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**The Dissertation Committee for Young Hyeo Joo Certifies that this is the approved
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**The Structural Analysis of the Effects of Distributed Leadership on
Teacher Professionalism**

Committee:

Pedro Reyes, Supervisor

Julian V. Heilig

Jennifer J. Holme

Gary D. Borich

Matthew A. Hersh

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Teacher Professionalism**

by

Young Hyeo Joo, B.A., M.A.

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Dedication

To my parents, sisters, and friends

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The Structural Analysis of the Effects of Distributed Leadership on Teacher Professionalism

Young Hyeo Joo, Ph.D.

The University of Texas at Austin, 2011

Supervisor: Pedro Reyes

The purpose of this study was to analyze the direct effects of distributed leadership on teacher professionalism and the mediating effects of collective teacher efficacy, professional learning community, and teacher job satisfaction by using teacher data from *the Korea Educational Longitudinal Study (KELS)* of 2007, conducted by the Korean Educational Development Institute (KEDI). After scrutinizing theoretical foundations and reported evidence on the relationships between research factors, the research constructed a structural equation model. The research questions that guided this analysis are as follows: 1) Does the model of this research fit the observed data?; 2) Does distributed leadership practice directly influence teacher professionalism?; and 3) Does distributed leadership practice indirectly influence teacher professionalism mediated by collective teacher efficacy, professional learning community, and teacher job satisfaction?

As a result, the initial hypothesized research model shows an inadequate fit to the data. The researcher revised the initial research model by using the results of modification indices provided by the output result of the AMOS program. The results of the study revealed that 1) the research model successfully accounted for the KELS data, 2) distributed leadership negatively influenced teacher professionalism, and 3) distributed

leadership indirectly and significantly influenced teacher professionalism, mediated by collective teacher efficacy, professional learning community, and teacher job satisfaction. Additionally, the effects of these mediators also indicated significant relationships between study variables.

Public schools cannot achieve their goals and sustain fundamental reform without considering the day-to-day lives of educators, leadership practice, and educators' workload, and sometimes even re-culturing of schools. School organization should be a place where school members all collaborate with each other to achieve organizational goals and where teachers and students are learning through reciprocal cooperation. When we consider that teacher professionalism can be directly associated with student and parent satisfaction and student achievement, this study contributes to the creation of a model that improves teacher professionalism, and by implication student achievement and satisfaction.

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CHAPTER ONE: INTRODUCTION

The purpose of the study is to analyze the structural relationships (direct and indirect effects) of distributed leadership on teacher professionalism in *South Korea* (hereafter, Korea). In this chapter, I present the statement of the problem, the purpose of the study, a brief history of public education and school organization in Korea, the research questions, definitions of terms, the importance of the study, and assumptions and limitations of the study.

1. STATEMENT OF PROBLEM

To bring about improvement at the heart of education- classroom instruction ...has proven to be the most difficult kind of reform, and it will result in the future more from internal changes created by the knowledge and expertise of teachers than from the decisions of external policymakers... Reform of instruction by remote control has rarely worked well. (Tyack & Cuban, 1995, pp. 134-135)

The challenges of a new century demand more time in the classroom. If they can do that in South Korea, we can do it right here in the United States of America. (President Barack Obama, March 10, 2009)

President Barack Obama (2009) asked the people of the United States to look toward Korean education in an attempt to help American children to survive in a competitive world. However, if president Obama knew the reality of Korean schooling, public education, and Korean classrooms, would he still laud Korean education?

Modern schools, both in the United States and in Korea, have been confronted with both external challenges and internal needs for decades. Under the rapidly changing educational policy circumstances, the school administration must aim for flexible change by accepting social needs while at the same time facilitating organizational effectiveness and efficiency. However, there remains a gap between school reality and theory of

conventional leadership and organization that purports to inform practice in those same schools (Fullan, 2007; Spillane & Burch, 2006).

Traditional organizational and leadership theory and school improvement efforts have considered often school agents, their behavior and traits, and organizational structure and context, separately (Gronn, 2000; Spillane, Halverson, & Diamond, 2001, 2004). As a result, achieving substantial school improvement and the reform of exposed limitations in the era of standard-based reform, has remained elusive (Copland, 2003; Hatcher, 2005; Hopkins, Ainscow, & West, 1994; Scribner, Cockrell, Cockrell, & Valentine, 1999). The important issue is that the assumptions of organizational and leadership theory for *all* stakeholders must be considered concurrently if these theories are to be a viable tool used in the process of understanding school organization and the day-to-day practice of educational leadership (Hoy & Miskel, 2008).

The Korean school reform movement may not substantially achieve its goals of fundamental and sustainable change without considering leadership practice, educators' workload – the day-to-day life of educators – and re-culturing schools because both the workload of principals and teachers has been, and continue to be, increased under the circumstances in which federal and state government intervention. Moreover, the educators' organizational role and daily functions are becoming a complex and overlapping networked relationship. Therefore, any effort to improve schools and reforming school organizations must consider a school organization's agents, organizational situation, and their interaction *simultaneously* (Spillane, 2006).

In this context, recent educational research studies have emphasized the need for collaborative and distributed leadership practice in schools in order to create effective student achievement outcomes and to develop teacher professionalism (Darling-Hammond, 1990; Hopkins et al., 1994; Kent, 2004). Other studies stressed the need for

collective teacher efficacy (Hoy, Tarter, & Woolfolk Hoy, 2006; Leithwood, Patten, & Jantzi, 2010), positive individual psychology (Hoy & Miskel, 2008; Leithwood, 2007) and professional learning community (PLC) (Halverson, 2003; Louis, Marks, & Kruse, 1996; McLaughlin & Talbert, 2006). In the end, the research discussions suggest that it is often up to a school's staff to improve student achievement, develop teacher professionalism and school organization capacity (Caldwell & Spinks, 2005; Hopkins et al., 1994; Thoonen, Slegers, Oort, Peetsma, & Geijsel, 2011; Tyack & Cuban, 1995), and to overcome, or at least work effectively with, the limitations of government-centered policy making and implementation (Hargreaves & Fink, 2009).

The classroom is the place where students are educated to become citizens and to prepare for their future life. Considering this point, we must recognize and accept that it must be the constant goal of schooling to improve student achievement by improving teacher professionalism through school members' collaborative leadership practice and beliefs, professional learning community, and teachers' positive emotion and behavior such as teacher satisfaction (Day, 2002; Leithwood, 2007; Talbert & McLaughlin, 1994). Teachers' professional development and improvement of their personal feeling of professionalism may be a way to realize educational well-being that is felt well beyond the teachers themselves.

2. PURPOSE OF THE STUDY

The purpose of this study was to analyze the direct effects of distributed leadership on teacher professionalism and the mediating effects of collective teacher efficacy, professional learning community, and teacher job satisfaction. In this pursuit, this research activity focuses on considering and connecting school members' distributed leadership practice, collective teacher efficacy, teacher job satisfaction, and professional

learning community toward improving teacher professionalism (see Thoonen et al., 2011). This study does not suggest that the institutional and government-centered reforms do not matter for school improvement and professional development. Rather, it focuses on the efforts of individual school organization in order to improve student achievement and to develop teacher professionalism (Leithwood et al., 2010). Before I delve deeply into the study specifics, I present a short section on the context of the study.

3. PUBLIC EDUCATION AND SCHOOL ORGANIZATION IN KOREA

In accordance with the purpose, I will describe 1) the history of public education, 2) social and political contexts of school organization, 3) school system, 4) school organizational structure and culture, and 5) the problematic issues that plague public education and school organization in Korea.

The History of Public Education in Korea¹

The history of schooling in Korea has experienced five developmental steps: pre-modern education (before 19th century), expansion of democratic education (1945-1950s), quantitative expansion (1960s-1970s) and qualitative development (1980s) of public education, and human education preparing for future society (since 1990s) (Ministry of Education, Science, and Technology [MEST] website). Until the 19th Century, Korean education had focused on cultivating the morals of the students and educating the general public based on Confucianism and Buddhism. Christian missionaries and members of the independence movement in the 19th century first introduced modern schools.

After the liberation from the Japanese colonial rule in 1945, the Korean government set democratic education as the principle of public education. In this era,

¹ To briefly introduce the developmental processes of Korean schooling, this analysis referred to the English website of the MEST. For more specific information, see the MEST English website (http://english.mest.go.kr/web/1692/site/contents/en/en_0203.jsp).

Korean education experienced an expansion of basic education to enhance democracy through both quantitative and qualitative growth. The period of between 1945 and 1950 was the time of expansion of democratic education. Educational opportunities for secondary and higher education and in-service training for teachers were also incrementally expanded.

Korean education went through a quantitative expansion in student population, education facilities, and the number of teachers in the 1960s and 1970s. However, there still existed a variety of problems such as over-crowded classrooms, oversized schools, and a shortage of *qualified* teachers. In the 1980s, Korean public education experienced qualitative development, upgraded school facilities, secured high quality teachers, improved the curriculum and methodology, and expanded education investments. Since the 1990s, Korean government has focused on upgrading the overall education system and promoting human education for the expressed purpose of preparing for a stronger future society. The educational policies driving this upgrade include expanding the scope of mandatory education, widening the supply of secondary education services, and enlarging opportunities for higher education.

Social and Political Contexts of School Organization in Korea

In the United States, school is a place where students are educated as democratic citizens and prepared for their future life. After the modern school system was established, school organizations moved to the center of society as well and became affected by various external and internal needs. In particular, policymakers and politicians who understood education as a useful tool to enhance and secure national competitiveness pointed problems of schooling and suggested various educational initiatives. It would be not too much to say that the history of public education in the

United States is similar to that of Korea if one considers the controversies in terms of a goal and priority of education and most effective methods and policies for student achievement and school improvement. Korean educational policies have shown similar trends to those of the United States (see Kim, 2005; Ministry of Education, 1998).

Korean schools have been faced with a variety of external pressures for reforming their organizational structure and enhancing teacher professionalism and the quality of public education. After the fall of a military government, the Kim Young-Sam Administration (1993-1998) promoted a variety of policies for social democratization and liberalization; the administration focused on the national capacity to strengthen national competitiveness (Joo & Reyes, 2010). In this context, the Kim Young-Sam's administration released the *5.31 Education Reform Plan* in 1995 which pursued various neo-liberal educational policies in order to promote client-oriented education, educational excellence, and school autonomy (Park, 2009). The external policy environment changed with the Korean government's affiliation with both the Organization for Economic Cooperation and Development in 1996 and the International Monetary Fund (IMF) bailout in 1997. Additionally, the spread of democratic values also promoted educational policy reforms and the school-based accountability in Korea (Joo & Reyes, 2010).

To cope with these environmental changes, the Korea government pursued various educational policies and institutional reforms that leaned toward educational democratization, liberalization, marketization, and decentralization and school autonomy (Joo & Reyes, 2010; Kim, Joo, Kim, & Park, 2009). This occurred primarily after the first civilian government in 1993. However, the efforts for school improvement and professional development in Korea mainly have been concentrated on policy and institutional reforms per se such as the introduction of the Open Recruitment System of Principals, teacher appraisal and incentive system, school evaluation. The current Lee

Myung-Bak Administration (2008 to present) also maintained these policy trends (Joo & Reyes, 2010; Park, 2009).

School System in Korea

Korea has a '6-3-3-4' school ladder system, which consists of 6 years of elementary school, 3 years of middle school, 3 years of high school, and 4 years of university. This system was established in 1951. The Elementary and Secondary Education Act (ESEA)² dictates the type of schools that should provide elementary and secondary education. This system is categorized into elementary school and citizenship training school, middle school and citizenship training high school, high school and technical high school, special school, and various schools (Article 2). ESEA regulates that children who become between six years old at the end of February of the following year and 14 years old should participate in a national compulsory education. In general, Korean compulsory education covers 6 years of elementary and 3 years of middle school. AS of 2010, an enrollment rate for elementary school is 98.6%; 97.6 % for middle school; and 92.4 % for high school, respectively³.

Schools have a responsibility to administer a curriculum, but school curriculum is determined by the Presidential Decree. In addition, the basic matters on the standards and contents of a curriculum are determined by the Ministry of Education, Science and Technology (ESEA, Article 23). When the establishment standards of facilities and equipments as prescribed by the Presidential Decree are met, any person can establish a school under the approval of the Superintendent of the Office of Education of the Special Metropolitan City, Metropolitan City or Do (ESEA, Article 4). The Superintendent of the

² Korea Law (<http://www.law.go.kr/main.html>).

³ Statistics Korea (<http://www.index.go.kr/>).

Office of Education guides and supervises public and private school, while the MEST is responsible for the guidance and supervision of national schools (ESEA, Article 6).

School Organizational Structure and Culture in Korea

Korean school organization has been based on a rigid seniority system and hierarchical organization structure since the Korean *Teacher Promotion System* (TPS) was established in 1964 (Shin & Jeon, 2007). Korean primary and secondary teachers officially are appointed by national teacher recruitment examination. The teachers who passed the exam are assigned to a school. After entering into a teaching career, teachers are promoted by the TPS based on *second-class regular teacher, first-class regular teacher, vice-principal, and principal*. Both regular teachers teach a subject and manage classes or only conduct instruction activity. Second-class regular teachers are promoted to first-class regular teachers after they work over 3 years and complete teachers' qualification training. To become either vice-principal or principal, teachers have to participate in teachers' qualification training. Those who complete this course can be promoted according to score results such as a career grade and an efficiency rating (Joo & Reyes, 2010; see also Jin, 2003, p. 80).

School organizational culture in Korea is closely associated with school organizational structure. Korean school organization shows the characteristics of the *structural frame* (Bolman & Deal, 2008) controlled by legitimate authority. This is primarily because Korean school organizations have a strong administrative hierarchy. In this sense, Korean school organization has also the characteristics of "simple bureaucracy" (Hoy & Miskel, 2008, p. 120) in that "the power and authority of the principal is dominant. Instruction and curriculum are standardized and teachers are supervised directly by the principal" (Hoy & Miskel, 2008, p. 121). These characteristics

of Korean organizational structure have been reflected in an organizational culture that can be expressed not only by “superiors direct,” but also more commonly as top-down management.

The Problem of Public Education and School Organization in Korea

Korean students have shown high achievement in PISA assessment among OECD countries, and they have ranked at the top. However, most Korean parents, mass media, and politicians have pointed out that public education is “in crisis”. They have commonly criticized the quality of public education and teacher professionalism, and many students are fast becoming inclined to participate in private academies. Recent studies and news articles also suggest the tendency that the parent and student satisfaction level with Korean public schools and schooling is negative (Kim, 2009; Sah, 2009).

The Korea government has attempted several reform efforts to solve the problems and to improve their educational “customer satisfaction” by introducing a variety of educational policies and through larger institutional reform. However, many students and parents who are not satisfied with public schooling still go to private institutions to study the most important subjects after school (and they sleep at public school). As a result, household expenditures on excessive private tutoring have increased every year since such records have been maintained (Kim & Lee, 2010).

According to Kim and Lee (2010), the percentage of total private tutoring expenditures in primary and secondary education accounted for approximately 2.8% of Korean GDP in 2006. The percentage gradually has increased since 1985. This amount is equivalent to about 80% of government expenditures on public education for primary and secondary education students (Kim & Lee, 2010). Researchers and mass media have pointed out that the quality of public education and teacher professionalism is the most

significant problem, and as a result, the excessive dependence on private education (Kim, 2009; Sah, 2009).

Korean school organization can be represented by as an 'egg crate' (Lortie, 1975) or one with closed properties which does not create a collaborative and individualized professional development among school members, and does in fact create distrust between teachers. The disconnected school culture sometimes disturbs organizational development and the achievement of organizational goals as well as the professional development of teachers (Kim, Joo, & Kim, 2010). Korean teachers show the lowest level self-efficacy and job satisfaction compared with developed countries (OECD, 2009, p. 112). In this sense, it seems that Korean teachers are working their teaching career and instructional practices without sufficient motivation within this closed school culture. Moreover, Korean teachers do not receive sufficient institutional supports from educational authorities in order to improve professionalism (OECD, 2009, p. 65).

Meanwhile, according to Organization for Economic Co-operation and Development (OECD, p. 197), Korean principals are viewed as lethargic leaders with powerful authority. In other words, this means Korean principals do not play a substantive role as quality instructional leaders (Kim et al., 2010). However, there remains a faint hope to reform schooling and instruction because Korean teachers have a strong aspiration to develop their professionalism. According to international comparative data of OECD (2009, p. 54), Korean teachers spent the amount of professional development twice than average number of days of the TALIS⁴ without sufficient institutional supports.

⁴ TALIS means the OECD Teaching and Learning International Survey. TALIS is a collaborative effort by member countries of the OECD and also has been developed as part of the OECD Indicators of Education Systems (INES).

4. QUESTIONS FOR THE STUDY

I constructed a Structural Equation Model (SEM) to reflect the direct and mediating effects of distributed leadership practice on teacher professionalism after scrutinizing theoretical or empirical literature base between the factors. The model was based on 3rd year teacher data of *the Korea Educational Longitudinal Study* (KELS) of 2007 conducted by the Korean Educational Development Institute (KEDI). The KELS was selected because its teacher data includes factors and measurement items that this study specifically set out to analyze. The research questions that guided this analysis are as follows:

1. Does the model of this research fit the observed data?
2. Does distributed leadership practice directly influence teacher professionalism?
3. Does distributed leadership practice indirectly influence teacher professionalism mediated by collective teacher efficacy, professional learning community, and teacher job satisfaction?

5. DEFINITIONS OF TERMS

This study defined each terms by scrutinizing the existing literatures. The specific definition of distributed leadership, teacher professionalism, collective teacher efficacy, professional learning community, and teacher job satisfaction are below. The measurement items of these factors were reorganized by using each definition.

Distributed Leadership

I will use the definition of “distributed leadership” provided by Spillane and colleagues (Spillane, 2006; Spillane & Diamond, 2007; Spillane et al., 2001, 2004; Spillane & Orlina, 2005; Spillane & Sherer, 2004) by interpreting it in a narrow sense; distributed leadership is co-performance and participative leadership between leaders and

followers in order to improve teacher professionalism, instruction, and organizational effectiveness and build organizational capacity. This kind of leadership practice can be also understood as democratic, collaborative or shared leadership in school management (Harris, 2008; Spillane, 2006).

Considering that the “leader” means principal in Korean schools, and that “follower” means school teachers, this research confines leader as school principal and defines the concept as the extent to which principal conducts democratic and delegated leadership and collaborates with school teachers in order to improve school organizational capacity and management and to achieve a goal of school. The present study postulates teacher participation as one of the most important elements for practicing distributed leadership and defines teacher participation as the extent to which school teachers’ opinion in determining important school activities such as educational and administrative affairs, school finance, educational planning, and school supervision is reflected in school management decisions. In this sense, the elements of distributed leadership are composed of principal leadership and teacher participation embedded in socio-cultural situation of school organization.

Teacher Professionalism

To define teacher professionalism and categorize the key elements, I followed Borich’s (2004) notion by defining teacher professionalism as teachers’ effective teaching activities or methods in a classroom in order to improve their own instruction and students achievement. Therefore, teacher professionalism in this study is focused on teachers’ instructional professionalism in a classroom. This activity is constituted by both key behavior and helping behavior of teachers (Borich, 2004). The present study defines key behavior of teacher professionalism as elements such as lesson clarity, instructional

variety, teacher task orientation, and student engagement in the class. And, this study postulates helping behavior as the element that focuses on instruction structuring activities in a narrow sense. The structuring activities are divided into specific instructional introduction activities at the beginning of lesson and instructionally summative activities at the end of lesson. Teachers must conduct this kind of helping behavior with key behaviors in order to maximize student achievement.

Collective Teacher Efficacy

For this term, I followed Hoy and Miskel's (2008) definition by defining collective teacher efficacy as collective and positive values and beliefs among school teachers toward students, their own instructional ability, and as the extent to which the teacher groups share beliefs influence students and their own instructional ability and activity. The concept of collective teacher efficacy also can be considered as a direct reflection of school culture (Hoy & Miskel, 2008).

Professional Learning Community

In this study, professional learning community equates to a professional learning community teachers perceived. The concept can be defined as a group of teachers within school who conduct cooperative efforts and sustainable communication with colleagues to improve their own professionalism, and teaching and learning, and teaching skills in the classroom by sharing school vision, communicating and cooperating with colleagues (Bryk, Camburn, & Louis, 1999). In this sense, the concept can be understood as working conditions or the conditions in school along with school structure, school operating procedures (Leithwood & Beatty, 2009, pp. 95-97; See also Bryk & Schneider, 2002; Leithwood, 2007; Leithwood et al., 2010) even though some educational scholars (e.g., Harris & Muijs, 2005; Scribner et al., 1999) see PLC as representing school culture. In

other words, this study postulates professional learning community as a narrow concept by focusing on teacher learning community and as working condition of school teachers. The specifics of the community do not matter per se (Dufour, 2004; Harris & Muijs, 2005). Rather, it is important that it should contribute to improving school teachers' instructional professionalism and satisfaction.

Teacher Job Satisfaction

The present study postulates that teacher job satisfaction conceptually includes both present job satisfaction and teaching profession satisfaction (Jorde-Bloom, 1986). In other words, this study assumes that job satisfaction is determined by present workplace and teaching career experiences as a whole, given that job satisfaction can be viewed as the status of individual psychology about present school and teaching career. In addition, the definition of this study was focused on teachers' professional characteristics (see Dinham, 1995) because the key topic of this study is teachers' professional development and effective teaching skills. This study postulates that teacher job satisfaction can be understood as the extent to which teachers are satisfied with their job. Therefore, this study defines teacher job satisfaction as teachers' positive psychological and affective reaction about their present workplace and teaching profession (Kim & Kim, 2008).

6. IMPORTANCE OF THE STUDY

The quality of school teachers and their professionalism has been discussed as one of the important issues in this era of school and educational accountability among policy makers, administrators, and educational researchers. As mentioned earlier, the most important baseline or assumption of this study is that educators and researchers should consider school reality, and individual school's efforts could be more effective, when considering traditional educational reform and leadership approaches that are intended to

improve school effectiveness and teacher professionalism (Leithwood et al., 2009; Morrison, 2002, 2010).

There has been criticism that current research on distributed leadership has been excessively concentrated in qualitative research (Hulpia, Devos, & Rosseel, 2009) and that a large-scale quantitative research is scarce (Heck & Hallinger, 2010) even though there are a few exceptions (e.g., Camburn & Han, 2009; Heck & Hallinger, 2009, 2010). Considering the fact, this research constructed the structural equation modeling to statistically test the effects of distributed leadership on teacher professionalism by using a large scale Korean survey data. In other words, this study constructed a mediating effect model because leadership has been understood as a way to facilitate organizational members' behavior *indirectly* (Hallinger & Heck, 1996). It is worthwhile to quantitatively test the effect of distributed leadership on teacher professionalism mediated by the factors of organizational and psychological dimensions such as school culture, workplace conditions, and teachers' job satisfaction in that these factors reflect the day-to-day life and leadership practice of educators (see Cheng, 1996; Leithwood et al., 2010).

Any future implications of this study must elaborate the socio-cultural contexts and school-wide reality in order to achieve a goal of schooling and improve teacher professionalism in Korea. There are no studies that test the direct and mediating effect of practicing distributed leadership, collective teacher efficacy, PLC, and teacher job satisfaction on teacher professionalism in Korea. In addition, there is still scarce research regarding the effect of these factors on teacher professionalism, though some scholars have examined the theoretical concepts, meaning, and implications of distributed leadership (Joo & Kim, 2009), collective teacher efficacy (Park, 2010), and PLC (Seo, 2009). Therefore, there is a gap in the literature, and there is a need to analyze the effect

of distributed leadership on teacher professionalism mediated by organizational psychology, and working conditions simultaneously because these factors can affect school effectiveness and teachers' instructional activity at the same time.

Given that social and cultural contexts of Korean school organization are considerably different from western countries, it is notable that this research applies theory and model of Western-based research to Korean school contexts. In addition, considering that recently the concepts of distributed leadership, PLC, and collective efficacy have gained popularity in Korea, this study contributes to the knowledge base by showing the structural relationship of the effect of distributed leadership on teacher professionalism mediated by collective teacher efficacy, PLC, and teacher job satisfaction.

7. ASSUMPTIONS AND LIMITATIONS OF THE STUDY

This study has several assumptions and limitations. First, the most important premise of this study is that it seeks a compromise position between a theoretician and a statistician. In other words, this study constructed a theory-based research model, but the researcher revised the initial research model by using statistical results. The assumption of this research reflects two critical aspects of a structural equation model; not only a practical usefulness to test a research model based on a theory and reported evidence, but also a theoretical usefulness which pursue developing a new theory (or model).

Second, this research assumes that the benefits of cooperation, reflective learning and communication, and social interaction among educators can be estimated and measured quantitatively (Bryk et al., 1999; Schechter, 2008; Silins, Mulford, & Zarins, 2002). In other words, this study assumes that the process and result of practicing distributed leadership, and developing a professional learning community, is perceived by

individual teacher and “released” by external behavior. In the same contexts, the research measured collective teacher efficacy, PLC, teacher job satisfaction, and teacher professionalism as the extent to which a teacher perceives each factor. Third, this study assumes that both the principal leadership and the teacher participation that constituted the elements of distributed leadership involve reciprocal interaction that is embedded in socio-cultural situation in school organization. And finally, this study assumes that collective teacher efficacy reflects just one aspect of school organizational culture (Hoy & Miskel, 2008) even though some scholars see collective teacher efficacy as an emotional dimension as well (Leithwood et al., 2010).

Meanwhile, this study has several limitations. First, this study focuses on testing the relationship between the factors supported by theoretical or empirical bases. When a relationship between such research factors is not present, this research does not include a cause-effect relationship. Therefore, all reciprocal causations between research factors are not present. Second, organizational contexts such as school size and class size are critical factors in reforming and understanding school organizations. Nonetheless, this study does not include such contextual factors because the foci of this research are collaborative leadership practice, individual emotion, and collective culture and professional working conditions. Therefore, future research should include the organizational contexts to strengthen this research model.

Third, the research analyzed middle school data set. Korean middle school serves as a bridge to connect elementary school and high school. While middle schools show relatively close and cooperative relationships among school members, high schools in Korea display a disconnected culture and structure (Giles & Hargreaves, 2006). The close and cooperative relationships in the middle schools make it possible to study cooperative leadership practice based on positive organizational and individual psychology in these

schools. Fourth, even though this study used a large scale teacher data, it would be difficult to generalize to all contexts of Korean schools because the teacher data was collected only from Korean middle schools. Fifth, with regard to third assumption, this study does not reflect the specific reality of distributed leadership practice in the social-cultural school contexts as has most quantitative research that analyzed the effects of distributed leadership (Heck & Hallinger, 2010). Finally, this study measured a professional learning community as shared vision, reflective communication, and teacher collaboration even though other elements such as de-privatized practice, trust and sustainable inquiry among educators contribute to building PLC.

8. SUMMARY

This study aims to analyze the structural effect of distributed leadership on teacher professionalism in Korea and by implication to explore ways to improve teacher professionalism, using school organizational structure and the psychological factors that impact the members of the organization. As a key factor, this study postulates that distributing leadership in Korean school organizations would more make that leadership more effective. In addition, this study suggests considering collective teacher efficacy as school culture, PLC as a working condition, and teacher job satisfaction as an important emotional dimension. Briefly, this study postulates that distributed leadership is critical to improve teacher professionalism, and it is worthwhile to consider collective teacher efficacy, PLC, and teacher job satisfaction as mediating effect.

In accordance with the purpose, this chapter introduced the reason this study is necessary in the context of Korean schools, the research model and questions, definitions of each factors postulated by the research model, importance of the study, and assumption and limitations. As several Korean educational scholars (Kim et al., 2010;

Shin, 2005) contend, previous reform did not achieve its substantial goals for improving school and the quality of public education because it was introduced without considering the complexities of internal reform processes and necessary efforts of the individual school leaders. Therefore, one must consider that principals, practically, have a strong influence, but they do not play the only role as an instructional leader. And, to accomplish sufficient institutional support to improve teacher professionalism, they must focus on distributing and co-performing leadership to improve teacher professionalism and working conditions simultaneously (Leithwood et al., 2010). The literature suggests we must explore further the evidence to support the possibility of improving teacher professionalism and the quality of public education by distributing leadership and considering school culture, working conditions, and teachers' emotion.

When we consider that teacher professionalism can be directly associated with students and parents satisfaction and student achievement, this study contributes to the creation of a model that improves not only teacher professionalism, but also student academic achievement and satisfaction in Korea. To construct a structural relationship, *the most important process is that the relationship between the factors should be ensured by theoretical or empirical base* (Byrne, 2010; Harrington, 2009; Heck & Hallinger, 2009; Kline, 2005). Therefore, for the purposes of this study, I review the existing literature on distributed leadership, teacher professionalism, collective teacher efficacy, PLC, and teacher job satisfaction in next chapter.

CHAPTER TWO: REVIEW OF THE LITERATURE

The purpose of this study was to analyze the direct effects of distributed leadership and the mediating effects of collective teacher efficacy, professional learning community, and teacher job satisfaction. This chapter is organized as follows: 1) background, 2) conceptual definition, and 3) elements of distributed leadership, teacher professionalism, collective teacher efficacy, PLC, and teacher job satisfaction. With review of the literature, this study also reviews theoretical and empirical evidence about the direct and mediating relationship of distributed leadership on teacher professionalism. The three research questions were retrieved from the structural relationship of distributed leadership on teacher professionalism mediated by collective teacher efficacy, PLC, and teacher job satisfaction.

1. DISTRIBUTED LEADERSHIP

The literature on school effectiveness and improvement has stressed the role of school principals as the most important factor to enhance the quality of schooling (Copland, 2003; Hallinger & Heck, 1996; Joo, 2006). However, it also notes that a sustainable school reform cannot be accomplished by a single leader (Gronn, 2002; Grubb & Flessa, 2006; Harris, 2009; Hartley, 2007; Leithwood, Mascal, Strauss, Sacks, Memon, & Yashkina, 2007; Muijs & Harris, 2003; Spillane, 2006). In this context, the discourse of distributed leadership research has gained popularity with practitioners, educators, scholars, and policy makers (Harris, 2008; Jermier & Kerr, 1997; Leithwood et al., 2007; Mayrowetz, Murphy, Louis, & Smylie, 2009) to achieve school goals, build organizational capacity, and to improve teaching and learning through “the participation and empowerment of teachers” (Hatcher, 2005, p. 253). Next, I define the conceptual definition of distributed leadership.

Conceptual Definition of Distributed Leadership

Even though there is no consentaneous definition (Leithwood et al., 2007; Spillane & Diamond, 2007), in general, distributed leadership has been interchangeably used with the terms: co-performance leadership (Gronn, 2003; Spillane, 2006), democratic leadership (Bennett, Wise, Woods, & Harvey, 2003; Harris & Muijs, 2005), participative leadership or decision-making (Copland, 2003; Hulpia & Devos, 2010), shared leadership (Harris, 2008; Heck & Hallinger, 2009), and teacher leadership (Firestone & Martinez, 2007; Harris, 2003a). Spillane and colleagues (Spillane, 2006; Spillane, Camburn, & Pareja, 2009; Spillane & Diamond, 2007; Spillane et al., 2001, 2004; Spillane & Orlina, 2005) defined distributed leadership as co-performance leadership through leaders, followers, situation, and their interaction.

Distributed leadership theory emphasizes concepts such as multiple leaders and followers, situations and their interactions (Gronn, 2000; Spillane, 2006; Spillane et al., 2001, 2004). Distributed leadership also stresses concerted action (Gronn, 2000, 2002) and reciprocal interaction (Scribner, Sawyer, Watson, & Myers, 2007) among school members, and teachers should assume an important role in those activities (Muijs & Harris, 2003). In addition, distributed leadership theory stresses the need to understand leadership practice (Spillane, 2006; Spillane & Diamond, 2007; Spillane et al., 2001, 2004) i.e., “a product of the interactions of school leaders, followers, and their situations” (Spillane et al., 2009, p. 93). An important characteristic of distributed leadership is that it shows the difference between traditional leadership theory and distributed leadership (Hallinger & Heck, 1996; Spillane, 2006) by illustrating how traditional leadership theories have treated agents and structure separately and dismissed their interactions.

Elements for Practicing Distributed Leadership

Spillane and colleagues suggest the key components of distributed leadership as leader-plus and situation such as routines, tools, and structures (Spillane, 2006; Spillane & Diamond, 2007; Spillane et al., 2001, 2004; Spillane & Orlina, 2005; Spillane & Sherer, 2004). These key components are the sine qua non that constitutes leadership practice (Spillane, 2006) in distributed leadership. Distributed leadership which simultaneously emphasizes leaders and followers, situations and their interactions as key components emphasizes concerted action (Gronn, 2000, 2002) to improve school management and student achievement (Scribner et al., 2007; Spillane, 2006). Considering the leader-plus properties, the basic assumption of distributed leadership would be associated with shared decision making and system leadership which is based on a reciprocal network (Hatcher, 2008). Therefore, a variety of definitions on distributed leadership would be closely related with how scholars define and limit the concept of leader-plus.

Principal Leadership

The role and function of the principal has been well-informed as one of the critical factors to improve school management and student achievement (Bryk et al., 1999; Copland, 2003). However, the era of accountability and standardized testing has increased the principals' workload and has caused some high-qualified principals and teachers leave traditional schools (Grubb & Flessa, 2006; Harris, 2008; The National Governors Association, 2008), often to seek employment in charter schools (Campbell, Gross, & Lake, 2008) which have relative autonomy to select students, pick staff, design curricula, and make a particular circumstance than do traditional schools (Hochschild & Scovronick, 2003).

Campbell et al. (2008) emphasized the necessity of distributed leadership in terms of “administrative, fundraising, and curriculum-development tasks” (p. 3). This means that effective school directors must be connected to other effective leaders to continue building their professional skills and maintaining passion for their work because excellent leaders cannot survive by themselves (The National Governors Association, 2008). In the same context, Grubb and Flessa (2006) discussed that the workload of the school principal has increased and their job responsibility has “become increasingly complex” (p. 519) in the era of accountability. In addition, they pointed out that “policy makers have imposed new requirements” (p. 519) leaving very little time for leading traditionally. As an alternative for solving these problems, influential scholars such as Fullan (2007), Harris (2008), Leithwood et al. (2007), Spillane (2006), and Gronn (2000) suggested that distributed leadership in schools should be practiced more routinely.

Teacher Participation

With the notion of leader-plus (Spillane, 2006), we understand that followers are critical in distributed leadership—thus the notion of leader-plus. Conceptually, leader-plus is related to the holistic form or pattern of distributed leadership (Gronn, 2003; Leithwood et al., 2007; Spillane, 2006). In other words, leader-plus means that the usual boundary of leadership function and role is dissolved (Harris, 2008), and it is instead stretched over the school staff and their given situations (Spillane, 2006). This element includes formally designated leaders, support staff, followers, and informal leaders in school management and leadership practice (Sergiovanni, 1998; Spillane, 2006; Spillane & Diamond, 2007; Woods, Bennett, Harvey, & Wise, 2004).

In reality, school teachers play a key role in managing instruction and classrooms and a variety of other school management activities. We can observe the participation and

commitment of teachers in a variety of school management activities. There are also several teacher leaders who have technical expertise in their own field and they lead not only their subject team, but also actively participate in school management with formal designated leaders such as principals and assistant principals.

2. TEACHER PROFESSIONALISM

Radical educational reform initiatives have necessitated teacher professionalism and instructional reform at the school level. The quality of teachers and their professionalism are considered as critical factors in the era of performance-based accountability and after legalization of No Child Left Behind. Not surprisingly, one of the main issues in Korea has been also the quality of teachers and their professionalism. Reflecting the current trends of educational policy, it is often said that the quality of the teacher determines the quality of the education (Harris, 2009; Scheerens, 2010).

There have been controversies on whether or not teaching is a profession (Poulson, 1998; Shon, 2006) as part of the discussion about “who teaches what and how” (Berry, 2006, p. 79). As Berry noted, teaching in American society is considered a semi-profession and non-prestigious job because of an influx of under-qualified teachers, unenforced standards, and less autonomy. However, the specific discussion on whether the teaching career is professional or semiprofessional is out of the scope of this study. Rather, the important issue regarding this study is that teacher professionalism is a critical factor “contributing to teaching professionalization and the quality of education service” (Darling-Hammond, 1988; Devaney & Sykes, 1988; Llewellyn et al., 1982, as cited in Cheng, 1996, p. 163).

The emergence of result- and performance-based accountability in education necessitated professional development in teaching regardless if one considers it a semi or

full profession. Naturally, the teaching work in a classroom must be understood as a job marked by professionalism. Teachers have been considered as a key agent in school management and teaching. Many scholars have recognized that teacher quality determines instructional quality and student achievement (Darling-Hammond, 1999; Thoonen et al., 2011; Wong & Nicotera, 2007). In particular, policy makers have focused on high-qualified teacher and instructional improvement. The discussion regarding highly-qualified teachers has been one of the important issues in the era of accountability, because their quality or professionalism has been considered as a critical factor which positively affects student achievement (Darling-Hammond, 1997, 2000; Kent, 2004). In this sense, the main issue regarding performance-based accountability policy in education would be 1) how to define teacher professionalism in a classroom; 2) what elements are needed to improve teaching and student achievement; and 3) what strategies are useful to improve teacher professionalism and for professional development.

Though teacher professionalism has been one of the important issues in school among policy makers, legislatures, administrators, and the public because it is directly related with the quality of instruction and student achievement (Cheng, 1996; Kent, 2004; Thoonen et al., 2011), the existing approach has been based primarily on the “bureaucratic approach” (Darling-Hammond, 1990, p. 25; also see Tyack & Cuban, 1995). As Darling-Hammond noted, “Teachers cannot be held professionally accountable” (p. 31) under bureaucratic control and the bureaucratization of a school. In this sense, the term teacher professionalism may mean compliance with a central education agency rather than “knowledgeable advocacy of appropriate teaching practices” (p. 31). Darling-Hammond (1990) added:

We now know that effective teaching techniques vary for students with different learning styles, at different stages of cognitive and psychological development,

for different subject areas and for different instructional goals. Unfortunately, the educational system does not encourage the development of such knowledge on the part of teachers. Teacher education is typically short and often characterized by a cookbook approach to the acquisition of teaching techniques. (p. 32)

In this sense, some academic scholars criticize the recent result-and performance-based educational reform making teachers de-professionalized and de-skilled (see Hargreaves, 1994; Evans, 1997). If so, what are the definition and conceptual properties of teacher professionalism? I will discuss them in the next section.

Conceptual Definition of Teacher Professionalism

Instruction is the most important activity in school conducted by teachers. Teachers conduct instruction to achieve school and subject goal. Therefore, instruction has a direct effect on the improvement of student achievement (Brookover & Lezotte, 1979; Mortimore, 1993; Thoonen et al., 2011). As Louis, Kruse, and Bryk (1995) note, “The classroom is the dominant setting for teachers’ daily life and the focus of their energies and concerns, but it is not the only context for their work” (p. 3). Meanwhile, according to Talbert and McLaughlin (1992), who studied the contexts which influence classroom teaching, teachers understand teaching as “an integrating activity, intertwined and interdependent with students, subject matter, and features of the immediate workplace environment” (p. 5). Even though these concepts of teaching can provide a useful insight to define and understand teacher professionalism, it is not sufficient to define teacher professionalism only with these notions of teaching. In other words, the notions themselves can be problematic. Therefore, we need to look into the concept of professionalism in order to understand and define teacher professionalism.

Merriam-Webster defines professionalism as “the conduct, aims, or qualities that characterize or mark a profession or a professional person.” Hoyle (1982) explained professionalism as “the improvement of status”, while the improvement of skills as

“professionalism” (p. 162). Pratte and Rury (1991) defined professionalism as “an ideal to which individuals and occupational groups aspire, in order to distinguish themselves from other workers”. Tschannen-Moran (2009) defined teacher professionalism as “their colleagues take their work seriously, demonstrate a high level of commitment, and go beyond minimum expectations to meet the needs of students” (p. 232). Considering these definitions and that instruction is the most important and key role of school teachers, it seems that the concept of teacher professionalism should be focused on teaching skill or teaching quality.

In this sense, teacher professionalism would be in line with quality of teaching or effective instructional activities or methods. Moreover, considering that in general, educational scholars describe teacher professionalism as teacher traits (Song & Jung, 2008; Webb, Vulliamy, Hämäläinen, Sarja, Kimonen, & Nevalainen, 2004), teacher professionalism can be defined as teachers’ effective teaching skill (Borich, 2004; Brophy, 1986) which has an important role in student learning. Even though it is important whether teachers have some academic degree or certification in terms of the discussion of teacher professionalism, it would be more important that teachers have effective teaching skill in the classroom when we recognize that their teaching skill of the subject and in the classroom influences student achievement and academic success (Thoonen et al., 2011). This definition would be most pertinent to the notion of teacher professionalism which is emphasized in the era of accountability.

In the end, this operational conceptualization will reflect that teacher professionalism focuses on teachers’ effective teaching activity in order to improve student achievement. As Talbert and McLaughlin (1992) claimed, “competency-based” (p. 8) education and result-and test-based educational policy have made teachers understand student learning as academic achievement and to promote teachers to use

“methods of direct instruction to teach to the objectives of minimum competency and basic skills achievement test[s]” (p. 7).

Elements of Teacher Professionalism

The elements or sub factors that comprise teacher professionalism are determined by how teacher professionalism is defined and operationalized and how to understand the professional development of teachers. Cheng (1996) explained teacher professionalism at the school level as six levels of commitment: to the profession, students, colleagues, employer, parents/guardians, and the community. The Organization for Economic Cooperation and Development (OECD, 2009) noted that “Professional development is defined as activities that develop an individual’s skills, knowledge, expertise and other characteristics as a teacher” (p. 49).

Considering both this explanation and the conceptual properties of teacher professionalism, the elements of teacher professionalism can be retrieved from effective teaching strategies or activities. If so, what does effective teaching mean and how should it be categorized? Kyriacou (2009) defined effective teaching as “teaching that successfully achieves the learning by pupils intended by the teacher” (p. 7). Kyriacou (1998, p. 8) also suggested the seven essential teaching skills as follows: 1) planning and preparation; 2) lesson presentation; 3) lesson management; 4) classroom climate; 5) discipline; 6) assessing pupil’s progress; and 7) reflection and evaluation. Borich (2004) suggested two kinds of behaviors contributing to effective teaching skills: “key behaviors” and “helping behaviors” (p. 11). Considering that teachers’ effective teaching activities directly influence student achievement (Borich, 2004; Thoonen et al., 2011), the elements of teacher professionalism can be categorized into key behaviors and helping behaviors as below.

Key Behaviors

Key behaviors are an essential element for effective teaching which includes “lesson clarity, instructional variety, teacher task orientation, [student] engagement in the learning process, and student success rate” (Borich, 2004, p. 12). Teachers conduct this kind of key behavior in order to improve student achievement. These five key behaviors are summarized as follows (Borich, 2004, pp. 12-21):

- Lesson clarity: make teachers’ points clear to students; explain subject concepts logically; and direct instruction and audible delivery to all students (p. 12).
- Instructional variability: ask questions to students; and use a variety of learning aid materials (pp. 13-14).
- Task orientation: spend a time to ask question, encourage students to think, and assess student performance (pp. 14-16).
- Student participation in the learning process: set rules that students are able to engage in learning process (p. 18).
- Student success rate: this term means “the rate at which [your] students understand and correctly complete exercises and assignments” (p. 18).

Helping Behaviors

Helping behaviors are those that facilitate key behaviors and effective teaching activity (Borich, 2004). Helping behaviors include “using student ideas and contributions, structuring, questioning, probing, and teacher affect” (p. 21). The specific behaviors which Borich (2004) suggested is as below:

- Using student idea and contributions: this can encourage student engagement in a class and can help to achieve the instructional goals (p. 22).
- Structuring: this means “teacher comments made for the purpose of organizing what is to come or summarizing what has gone before” (p. 24).

- Questioning: this can be divided into two types of questioning such as content and process question (p. 25).
- Probing: this term means “teacher statement that encourage students to elaborate on an answer, either their own or another student’s” (p. 27).
- Teacher affect: this is related with teachers’ behavior in classroom presentation. Mainly, it is referred to as teachers’ enthusiasm (p. 29).

3. COLLECTIVE TEACHER EFFICACY

Recently, the concept of collective teacher efficacy has been recognized as an important factor to improve student achievement, teacher instructional practice, and professional learning communities (e.g., Beard & Hoy, 2010; Leithwood et al., 2010). In this sense, the research suggests collective teacher efficacy (Bandura, 1993; Goddard, Hoy, & Woolfolk Hoy, 2000) as one of the mediating factors in order to improve teacher professionalism and build a professional learning community.

The reason collective teacher efficacy is gaining popularity is it originated from the assumption that school has a significant impact on student achievement is because it can control for a student’s socio-cultural background disadvantages such as students’ family SES and previous academic achievements or failures, as well as a student’s demographic background (Godard et al., 2000; Woolfolk Hoy, Hoy, & Kurz, 2008; Hoy & Miskel, 2008; Hoy et al., 2006; McGuigan & Hoy, 2006; Smith & Hoy, 2007).

The Coleman report of 1966 suggested that the individual school does not make a difference in student achievement and the most important factor is students’ family background (Coleman et al., 1966). Similarly, Jencks et al. (1972) noted that students’ backgrounds significantly affect academic achievements. However, there have been a variety of research studies to dispute the conclusions of Coleman and Jencks (Teddlie & Stringfield, 2007). For example, Edmonds (1979) criticized the Coleman Report and suggested predictors of school effectiveness such as strong educational leadership,

positive school climate, high expectations of student achievement, and academic emphasis. Murnane (1981) noted that teachers and students' classmates are a major source that affects student achievement. In addition, Bryk and Raudenbush (1992) who reanalyzed math achievement data from project Follow-Through concluded that 80% of mathematics grades can be explained by differences between schools. These several studies show, as Hoy et al. (2006) claimed, that the conclusion of Coleman (1966) and Jencks (1972) is not completely right and probably quite wrong.

In summary, the concept of collective teacher efficacy has been gaining popularity in that collective and positive belief is important to improve academic achievement by means of being interested in the process of schooling (Brookover, Beady, Flood, Schweitzer, & Wisenbaker, 1979; McGuigan & Hoy, 2006). Therefore, collective teacher efficacy as a process factor reflects a positive and collective school organizational culture for students' academic success and teachers' own instructional ability and skill (teacher professionalism).

Conceptual Definition of Collective Teacher Efficacy

The notion of self-efficacy has been discussed in theory relating to the concept of motivation (Bandura, 1977, 1991, 1993, 2009; Bandura & Adams, 1977). Borrowing Bandura's idea, Hoy and Miskel (2008) define self-efficacy as "a person's judgment about his or her capability to organize and execute a course of action that is required to attain a certain level of performance" (p. 157). According to Bandura (2009), perceived self-efficacy affects individual motivation and results in behavioral change. With regard to self-efficacy of teachers, it is well-known that teachers' sense of efficacy is closely associated with student achievement (Ashton & Webb, 1986).

Contrary to individual dimension of efficacy, collective efficacy reflects the cognitive aspects of school-based teachers groups (Hoy et al., 2006). However, the level of an individual teacher's self-efficacy is closely related with collective teacher efficacy because self-efficacy can be released by "a large number of quite positive teacher behaviors" (Leithwood, 2009, p. 93) as a whole. Caprara, Barbaranelli, Borgogni, and Steca (2003) suggested the structural relationship between personal efficacy and collective efficacy within school. According to them,

Aggregated individual self-efficacy beliefs and aggregated collective-efficacy beliefs tap onto different school phenomena and that both aggregated constructs contribute to attitudes toward work in school, such as job satisfaction. (p. 829)

Bandura (1993, 1997) understood collective efficacy of teachers as a kind of school property. Bandura (1997) defined collective efficacy as "a group's shared belief in its conjoint capabilities to organize and execute the courses of action required to produce given levels of attainments" (p. 477). Borrowing the idea of Berman, McLaughlin, Bass, Pauly, and Zellman (1977), Tschannen-Moran, Woolfolk Hoy, and Hoy (1998) defined the notion as "the extent to which the teacher believes he or she has the capacity to affect student performance" (Berman et al., 1977, as cited in p. 137).

Hoy and his colleagues extended the concept of collective efficacy through the perspectives of social cognitive theory (Rotter, 1966) as a vital dimension of school culture, while at the same time leveling the notion of "a culture of efficacy" (Hoy & Miskel, 2008, p. 187). According to Hoy and Miskel (2008), collective efficacy can be defined as "the shared perception of teachers in a school that the efforts of the faculty as a whole will have a positive effect on students" (pp. 187-188). In the same contexts, Hoy et al. (2006) briefly defined collective efficacy as "a group belief or expectation" (p. 431). Goddard (2001) defined it as "the perceptions of teachers in a school that the faculty as a

whole can execute the courses of action necessary to have positive effects on students” (p. 467). The collective teacher efficacy, as Leithwood (2007) explained, has a critical impact on student achievement (Goddard, 2001; Goddard et al., 2000; Leithwood, Steinbach, & Jantzi, 2002; Tschannen-Moran & Barr, 2004).

Considering the fact that the main point of collective efficacy is to increase student achievement and to improve teaching and learning and that the activities are closely associated with student achievement, we can expect that collective teacher efficacy influences teachers’ instructional professionalism and the dynamics of PLCs. This belief that teacher groups play a critical role in motivating individual teachers (Hoy & Miskel, 2008) is significant. Therefore, collective teacher efficacy can be briefly represented by school culture imbued with positive and collective beliefs among school teachers who can improve student achievement (Hoy & Miskel, 2008).

Elements of Collective Teacher Efficacy

Bandura’s (1986, 1997) four sources of self-efficacy are helpful toward understanding the elements of collective teacher efficacy because as Goddard et al. (2000) pointed out, his theory has formed the foundation for the terms and elements of collective teacher efficacy. He categorized the sources of self-efficacy as mastery experience, vicarious experience, social persuasion, and emotional or affective states as detailed below (see Goddard et al., 2000, p. 484):

- Mastery experience means that teachers’ experience for success builds their firm belief to overcome difficulties and achieve school goals.
- Vicarious experience suggests teachers’ efficacy can be derived from indirect experience such as successful exemplars of colleagues or other schools.
- Social persuasion is a source of strengthening teachers’ self-efficacy which results from a variety of social activities regarding achieving school goals.

Workshop and professional talk with colleagues can be suggested as social persuasion.

- Emotional states mean that individual teachers are affected by external pressures, and they react to the stresses. Their affective states influence teachers' self-efficacy.

Goddard et al. (2000) developed the first measurement of indicators for collective teacher efficacy by using Bandura's theory. They categorized the elements as "the analysis of the teaching task and assessment of teaching competence" (p. 485). The former means the assessment at individual and school level about the elements and resources for facilitating successful teaching and barriers to be overcome. In other words, "teachers assess what will be required as they engage in teