed a salient gap between school leaders’ perceived and preferred autonomy. In addition, this gap varied among different domains of school autonomy. We found that school leaders perceived a higher level of current autonomy in school vision and in teacher evaluation, while a lower level of autonomy in teacher salary. For their preferred autonomy, compared with the generally higher preference of autonomy in other domains, they were more reluctant to require further autonomy in raising funds. The autonomy gap was found the largest in autonomy in student enrolment and in teacher salary. Our results are in line with previous studies that the

perceptions towards school autonomy reform differ among various domains (Hanushek et al., 2013; Verhoest et al., 2004).

Though previous qualitative studies found that the level of economic development and school reputation were important contextual factors influencing schools' external environment, like for example resource availability, school autonomy gap does not significantly differ among schools with different levels of economic development or school reputation. A possible reason is that though these contextual factors can influence schools' resources availability and shape schools' choices in autonomy implementation, school leaders' individual preference of autonomy, and their leadership may buffer the influence of contextual characteristics. Previous studies have also found that though demonstrative schools were equipped by high quality teachers and demonstrated better academic performance, there was no significant difference of principals' leadership behaviour between demonstrative and non-demonstrative schools (Ke, 2016).

The study described in Chapter 4 solely focused on personnel policy. Compared with autonomy in other domains, the autonomy in personnel policy has often been found positively related to school improvement in previous research (Hanushek et al., 2013). We would like to deepen the understanding on this issue by examining the effect of autonomy in each domain of personnel policy. We administered a school leader questionnaire with 50 school leaders in 26 senior secondary schools to determine the level of autonomy gap in autonomy in hiring and firing teachers, teacher evaluation and teacher salary. The results indicated the autonomy gap existed in all domains of personnel policy, and was remarkably large in hiring, firing, and salary, showing that in general school leaders feel a deficiency of the autonomy in personnel policy.

The aim of Chapter 5 was to explore the influence of the autonomy gap on school organization and teachers through a holistic perspective. Therefore, we included all domains of school policy, namely school vision, curriculum, student enrolment, funds (raise, use), and personnel policy (hiring, firing, evaluation, salary). Three levels of autonomy gap (small, medium and large) were identified, and were used to categorize schools into three groups. We administered a school leader questionnaires in 26 schools. In total 48 school leaders' questionnaires were valid. The results showed that most school leaders expected a relatively high level of autonomy, but also possessed different perceptions of the autonomy. Even under similar external environments, they perceived the given autonomy differently, which confirmed the research of Verhoest et al (2004).

The relation between autonomy gap and school leadership was examined in studies in Chapter 3, 4 and 5. More specifically, the relationship between school leaders' autonomy gap and their self-rated transformational leadership and the capacity to cope with change has been explored in Chapter 3. In addition, the relations between the autonomy gap and teacher-rated transformational leadership and the capacity to cope with change was explored in Chapter 3. In Chapter 4, the correlation between instructional, transformational leadership and autonomy in personnel policy was checked. In Chapter 5, school leaders' instructional and transformational leadership were compared among schools with different levels of autonomy gap.

In Chapter 3 we first checked the relationship between school leaders' perceptions of the autonomy gap, their self-rated transformational leadership and the capacity to cope with change. In general, school leaders who perceived a small autonomy gap tend to rate their transformational leadership and their capacity to cope with change at a lower level. Our results are in line with previous research (Beck & Murphy, 1998; Herold et al., 2008). In addition, the results from the interviews indicated that the school leaders with different perceptions of autonomy gap may differ in their leadership behaviour. Principals who reported a larger autonomy gap tended to have a stronger transformational leadership and a stronger capacity to cope with change according to the teachers. Our case study, in which three schools were analysed more in depth, provided further information of how stronger leadership could overcome the constraints imposed by contextual factors. Constrained by similar external limitations, two principals in the case study perceived the autonomy gap, and their own leadership completely different. One principal perceived a large autonomy gap and a stronger self-rated coping with change and transformational leadership, and responded to the policy change in a dynamic way with a positive attitude. The other principal perceived a small autonomy gap, showed pessimism about the reform because he believed the reform relied on unchangeable external conditions.

In the study in Chapter 4 we explored the correlation between autonomy gap in personnel policy, instructional and transformational leadership. The results also indicated a close relationship between the autonomy in hiring teachers, firing teachers and salary and both instructional and transformational leadership. In schools where teachers perceived their principal possessing stronger instructional leadership and transformational leadership, the school leaders tended to report a larger autonomy gap in hiring, salary and firing. These results indicate school leaders perceiving a larger autonomy gap tend to have a stronger motivation to lead school change. Therefore,

they probably have a higher possibility to be frustrated in the amount of autonomy they are given to implement these changes at school. Further explanations are provided in the section “General reflection on school autonomy reform in China”.

Similar results were also found in the study reported in Chapter 5. We divided the schools into different groups based on the levels of autonomy gap reported by school leaders. The results from ANOVA indicated that the school leaders with stronger instructional and transformational leadership tended to experience a larger autonomy gap in general. In contrast, school leaders with a weaker leadership tended to be satisfied with the current autonomy they were given and reported a smaller autonomy gap.

Our results echo Adamowski’s study (2007) in which most of the school leaders who perceived themselves as middle managers, rather than entrepreneurs, were satisfied with the limited autonomy, and tended to work within the given policy frame instead of leading tremendous school changes. In contrast, school leaders yearning to be dynamic leaders tended to report a larger autonomy gap and lead the school reforms actively. In addition, Beck and Murphy’s (1998) research supports these linkages. In their study some school leaders experiencing school autonomy reform reported stress about their role, as they felt more likely to be blamed for failures than they were under a centralized structure.

To conclude, the exploration on autonomy gap and the relation between this gap and leadership confirmed the importance of the school leader in school autonomy implementation from two perspectives. First, their perceptions are linked to their self-evaluation of their leadership, which also reflects on their leadership behaviour. Second, their perceptions of the autonomy gap are closely related to their leadership behaviour.

Research objective 3 (RO3) is to examine how the school autonomy gap and school leadership styles are related to teachers’ job satisfaction and organizational commitment.

As indicated in the introductory chapter, there is a need for empirical studies that explore the effect of school autonomy reform on teachers’ organizational outcomes (Nir, 2002). In this dissertation different models were designed to explore the relation between explanatory variables and teachers’ organizational outcomes.

In Chapter 4 we mainly focused on the effects of autonomy in personnel policy on teachers' organizational commitment. We hypothesized that the autonomy in personnel policy can directly shape teachers' work conditions, and may consequently influence teachers' organizational outcomes. We used multilevel-analysis to explore the relations between autonomy gap in the four domains of personnel policy, principal instructional and transformational leadership, teachers' self-efficacy and their organizational commitment, while taking the contextual factors into account. The results suggested that the teachers in Chinese senior secondary schools were generally committed to the school (mean = 4.22). The results from multilevel analysis indicated the explanatory variables significantly estimated teachers' organizational commitment. In particular, compared with other domains, the autonomy gap in salary was significantly related to the level of teachers' organizational commitment. This result echoes the previous studies claiming that pay satisfaction has correlated positively with organizational commitment (Dulebohn & Martocchio, 1998; Vandenberghe & Tremblay, 2008). In addition, Liu and Onwuegbuzie (2012) found that Chinese teachers' satisfaction is higher in schools with more available welfare for teachers and paying salary more on-time. Similar conclusions have been drawn by Li (1986), Liu and Onwuegbuzie's studies (2012). In Chapter 5 we focused on how school autonomy gap and principal leadership affect a series of organizational and teacher variables. The ANOVA analysis showed that in schools where school leaders perceive a larger autonomy gap in general, teachers tended to be more satisfied and committed.

Our results showed a significant role of school leadership in shaping teachers' organizational outcomes under the school autonomy reform. Firstly, based on the multi-level analysis in the study described in Chapter 4, we found that instructional and transformational leadership presented a significant influence on teachers' organizational commitment. In addition, the test of the SEM model in Chapter 5 demonstrated a strong positive relation between instructional, transformational leadership and teachers' job satisfaction and organizational commitment. Moreover, the influence of leadership may buffer the relation between autonomy gap in personnel policy and teachers' organizational commitment. For example, Chapter 4 found a significant effect of autonomy gap in salary on teachers' organizational commitment. However, this effect was reduced - although still significant - when principal leadership was taken into account. In other words, school leaders' perception of autonomy gap in salary is less influential in teachers' organizational commitment compared with leadership. Similarly, a significant effect of autonomy gap in hiring teachers on teachers' organizational commitment was found. However, this effect

became non-significant when leadership had been taken into account. This may be due to the high correlation between the autonomy gap in hiring teachers and principal leadership constructs. Principals with stronger leadership have a clear school vision, and might desire a stronger say in deciding teacher employment based on the school's specific demands.

Our results support the perspective combining both instructional and transformational leadership, which is in line with previous studies (Beck & Murphy, 1998; Bush, 2014). Both instructional and transformational leadership were found to have a significant influence on teachers' outcomes. Moreover, our results further demonstrated these two leadership styles were different in its effects on teachers' organizational commitment. In Chapter 5 the results of multiple group comparison demonstrated the difference in the paths between two types of leadership and school climate. For one thing, the influence of transformational leadership on school climate in schools with a large autonomy gap is significantly stronger than that in schools with a medium and small autonomy gap. For another thing, the effect of instructional leadership on school climate in schools with a large autonomy gap is weaker than that in schools with a small and medium autonomy gap. These results showed that in schools with a larger autonomy gap, school principals presented a stronger transformational leadership to improve school climate, and consequently enhanced teachers' self-efficacy, job satisfaction and organizational commitment. The results highlight the potential role of transformational leadership in developing teachers' organizational commitment under a school autonomy reform.

The results also confirmed the importance of other explanatory variables at the organizational and the individual level. School climate was explored in Chapter 5 as a crucial organizational factor mediating principal leadership and teachers' organizational outcomes. Our results confirmed that principal instructional and transformational leadership had significant impacts on school climate, and meanwhile, school climate positively influenced teachers' job satisfaction and organizational commitment both directly and indirectly. Teachers' self-efficacy was significantly related to teachers' organizational outcomes in both studies in Chapter 4 and 5. Teachers with a higher level of self-efficacy were more committed to the school and tended to possess a higher level of job satisfaction, which is in line with previous research (Bogler & Somech, 2004).

Teacher autonomy is another factor at the teachers' individual level, which was examined in the study reported in Chapter 5. However, we did not find a significant

relation between teacher autonomy and their job satisfaction or organizational commitment. Teacher autonomy was only significantly influenced by teachers' self-efficacy, not by school climate. In addition, the ANOVA analysis results also confirmed there was no significant variance in teachers' autonomy among schools with different levels of autonomy gap. As the variation in teacher autonomy is relatively high, teacher autonomy might represent a very individual feeling. Considering the Chinese context in terms of the overwhelming pressure from the exam-oriented assessment system, Chinese teachers may be reluctant to innovate even they are given autonomy. In this regard, the increase of teachers' autonomy would not lead to an improvement of job satisfaction or organizational commitment.

We examined the influence of two contextual factors on teachers' organizational outcomes, namely the level of economic development and school reputation. In the first qualitative study described in Chapter 2, we found that the level of economic development and school reputation were two important contextual characteristics that can shape schools' resources availability and confine schools' choices in autonomy implementation. However, when we explore the relations between school reputation, the level of economic development and teachers' organizational outcomes, we found that they were not significant antecedents. Our results suggest that the stronger role of principal leadership in shaping teachers' organizational commitment might be an explanation. Compared to these contextual characteristics at the organization level, principal leadership presents a more direct and significant influence on teachers' organizational commitment. This is also explained by Sargent and Hannum's study (2005), in which they found teachers were more satisfied in schools with an organizational climate characterized by experienced leadership that fosters personal and professional advancement and collegial collaboration, while availability of school resources played a less important role in this setting.

General reflection on the school autonomy reform in China

The general purpose of this dissertation was to put forward the research on school autonomy reform. In the introductory chapter, we explained the ambiguous results of the effect of increased autonomy on schools (Leithwood & Menzies, 1998b). Existing literature has found the influence of this reform varies among different domains and diverse contexts. For example, though the autonomy in teaching and learning has been considered to have a positive influence on students' performance (Hanushek et al.,

2013), Shin, Slater and Backhoff (2012) examined the data from PISA, and found that in Mexico and the United States the relation between school autonomy in teaching and learning and students' performance was negative, which was "not easily explained". Many research has argued that the autonomy itself is not an end, and more attention should be paid on the role of school leaders on local implementation and the effects of this reform on teachers (Arunatilake & Jayawardena, 2010; Honig & Rainey, 2011; Mok, 2003; Nir, 2002). To this end, we investigated how school leaders' perceived the current school autonomy reform, and the relations between school autonomy, school leadership and teachers' organizational outcomes.

In this general discussion we would like to reflect on the following important themes: 1) What is the value of school autonomy gap perceived by school leaders? 2) Do contextual factors matter in school autonomy reform in China? 3) How to understand the role of school leader in autonomy implementation?

The value of school autonomy gap

There are different ways to measure school autonomy. The first approach defines autonomy from an organizational perspective. For example, Hanson (1998) defined three types of educational decentralization: decentralization transfers only tasks, delegation involves decision-making authority, and devolution transfers the full authority to an autonomous unit. This perspective was often adopted by earlier research examining the effect of increased autonomy on students' performance by comparing traditional public schools and autonomous schools (Gawlik, 2007). This perspective neglects the perception of school leaders - the key stakeholder in autonomy implementation at the local level. Recent research increasingly adopted school leaders' perception to measure school autonomy (Eurydice, 2007; OECD, 2011). In a school setting, this perspective focuses on how school leaders "perceive" the school environment in terms of how much decision making power the schools are given by the government (Maslowski et al., 2007). The second approach takes autonomy as an inherent psychological need, describing how much autonomy a person prefers. The concept of need for autonomy in Self-Determination Theory has been found significantly linked to individual's intrinsic motivation, attitude, and performance (Deci & Ryan, 1985, 2008; Van den Broeck et al., 2010; Van Yperen et al., 2014). This represents the extent of decision-making power school leaders "prefer" to have in order to achieve the goal of school development.

The difference between school leaders' perceived and preferred autonomy defines the concept of autonomy gap. It is assumed when the work environment meets people's individual needs, they are more motivated and perform best. For example, Meyerson's research found that the autonomy gap reported by intern doctors jeopardized the performance for independent practice (Meyerson et al., 2014). Adamowski, Therriault, and Cavanna (2007) demonstrated the salient autonomy gaps reported by school leaders are the barriers to effective leadership. Adamson's study compared the autonomy in charter, public and private schools, and found the autonomy gap in certain areas hindered the school development (Adamson, 2012).

In this dissertation we examined the concept of school autonomy gap from various ways. On the one hand, we explored the autonomy gap at both an individual and an organizational level. On the other hand, we examined different domains of the autonomy gap. The specific method was selected to serve the purpose of each study. The purpose of the study described in Chapter 3 was to examine the relation of school leaders' perception of autonomy gap and their self-rated leadership. Therefore, school leaders' perception of autonomy gap was analysed at an individual level in Chapter 3. In Chapter 4 and 5, we mainly focused on whether and how this gap could influence teacher outcomes. Therefore, the autonomy gap reported by several school leaders in each school was aggregated and was used as a school characteristic in the analysis. In this regard, in Chapter 4 and 5 this gap was analysed from a collective perspective of the school leaders. In addition, we also examined the effects of school autonomy gap by various domains. The aim of Chapter 3 was to gain a general picture of school leaders' perception and preference of school autonomy in different domains, and consequently the autonomy gap was analysed separately by domain. In Chapter 4 we mainly focused on personnel policy, considering the autonomy in this domain has a close relation with teacher outcomes. In Chapter 5, we divided schools into three groups based on school leaders' general perceptions of autonomy gap, and compared research variables between groups. In this regard, all domains of autonomy gap were included, namely school vision, curriculum, student enrolment, funds (raise, use), and personnel policy (hiring, firing, evaluation, salary). By doing so, we examined the autonomy gap through a general integrated perspective in Chapter 5.

Our results demonstrated the importance of school leaders' perceptions of autonomy gap. The findings across all studies confirmed the general existence of this gap in senior secondary schools in China. This finding is not surprising in the Chinese context characterized by the long-run centralized education system. Our results further

showed the high heterogeneity in school leaders' perceptions towards school autonomy, which is in line with Verhoest's findings (2004).

As for the autonomy gap in different domains, our results indicated that student enrolment, teacher hiring and teacher salary were three domains with the largest autonomy gap reported by school leaders. In addition, though school leaders reported that the level of economic development confine schools' fiscal resource availability, they tended to be reluctant to require more autonomy in raising funds. Therefore, the autonomy gap in raising funds was at a medium level compared with that in other domains. In contrast, the autonomy gap in teacher evaluation, curriculum and vision were three smallest gaps among different domains of autonomy gap.

To conclude, our findings confirmed the necessity to take school leaders' preference of autonomy into account because not all school leaders embraced the increased autonomy. We found that some school leaders perceiving limited autonomy looked forward to more autonomy in certain school policy domains, while some others were satisfied with the current policy arrangements and reported a weaker demand for more decision making power. School leadership was found to play a tremendous role in overcoming external environmental challenges and lead to successful autonomy reform. For example, to address the concerns of the quality and the shortage of teachers, school leaders with strong leadership would instruct, encourage and support teachers in their teaching practices and professional development, cultivate a positive school climate, lead the school changes, enhance teachers' self-efficacy, and consequently improve the quality of teachers and their commitment. The role of leadership in school autonomy reform is further discussed later in this section.

A Chinese context of the school autonomy reform

School autonomy is influenced by the characteristics of the educational system, and has to be understood in the school context. Our research took place in China. In particular, we focused on public senior secondary schools. In this dissertation we mainly took two contextual factors into account: the level of economic development and school reputation (Chen, 2010; Liu et al., 2016; Liu & Onwuegbuzie, 2012).

As described earlier, there is a regional economic disparity in the educational system in China. Schools located in developed areas have benefited more from the rapid growth than their counterparts (Ngok, 2007). Schools in undeveloped areas, however, face difficulties to recruit and retain certified teachers (Sargent & Hannum, 2005). Therefore, the level of economic development could influence school leaders'

perception of autonomy. School reputation is another idiosyncratic contextual characteristic of the Chinese educational system. Chinese schools with a higher reputation tend to enjoy additional resources (Liu & Onwuegbuzie, 2012; OECD, 2010). As these schools are attractive in the teacher labour market, they often set higher hiring requirements, and also pay a higher salary than ordinary schools do (Liu et al., 2016). Therefore, school reputation could also play a role in shaping school leaders' perception of autonomy.

In the first study described in Chapter 2, we found the school reputation and the level of economic development were important in defining the initial autonomy policy environment and to some extent in confining schools' choices in autonomy implementation. In the study in Chapter 3 some school leaders we interviewed also attributed the constraints of insufficient resources and limited students' capacity to these contextual factors. However, we found that the autonomy gap was neither linked to the level of economic development, nor to the school reputation in the survey of school leaders in Chapter 3. In addition, in the study reported in Chapter 4, the level of economic development and school reputation were not significantly antecedents of teachers' organizational commitment.

Do these contextual factors matter? Our results imply that the answer to this question is not a simple yes or no. We believe these contextual factors play a crucial role in defining the external environment of a school. For one thing, the economic disparity has been a key issue facing China's educational policy following the open-door policy since 1979. This disparity exists not only between the eastern, the middle and the western area, but even within a city (Ngok, 2007). This remarkable disparity is unavoidable in research on the Chinese educational system. Second, schools' external conditions can greatly attribute to contextual factors. Schools in similar external environments tend to face similar challenges and share similar experiences. However, we also would like to note that the role of contextual factors in actual autonomy implementation, in particular in influencing teachers' outcomes, should not be exaggerated. Our results have demonstrated the role of school leaders is more important in autonomy implementation at the school level. For one thing, school leaders' perception of school autonomy reflected their willingness to wield the leadership to use the autonomy to improve the school. For another thing, school leadership has showed tremendous influence on school organization and teachers' organizational outcomes. We have observed strong leadership in demonstrative schools in developed areas and also in non-demonstrative schools in undeveloped

areas. Teachers' organizational outcomes were significantly influenced by leadership, but presented no systematic difference among schools with different levels of economic development or reputation. This is confirmed by Ke's research comparing the leadership between demonstrative and non-demonstrative schools. No difference was found between the two categories (Ke, 2016). In the following paragraphs the role of the school leader is further discussed.

The role of school leadership in autonomy reform

To reduce the autonomy gap, research points at school leadership (Adamowski et al., 2007; Adamson, 2012). Our research found a close relationship between school leaders' perceptions and their leadership as perceived by themselves and by the teachers. In general school leaders with strong leadership seem less satisfied with the current level of autonomy and expect more say. They also seem more confident with their leadership, indicating a capability and willingness to use the extra autonomy to improve their school. In contrast, school leaders with weaker leadership appear satisfied with the autonomy they have. They relatively rated their own leadership lower, showing less confidence and willingness to extra responsibility. Our results are in line with Beck and Murphy's research (1998) that some school leaders preferred the traditional centralized structure and felt stressful under the school autonomy reform due to their fear of being blamed for failures. Some school leaders with weaker leadership felt like abdicating responsibility and welcomed structured and procedural modes of managing (Beck & Murphy, 1998). Our findings also indicate that teachers are more satisfied and committed to work in schools lead by school leaders with strong leadership, who can improve the school climate, cope with change, keep a balance between centrally defined requirements and their own local school vision. In particular, teachers are more committed in schools where the school leaders care about teachers' payment and prefer more autonomy in teacher salary. As Sargent and Hannum have pointed, the educational decentralization in China led to the late payment and underpayment of teachers' salaries in some undeveloped areas (Sargent & Hannum, 2005). They argued that the reliability of salary payment may be even more important than the amount of the salary itself in the Chinese context. In this regard, principal leadership may buffer the influence of organizational characteristics of the workplace on school organization and teachers' outcomes. Our results also echo the findings of Devos and Bouckenooghe (2009) who provided a starting point to frame these particular school leaders' conceptions of their role. They identified three types of school leader profiles: the "people - minded profile", the "administrative -

mindful profile” and the “moderate - minded profile”. People-minded principals present the key characteristic of transformational leadership focusing on setting directions, developing people and redesigning the organization (Geijsel et al., 2003). In contrast, administrative-minded principals mainly focus on administrative affairs, report a lack of time to invest in the relationship with teachers, and are less capable to translate school goals into concrete plans. In Adamson’s research, principals coined the term “earned autonomy” to establish the connection between extra autonomy and leadership. They felt that autonomy must be earned through strong leadership involving developing skills and abilities of others, valuing others’ opinions and input, and earning the trust of teachers and governments. This earned autonomy would consequently reduce the autonomy gap (Adamson, 2012).

In conclusion, our findings across all studies endorse the importance of school leadership in school autonomy reform implementation at the school level. We believe that to improve school leadership would be a pathway to close the autonomy gap. Chen and Ke have claimed that the leadership of school change is even more difficult for Chinese principals (Chen & Ke, 2014). They proposed an explanation for this claim from three perspectives. From a regulative aspect, principals are expected to act as agency of the governments under the trend of “re-centralization”, because principals’ appointment is controlled by the government. From a normative aspect, the core tasks of Chinese principals are to attract resources from the governments and to maintain a good relationship with them. From the cognitive aspect, the conformism and uncertainty avoidance of the Chinese education system make the teachers passive and obedient (Law, 2012; Tan & Dimmock, 2014; Yin, 2013). Without teachers’ participation the school change will not last long (Chen & Ke, 2014). In this regard, our results have provided some promising evidence that even for Chinese principals they can make a difference at the school level with their strong leadership, as we have observed in our study, and the strategies illustrated in Chapter 2 helped these disadvantageous schools to overcome the difficulties and improve school effectiveness.

Limitations

This dissertation tries to provide new insights of the ongoing discussion regarding the school autonomy reform in China. Although we believe that our studies have an addition to both the school autonomy literature and leadership literature, some

limitations of these studies should be noticed. In this regard, the limitations related to research variables, samples, methodology and results are discussed. In addition, some suggestions are provided for future research.

Limitations related to the research variables

As indicated in Chapter 3, the gap between perceived and preferred autonomy has an impact on an individual's well-being, which will consequently influence work attitude and performance (Sheldon & Bettencourt, 2002; Van den Broeck et al., 2010; Van Yperen et al., 2014, 2016). In this regard, to study school leaders' well-being is important in understanding the school reform (Engels, Hotton, Devos, Bouckenoghe, & Aelterman, 2008). However, we only examined school leaders' self-rated leadership and have not included school leaders' well-being variables. Therefore, the link between school leaders' well-being and the effects of this reform and/or teachers' organizational outcomes cannot be examined in this dissertation. Because this dissertation took teachers' organizational outcomes as dependent variables, rather than school leaders' well-being, we argue it was beyond the dissertation to investigate these variables. However, we do recognize the importance to examine school leaders' well-being under the school autonomy reform, and suggest future research to take this important variable into account.

A second limitation related to research variables concerns the leadership model. We focused on school leaders' instructional and transformational leadership, as well as their capacity to cope with change. In particular, the instructional and transformational leadership model are often adopted by western literature (Bush, 2014; Day et al., 2016). Our results have confirmed that both these two leadership styles are important in a Chinese context. However, an exploration of related leadership variables focusing on a Chinese context could be useful. We hereby suggest taking moral leadership into account. Keddie' research explored the equity and diversity issues under a school autonomy reform, and demonstrated the significance of moral leadership to help reduce inequality and facilitate school collaboration (Keddie, 2015). Moreover, moral leadership is considered important in China as the government appoints school leaders partly based on their demonstrated moral conduct (Law, 2012). Future research could integrate moral leadership into the model to gain a deeper understanding about this reform in China.

A third limitation related to research variables concerns the teachers' outcomes. In this dissertation we mainly focused on teachers' job satisfaction and organizational

commitment, as these variables have been regarded as two important school organizational outcomes (Dee et al., 2006; Leithwood & Menzies, 1998a; Skaalvik & Skaalvik, 2009). However, several authors also suggested some other important teacher variables should be taken into account, including teachers' professional learning communities, collective efficacy, and teachers' motivation (Qian & Walker, 2013; Ross & Gray, 2006; Skaalvik & Skaalvik, 2010). Empirical research is needed to further explore the relation between school autonomy and these variables.

Limitations related to the sample

All studies in this dissertation were conducted solely in Chinese senior secondary schools. As explained in Chapter 2 we situated our studies in senior secondary schools for two reasons. For one thing, senior secondary schools used to enjoy a relatively higher degree of autonomy before the year of 2000, but now face challenges under the trend of "re-centralization" (Hawkins 2000; Ornelas 2000; Arnove et al. 2003; Tsang 2003; Painter and Mok 2008; Zhao 2009). For another thing, these schools have been continuously facing contradictory demands. They are expected to change the exam-orientation required by the "New Curriculum Reform", and meanwhile they are still evaluated by the public and the governments on their school academic performance (Dello-Iacovo, 2009). Senior secondary schools leaders' hands actually have been tied tightly. In this regard, empirical research at this educational level is urgently needed to address these challenges. However, the policy environments concerning school autonomy in primary and junior secondary schools are different from senior secondary schools. Consequently, our findings cannot be generalized to other educational levels. Moreover, the specific national policy context might have affected the results of our studies. Due to the idiosyncratic characteristic of the educational system and the culture differences, our findings might not be applicable in other political and cultural contexts. Further analysis is needed to verify whether our results can be applied in different conditions.

Another limitation concerns the small sample size in specific studies. For example, the qualitative study in Chapter 2 was based on 12 interviews with school leaders. In addition, the study in Chapter 3 was based on 60 school leaders for the questionnaire and 10 schools in two cities for the interviews. Given the nature of the research group, the sample size of the leadership research is often small. We suggest future studies to be conducted with a larger sample size.

In addition, we only selected schools from different areas based on the level of economic development. The difference between rural and urban schools was not considered in our research. This is because the number of senior secondary schools located in rural areas is rather small. In 2013 when our main studies were conducted, the number of senior secondary schools of the whole China was 13,352, including 708 rural senior secondary schools in total. In addition, the level of economic development is probably too broad in describing the schools' resources availability. Therefore, further studies could use other variables, like for example, the school's socio-economic student population, to address this limitation.

The third limitation is that the studies did not involve local governors. Previous research stated that the core tasks of Chinese principals include maintaining the relationship with government and attracting sufficient funds from the governments (Chen & Ke, 2014). The relation between school leaders and local governments may also play a role in autonomy implementation. Therefore, to include the local governors' perspective would enrich the knowledge of school autonomy reform in China.

Limitations related to methodology

In this dissertation, we used both quantitative and qualitative methods. There are methodological limitations related to the methods need to be addressed.

One limitation is that the survey data of our studies were collected from the participants at one point in time. Hallinger and Heck (2010) stated that leadership is a reciprocal dynamic relationship aggregated into phenomenon in time. Therefore, we suggest longitudinal study would be valuable for the school autonomy literature.

Another limitation concerns the quantitative methods used in our studies. As the structural equation modelling and multilevel regression were used, we should interpret the results carefully, in particular we should not interpret the results as causal relations.

In addition, one limitation is related to the single source character of the teacher variables, which were mostly measured through teacher self-report data. We did try to include more data sources in our studies. For example, in Chapter 3 we examined school leaders' self-rated leadership as well as teacher-rated leadership, and also interviewed both school leaders and teachers. In addition, we linked the autonomy gap perceived by school leaders and school leadership reported by teachers in Chapter 4

and 5. However, the limitation of single-sources of teacher variables should be taken into account. In this regard, observations and document analyses could contribute empirical evidence to this issue.

Moreover, the following limitation is associated with potential social desirability bias in responses. First, Chinese school leaders may tend to misreport their true feelings about school autonomy policy due to a socially desirable to respect the policy settings. Though we assured the school leaders that the responses would be treated as confidential to reduce this tendency, this limitation should be kept in mind. Second, teachers may tend to hide their feelings about their principal in group interview. We conducted group interview because it is useful to collect shared understanding when interviewees are similar to and cooperative with each other (Creswell, 2012). We did pay careful attention to formulate the interview questions about leadership without tendentiousness, and encouraged teachers' to express their feelings. However, Chinese teachers are expected to maintain positive emotions and hide the negative emotions (Yin & Lee, 2012). Moreover, the emphasis on the value of harmony may increase teachers reluctance to express their true feelings in public (Hallinger & Liu, 2016). In this regard, this limitation should be kept in mind with further contextual reflections.

Limitations related to results

The fourth subset of limitations concerns the study results. This dissertation tried to contribute the current literature of school autonomy reform in senior secondary schools in China. However, there are still unexplained results in our studies.

Our findings revealed a general small effect of autonomy gap on teachers' organizational outcomes. This implies that the school leaders' perceptions of autonomy gap only accounts for a limited portion of impact on teachers' outcomes. As our results indicated a strong relation between autonomy gap and leadership, as well as leadership and teachers' organizational commitment, future research could put effort on these relations.

According to the definition, autonomy gap describes the difference between perceived and preferred autonomy. Our results indicated that the autonomy gap is closely related to school leaders' self-rated leadership and teacher-rated leadership. However, there are still many questions unanswered by our research, like for instance, how much variance of autonomy gap is explained by leadership. Further research could be

conducted with a larger sample size and a more deliberate analysis domain by domain to address these issues.

Implications

Drawing on the data gathered in this dissertation we suggest some theoretical, methodological, policy and practical implications.

Theoretical implications

As stated earlier, school autonomy literature revealed that the effect of increased autonomy on school effectiveness is not clear. Previous studies have suggested two reasons for the ambiguous results: the fuzzy concepts and measurements of autonomy, and insufficient attention on the effect of this reform on school leaders and teachers (Brauckmann & Schwarz, 2014; Leithwood & Menzies, 1998b; OECD, 2011; Shin et al., 2012; Verhoest et al., 2004). This dissertation tried to contribute to the literature by exploring the relations among autonomy gap, leadership and teacher outcomes under a context of school autonomy reform.

The fuzzy concepts and measurements of autonomy applied in previous research have drawn ambiguous results as to the effects of autonomy on school organization. This dissertation attempts to contribute to the research field by exploring the gap between school leaders' perceived and preferred autonomy. In our studies, we first examined the school autonomy at the organizational level. In doing so, we found there is a necessity to develop the concept of school autonomy gap. We further examined the concept autonomy gap through school leaders' individual and collective perspective. In addition, given the previous studies focused on limited domains of autonomy, this dissertation tried to describe the autonomy gap from different domains. Moreover, we explored the relations between this gap and other factors related to school leaders, school organization and teachers' organizational outcomes from an empirical perspective. We provided a research-based understanding of the way autonomy gap has an impact on the school organization. As previously the impact of autonomy gap was rarely empirically explored, this is an interesting addition to the current literature.

Furthermore, most previous research concerning autonomy reform puts emphasis on its potential improvement to students' performance. We follow Beck and Murphy's view that the factors that contribute to successful reform are deeply rooted in the commitment and knowledge of school educators and parents, and more efforts should

be paid on inspiring and equipping persons at schools (Beck & Murphy, 1998). Though we admit that the ultimate goal of any education reform is to enhance students' learning and to cultivate their capacity, we contribute to the knowledge by taking a closer look at the influence of the policy on school leaders and teachers. In this dissertation we examined the relations between autonomy gap, leadership and teachers' organizational outcomes. As we stated earlier, empirical research that examines the nature and the meaning of school autonomy gap for schools is scarce. We have collected information about these relations from an autonomy gap perspective, instead of a traditional perspective neglecting school leaders' preference. We believe our research expand the existing literature by focusing on the autonomy gap in senior secondary schools in china.

Methodological implications

A main methodological strength of this dissertation is the development of a research instrument on autonomy gap. The concept of school autonomy gap is based on research of Adamowski et al (2007) and Adamson (2012). As to the domains of school autonomy, we used the structure in PISA and Eurydice's design and added teacher evaluation given the Chinese context (Eurydice, 2007; OECD, 2013). To gain a better understanding, we examined the autonomy gap in different ways, including individual and collective perspectives and various domains. In addition, the respondents regarding school autonomy gap are various as we collected data from both principals and vice principals. Chinese school leaders shared the responsibility of different leadership responsibilities (Chen & Ke, 2014). This approach increases the validity of the research findings.

Another unique feature of this dissertation is that we combined a quantitative and a qualitative approach to investigate the complex phenomenon in school autonomy reform. We mainly focused on providing a general, overall view of the relations between research variables from quantitative studies, combined with qualitative methods or a mixed method to gain some of the nuances about the autonomy gap and school leadership behaviour. In addition, we conducted multilevel analyses, taking the individual teacher level but also the school level into account. We also used structural equation modelling to test the path between factors related to school leaders, climate, teachers' individual factors and their organizational outcomes, as suggested by Geijsel et al (2003).

Moreover, we retested and validated the quantitative measure for the scales of instructional, transformational leadership, school climate, teachers' self-efficacy, teacher autonomy, their job satisfaction and organizational commitment in the Chinese context. We found that some reversed-worded items reflected relatively low factor loadings. Previous research provided a cultural explanation that appearing polite and agreeable are important social norms in Asian countries, therefore may prompt subjects for participants to agree to both positive items and reverse-worded counterparts (Johnson, 2005; Wong et al., 2003). As a consequence, we deleted some reverse-worded items in our studies.

The concept of school autonomy is complex and difficult to measure. Previous research has adopted various methods to explore school autonomy. In this dissertation, this concept was explored from different angles to serve the specific research purpose of each study. School autonomy was explored by school leaders' perception through an organizational perspective, and also through an autonomy gap perspective, combining school leaders' perception and preference. Moreover, the autonomy gap could also be explored from different perspectives. For one thing, it could be examined at the individual leader level (individual perception of a school leader), or an organizational level (collective perception of several school leaders in each school). For another thing, as the school autonomy contains different domains, the research could be designed with a focus on specific/overall domains of autonomy. To conclude, our studies do not intent to propose "the best and only" solution to measure school autonomy. Instead, given the complexity of this concept, we believe the different methods adopted in this dissertation would be useful to deepen the understanding of this issue. Through different perspectives researchers can zoom in on a specific domain, research variable or relation, and can also zoom out to gain a holistic picture. Special attention should be paid to selecting an appropriate method to better serve the research purpose.

Policy implications

The school autonomy has been emphasized in the 13th Five-Year Plan for Economic and Social Development of the People's Republic of China (Minister of Education, 2017). This policy plan highlighted the new directions of educational reform in 2016-2020, including strengthening the principal responsibility system, clarifying the responsibility and accountability, deepening the school-based management reform, setting up a well-designed enrolment system of senior secondary schools (Minister of Education,

2017). Empirical evidence is therefore needed to provide research-based information for policymakers.

Our results provide several policy implications. First, our results indicated the importance of autonomy gap reported by school leaders on autonomy implementation. Policy makers should be aware of this gap, and take school leaders' perception, school capacity and leadership all into account to facilitate successful autonomy implementation. Secondly, improving the effectiveness and efficiency of the current policy of school autonomy through well-aimed pathways are urgently needed. As a large number of studies have stressed that the reform success is highly depending on local capacity (Honig & Rainey, 2011; Mok, 2003), a set of elastic policy arrangements could be useful to keep a balance between increased responsibility and increased accountability. More specifically, governments can authorize autonomy to the school level based on school capacity and demands, accompanied by a corresponding accountability system. For schools with strong leadership, increasing autonomy combined with proper accountability could narrow the autonomy gap. For schools are less capable to implement autonomy, the governments should help them to transit from a "command-and-control" to an "autonomy- in-return-for-accountability" system (Adamowski et al., 2007).

In addition, the governments should also pay attention to school leader selection procedures. Selecting a school leader should not be a purely administrative procedure, but requires several considerations if the aim is school innovation. In addition, the governments should invest in providing training programs to school leaders to support them to use their autonomy. A successful school autonomy reform requires school leaders' stronger instructional and transformational leadership to lead the changes. Our study illustrates the potential of school leadership in order to keep a good balance among different conflicting demands and to convert the disadvantages. Therefore, professional development of school leaders is urgently needed. In this regard, principal professional development programs can be helpful to attain positive organizational outcomes.

Practical implications

Though school autonomy reform has become a hot topic in the recent years, a large body of empirical research has indicated that school autonomy is not a panacea and not an end in itself (Beck & Murphy, 1998; Leithwood & Menzies, 1998a). This

dissertation provides some practical implications for practitioners that originate from our dissertation.

First, we address the importance to take teachers' perceptions and outcomes into account when school autonomy is implemented. Though the ultimate goal of any educational reform is to improve students' learning, our research emphasized the important influence of this reform on school organization and teachers. Considering the tremendous role of teachers in influencing students, it is a necessity to pay more attention to teachers' perception and outcomes under the autonomy reform.

Second, we would like to stress the importance of school leadership. As demonstrated in our findings, both instructional leadership and transformational leadership have a strong impact on school organization and teachers' outcomes. In addition, we suggest that Chinese school leaders, and policymakers paying more attention to improve school leaders' transformational leadership. First, our results in Chapter 3 indicated that teachers have more confidence in school reform when their principals with stronger transformational leadership and knowledge to develop the school environment and encourage teachers. In addition, the results in Chapter 5 showed the transformational leadership presented a stronger positive influence on school climate when the principals reported a large autonomy gap. Moreover, the school reform agenda in China is often commandeered by the government in a top-down method, which calls for school leaders' strong transformational leadership to tailor the reform to the school context (Chen & Ke, 2014).

Third, the research focusing on autonomy in personnel policy indicates the relation of autonomy gap in teacher salary on their commitment. As we discussed in Chapter 4, educational decentralization led to the regional disparity in teacher salary. One can anticipate that late payment and low salary in some cases will undermine teachers' commitment (Sargent & Hannum, 2005). In this regard, school leaders could put more efforts into the payment system design to enhance teachers' pay satisfaction and feelings of security, and consequently improve their school commitment.

To conclude, this dissertation tried to examine the autonomy gap perceived by school leaders, and to explore the relations between this gap, school leadership and teachers' organizational outcomes in senior secondary schools in China. It may be seen as too ahead of time to investigate these issues in China, given the centralization system and conservatism culture. However, this dissertation clearly raised the concerns in understanding how this reform is currently being implemented under different school

conditions. To close the gap is an important task for education researchers, policy makers, local governors, school leaders, teachers, and the public.

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Nederlandstalige samenvatting

Dutch summary

Nederlandstalige samenvatting

De relatie tussen schoolautonomie, schoolleiderschap en organisatorische uitkomsten van leerkrachten. Een studie in de context van schoolhervorming in China

Context

De trend naar meer schoolautonomie is één van de belangrijkste trends in onderwijs van de laatste decennia (Eurydice, 2007; OECD, 2011). Deze trend wordt beschouwd als een strategie om meer verantwoordelijkheid van scholen te garanderen, schoolinnovatie en leerkrachtparticipatie te vergroten en uiteindelijk ook om de effectiviteit van scholen te verbeteren (Bogler & Somech, 2005; Briggs & Wohlstetter, 2003; Firestone & Pennell, 1993; Leithwood & Menzies, 1998b; Riehl & Sipple, 1996). De effecten van deze hervormingen op schoolniveau zijn evenwel niet eenduidig. Zo bleek er bijvoorbeeld uit de review van Leithwood en Menzies van 83 empirische studies geen solied bewijs te zijn van directe noch van indirecte effecten van deze hervorming op leerlingenprestaties (Leithwood & Menzies, 1998b). Sommige onderzoekers hebben beklemtoond dat in voorgaande studies verschillende concepten en meetmethoden van autonomie zijn gebruikt die niet consistent waren en die bovendien de individuele gevoelens van schoolleiders negeerden (Brauckmann & Schwarz, 2014; Verhoest et al., 2004). Bovendien heeft het meeste onderzoek over schoolautonomie zich tot nu toe geconcentreerd op de effecten van deze hervorming op leerlingenprestaties. Weinig aandacht is tot nu besteed aan de rol van de schoolleiders zelf en de leerkrachten in deze hervorming (Leithwood & Menzies, 1998b; OECD, 2011; Shin et al., 2012). Daarnaast dient ook opgemerkt te worden dat een toename in schoolautonomie in verschillende domeinen kan resulteren in diverse effecten op de schoolorganisatie of de uitkomsten van leerkrachten (Maslowski et al., 2007).

Dit proefschrift beoogt bij te dragen tot dit debat door de analyse van de hervorming inzake schoolautonomie in China. De recente introductie van een grotere schoolautonomie in China's gecentraliseerde cultuur creëert een unieke uitdaging.

Onderzoeksdoelen en -methode

Het algemeen doel van deze dissertatie is inzicht te verwerven in de perceptie en de reactie van schoolleiders op de hervorming inzake schoolautonomie en hoe dit de uitkomsten van leerkrachten beïnvloedt. Dit doel omvat drie onderzoeksdoelen.

Onderzoeksdoel 1 (OD1) is de perceptie van schoolleiders te meten omtrent hun schoolautonomie vanuit een organisatorisch perspectief.

Onderzoeksdoel 2 (OD2) is de schoolautonomie-kloof te onderzoeken en de relatie tussen deze kloof en schoolleiderschap.

Onderzoeksdoel 3 (OD3) is te onderzoeken hoe de schoolautonomie-kloof en stijlen van schoolleiderschap gerelateerd zijn aan de jobtevredenheid en de organisatorische betrokkenheid van leerkrachten.

In dit proefschrift zijn zowel kwantitatieve als kwalitatieve methoden gebruikt. De resultaten van deze verschillende analyses worden gepresenteerd in twee kwantitatieve studies, één kwalitatieve studie en één mixed-method studie.

Om het eerste onderzoeksdoel te bereiken, exploreerde hoofdstuk 2 de percepties van schoolleiders omtrent hun schoolautonomie vanuit een organisatorisch perspectief. Uit interviews met 12 schoolleiders bleek dat er een opvallende kloof is tussen de autonomie die zij percipiëren en de autonomie die zij wensen. Dit leidde tot het besluit om deze autonomie-kloof systematisch te meten in de volgende studies.

Het tweede onderzoeksdoel beoogt te onderzoeken in hoeverre deze kloof inzake schoolautonomie gerelateerd is aan schoolleiderschap. Hoofdstuk 3 gebruikte hiervoor een mixed-method aanpak om de schoolautonomie-kloof in verschillende beleidsdomeinen in kaart te brengen en de relatie te onderzoeken met de zelfperceptie van het individueel leiderschap van schoolhoofden en hun leiderschapsgedrag. We verzamelden hiervoor survey-data bij schoolleiders (N=50) en leerkrachten (N=128), en interviewden 10 schoolleiders en 50 leerkrachten. In hoofdstuk 4 en 5 werd de kloof inzake schoolautonomie geanalyseerd vanuit het collectief perspectief van de schoolleiders in de betrokken scholen. De data werden verzameld via een vragenlijst voor schoolleiders (N=50 in hoofdstuk 4; N=48 in hoofdstuk 5) en een vragenlijst voor de leerkrachten (N=472). Hoofdstuk 4 was

gefocusd op de autonomie inzake personeelsbeleid. Hoofdstuk 5 was gericht op het gehele schoolbeleid en omvatte alle domeinen van het schoolbeleid.

Het derde onderzoeksdoel wordt aangepakt in de twee studies van hoofdstuk 4 en 5. Hoofdstuk 4 onderzocht de relatie tussen de kloof inzake schoolautonomie in de diverse domeinen van het personeelsbeleid, schoolleiderschap en leerkrachttuitkomsten. Daarmee werd de directe invloed van schoolleiders op leerkrachten in kaart gebracht. In dit hoofdstuk concentreerden we ons op het personeelsbeleid omdat uit eerder onderzoek blijkt dat dit domein het meest invloed heeft op leerkrachttuitkomsten. Hiervoor werd een multilevel regressie-analyse uitgevoerd. In de studie in hoofdstuk 5 werd een structural equation model getoetst. We onderzochten de relatie tussen de autonomie-kloof, het schoolklimaat en leerkrachttuitkomsten met een focus op de indirecte invloed van schoolleiders op leerkrachten. Een model werd ontwikkeld om de relaties te bepalen tussen de leiderschapsstijlen van de schoolhoofden en de jobtevredenheid en de organisatorische betrokkenheid van leerkrachten via mediërende variabelen op zowel organisatie- als individueel niveau. Er werd een multiple-groep vergelijking gebruikt om de relevantie van de kloof inzake schoolautonomie in dit proces te meten.

Overzicht van de resultaten

School autonomie vanuit een organisatie-perspectief (OD1)

In lijn met voorgaande studies bevestigden onze resultaten (Hawkins, 2006) de recente trend van re-centralisatie in de hervorming inzake schoolautonomie in het hoger secundair onderwijs in China. Meer in het bijzonder gaven de geïnterviewde schoolleiders aan dat sinds 2000 de bevoegdheid inzake financiën en personeel voor een groot deel weer terug toegewezen is aan de lokale overheid. Bovendien duiden onze onderzoeksresultaten aan dat de terugname van schoolautonomie niet alleen een eenvoudige overdracht van macht is, maar ook een beleid met het doel de ongelijkheid tussen scholen inzake de verantwoordelijkheid door de toegenomen autonomie te verminderen. Door de trend tot “re-centralisatie” wilden de lokale overheden de tekorten van de marktwerking wegwerken en de verantwoordelijkheid van de overheden herstructureren.

Schoolautonomie-kloof en schoolleiderschap (OD2)

Zoals ook eerdere studies reeds vaststelden (Adamowski et al., 2007; Adamson, 2012), bleek uit onze resultaten een opvallende kloof te bestaan tussen de gepercipieerde schoolautonomie door schoolleiders en hun gewenste schoolautonomie. Deze kloof verschilde naargelang het beleidsdomein. De grootste kloof werd vastgesteld inzake de inschrijving van studenten en het salaris van leerkrachten. Deze kloof verschilde echter niet significant naargelang het niveau van economische ontwikkeling van de scholen of de lokale reputatie van de scholen. In China hebben sommige scholen namelijk de reputatie van 'demonstratie-school'. Deze reputatie zorgt er voor dat zij meer middelen toegewezen krijgen door de (lokale) overheid. Een mogelijke verklaring voor het uitblijven van een significant verband tussen deze contextfactoren en de kloof inzake autonomie, is dat hoewel deze contextfactoren een invloed kunnen uitoefenen op de beschikbaarheid van de middelen van de scholen, de individuele voorkeur voor autonomie van de schoolleiders en hun leiderschap deze invloed van de contextfactoren kunnen bufferen.

De onderzoeksresultaten bevestigen tevens de sterke relatie tussen de kloof inzake autonomie en het schoolleiderschap. De relatie van de autonomie-kloof was sterk zowel met de eigen perceptie van schoolleiders over hun schoolleiderschap als de perceptie van leerkrachten omtrent hun schoolleiderschap. In het algemeen kan gesteld worden dat de schoolleiders met een sterker onderwijskundig en transformationeel leiderschap ook een grotere kloof inzake autonomie ervaarden. Aan de andere kant toonden schoolleiders met een zwakker leiderschap zich meer tevreden met hun huidige autonomie en rapporteerden zij een kleinere kloof inzake schoolautonomie. Onze resultaten komen in dit opzicht sterk overeen met de resultaten van Adamowski's studie en met het onderzoek van Beck en Murphy (Adamowski et al., 2007; Beck & Murphy, 1998).

De kloof inzake schoolautonomie, stijlen van schoolleiderschap en organisatorische uitkomsten van leerkrachten (OD3)

In ons onderzoek stelden we vast dat de kloof inzake schoolautonomie betreffende het salaris van leerkrachten significant gerelateerd was met de organisatorische betrokkenheid van leerkrachten. Deze conclusie ligt ook in de lijn van eerdere studies (Dulebohn & Martocchio, 1998; Vandenbergh & Tremblay, 2008). Onze resultaten duiden ook aan dat in scholen waar schoolleiders een grotere kloof percipieerden inzake schoolautonomie, de leerkrachten meer tevreden waren en meer betrokken in

de school. Onze bevindingen toonden ook dat er een significante relatie is tussen onderwijskundig en transformationeel leiderschap en de jobtevredenheid en de organisatorische betrokkenheid van leerkrachten. Van de twee leiderschapstijlen had transformationeel leiderschap de sterkste invloed op de organisatorische uitkomsten van de leerkrachten. De resultaten bevestigden ook de positieve relatie tussen schoolklimaat en de doelmatigheid van leerkrachten en hun organisatorische uitkomsten. De autonomie van de leerkrachten, het niveau van economische ontwikkeling van de schoolomgeving en de schoolreputatie waren evenwel niet significant gerelateerd aan de organisatorische uitkomsten van de leerkrachten. De autonomie van leerkrachten kan mogelijks sterk door individuele kenmerken van de leerkrachten bepaald worden. Eerder stelden we reeds dat schoolleiderschap de invloed van de contextfactoren van de school kan bufferen. Onze onderzoeksresultaten komen overeen met wat Sargent en Hannum reeds vaststelden (2005).

Algemeen besluit

Het algemeen doel van dit proefschrift was een bijdrage te leveren tot het onderzoek inzake de hervormingen omtrent schoolautonomie. Uit onze verschillende studies bleek telkens dat er een schoolautonomie-kloof bestaat in scholen van het hoger secundair onderwijs in China. Onze onderzoeksresultaten toonden dat de drie beleidsdomeinen met de grootste schoolautonomie-kloof die schoolleiders aangeven, de inschrijving van studenten zijn, de aanwerving van leerkrachten en het salaris van leerkrachten. De schoolleiders gaven aan dat het regionaal niveau van economische ontwikkeling de fiscale financiering van scholen beïnvloedt. Zij waren terughoudend om meer autonomie te krijgen inzake het verwerven van middelen. De autonomie-kloof was het kleinst inzake de drie domeinen van evaluatie van leerkrachten, curriculum en visie. De contextfactoren (niveau van regionale economische ontwikkeling en reputatie van de school) spelen een cruciale rol inzake de externe omgeving van de scholen, maar hun impact inzake de implementatie van schoolautonomie, en meer in het bijzonder in de beïnvloeding van leerkrachtuitkomsten, is beperkt. Ons onderzoek heeft aangetoond dat schoolleiders een belangrijkere rol spelen in de implementatie van schoolautonomie. Schoolleiderschap blijkt de uitdagingen van de externe omgeving (beperking inzake middelen) te kunnen overstijgen en is van meer doorslaggevend belang om schoolautonomie succesvol te implementeren.

Naast deze belangrijke onderzoeksresultaten, dienen ook een aantal beperkingen van ons onderzoek aangegeven te worden. Ons onderzoek situeerde zich in het hoger secundair onderwijs in China. Het is aangewezen vergelijkbaar onderzoek te doen in andere landen en culturen en in andere onderwijsniveaus. Onze kwalitatieve studies hadden nu een beperkt aantal cases en respondenten. Het is aangewezen onze onderzoeksbevindingen in grotere populaties te toetsen. Inzake ons kwantitatief onderzoek is het aangewezen om ook andere variabelen inzake leerkrachtuitkomsten, schoolleiderschap en organisatiekenmerken op te nemen. Inzake gehanteerde onderzoeksmethodes pleiten wij er voor om andere methodes aan te wenden zoals observaties, documentenanalyse van beleidsdocumenten en longitudinaal onderzoek.

Op basis van onze onderzoeksresultaten willen wij een aantal bijkomende implicaties suggereren. We ontwikkelden een onderzoeksinstrument dat de schoolautonomie-kloof in kaart brengt, zowel op individueel als op schoolniveau en voor verschillende beleidsdomeinen. Door het analyseren van deze verschillende perspectieven kunnen onderzoekers de thematiek van schoolautonomie beter begrijpen. Beleidsverantwoordelijken zouden zich ook bewust moeten zijn van deze autonomie-kloof en zij zouden oog moeten hebben voor de capaciteit van scholen en van schoolleiders om schoolautonomie succesvol te implementeren. Het optimaliseren van de effectiviteit en de efficiëntie van het huidig beleid inzake schoolautonomie is noodzakelijk. Beleidsmakers zouden meer aandacht moeten besteden aan de selectie van schoolleiders en zij zouden meer moeten investeren in programma's van professionele ontwikkeling voor schoolleiders. Het overbruggen van de autonomie-kloof is een belangrijke opdracht zowel voor onderwijsonderzoekers, beleidsmakers, lokale bestuurders, schoolleiders, leerkrachten en het grote publiek.

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Academic output

Academic output

Journals (a1)

Dou, D., Devos, G., & Valcke, M. (2016, in press). The relationships between school autonomy gap, principal leadership, teachers' job satisfaction and organizational commitment. *Educational Management Administration & Leadership*. doi: 10.1177/1741143216653975

Dou, D., Devos, G., & Valcke, M. (2016). The effects of autonomy gap in personnel policy, principal leadership and teachers' self-efficacy on their organizational commitment. *Asia Pacific Education Review*, 17(2), 339–353. doi:10.1007/s12564-016-9428-7

Dou, D., Devos, G., & Valcke, M. (Submitted). Delving deeper into the school autonomy gap: Linking the school autonomy gap with school leaders' transformational leadership approach and their capacity to cope with change. *Asia Pacific Education Review*.

Conference proceedings (p1)

Dou, D., Devos, G., & Valcke, M. (2015). School autonomy reform in China: The voice of the principal. In EDULEARN15 Proceedings (pp. 7528–7537). Barcelona, Spain: IATED.

Dou, D., Devos, G., & Valcke, M. (2015). Exploring the effects of principal leadership, school climate, teachers' psychological factors on teachers' job satisfaction and organizational commitment. In EDULEARN15 Proceedings (pp. 8113–8121). Barcelona, Spain: IATED.

Conference contributions

Dou, D., Devos, G., & Valcke, M., (2014, November). Leadership for changing: principals' responses to the school autonomy reform in China. Paper presented at the Asia Pacific Educational Research Association and the Hong Kong Educational Research Association Conference (APERA), Hong Kong, China.

Dou, D., Devos, G., Valcke, M., & Zeng, X., (2014, March) Does school autonomy matter? The influence of educational decentralization on teacher commitment and job satisfaction in China. Paper presented at the Comparative and International Education Society conference (CIES), Toronto, Canada.

Dou, D., Liu, C., & Lin, Z., (2014, April). Teachers' responses to curriculum reform in China: An organizational behavior perspective. Paper presented at the American Educational Research Association Annual Meeting (AERA), Philadelphia, US.

Data storage fact sheets

% Data Storage Fact Sheet 1

% Name/identifier study: Chapter 2

% Author: Diya Dou

% Date: 20 April 2017

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1a. Main researcher

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If a response is not received when using the above contact details, please send an email to data.pp@ugent.be or contact Data Management, Faculty of Psychology and Educational Sciences, Henri Dunantlaan 2, 9000 Ghent, Belgium.

2. Information about the datasets to which this sheet applies

=====

* Reference of the publication in which the datasets are reported:

Dou, D., Devos, G., & Valcke, M. (2016). The effects of autonomy gap in personnel policy, principal leadership and teachers' self-efficacy on their organizational commitment. *Asia Pacific Education Review*, 17(2), 339–353. <http://doi.org/10.1007/s12564-016-9428-7>.

* Which datasets in that publication does this sheet apply to?:

This sheet applies to the complete dataset of the study reported in Chapter 4 of the dissertation.

3. Information about the files that have been stored

=====

3a. Raw data

* Have the raw data been stored by the main researcher? YES / NO

If NO, please justify:

* On which platform are the raw data stored?

- researcher PC
- research group file server
- other (specify): external hard disk stored in the researcher's office

* Who has direct access to the raw data (i.e., without intervention of another person)?

- main researcher
- responsible ZAP
- all members of the research group
- all members of UGent
- other (specify):

3b. Other files

* Which other files have been stored?

- file(s) describing the transition from raw data to reported results. Specify: SPSS-syntax files were stored.
- file(s) containing processed data. Specify: Survey data were cleaned in SPSS, aggregated for analysis and restructured for multilevel analysis
- file(s) containing analyses. Specify: SPSS output for EFA results and models of the main analyses.
- files(s) containing information about informed consent
- a file specifying legal and ethical provisions

- file(s) that describe the content of the stored files and how this content should be interpreted. Specify: ...

- other files. Specify: ...

* On which platform are these other files stored?

- individual PC

- research group file server

- other: ...

* Who has direct access to these other files (i.e., without intervention of another person)?

- main researcher

- responsible ZAP

- all members of the research group

- all members of UGent

- other (specify): ...

4. Reproduction

* Have the results been reproduced independently?: YES / NO

* If yes, by whom (add if multiple):

- name:

- address:

- affiliation:

- e-mail:

% Data Storage Fact Sheet 4

% Name/identifier study: Chapter 5

% Author: Diya Dou

% Date: 20 April 2017

1. Contact details

=====

1a. Main researcher

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- address: Henri Dunantlaan 2, 9000 Ghent, Belgium
- e-mail: Diya.Dou@UGent.be

1b. Responsible Staff Member (ZAP)

- name: Geert Devos (promotor PhD research)
- address: Henri Dunantlaan 2, 9000 Ghent, Belgium
- e-mail: Geert.Devos@UGent.be

If a response is not received when using the above contact details, please send an email to data.pp@ugent.be or contact Data Management, Faculty of Psychology and Educational Sciences, Henri Dunantlaan 2, 9000 Ghent, Belgium.

2. Information about the datasets to which this sheet applies

=====

* Reference of the publication in which the datasets are reported:

Dou, D., Devos, G., & Valcke, M. (2016). The relationships between school autonomy gap, principal leadership, teachers' job satisfaction and organizational commitment. *Educational Management Administration & Leadership*. <http://doi.org/10.1177/1741143216653975>.

* Which datasets in that publication does this sheet apply to?:

This sheet applies to the complete dataset of the study reported in Chapter 5 of the dissertation.

3. Information about the files that have been stored

=====

3a. Raw data

* Have the raw data been stored by the main researcher? YES / NO

If NO, please justify:

* On which platform are the raw data stored?

- researcher PC
- research group file server
- other (specify): external hard disk stored in the researcher's office

* Who has direct access to the raw data (i.e., without intervention of another person)?

- main researcher
- responsible ZAP
- all members of the research group
- all members of UGent
- other (specify):

3b. Other files

* Which other files have been stored?

- file(s) describing the transition from raw data to reported results. Specify: SPSS-syntax files were stored.
- file(s) containing processed data. Specify: Survey data was processed and cleaned in SPSS.
- file(s) containing analyses. Specify: SPSS output (i.e. results of EFA and ANOVA) + AMOS output (i.e. results of CFA, results of path model, and results of multiple group analysis).
- files(s) containing information about informed consent
- a file specifying legal and ethical provisions

- file(s) that describe the content of the stored files and how this content should be interpreted. Specify: ...

- other files. Specify: ...

* On which platform are these other files stored?

- individual PC

- research group file server

- other: ...

* Who has direct access to these other files (i.e., without intervention of another person)?

- main researcher

- responsible ZAP

- all members of the research group

- all members of UGent

- other (specify): ...

4. Reproduction

* Have the results been reproduced independently?: YES / NO

* If yes, by whom (add if multiple):

- name:

- address:

- affiliation:

- e-mail:

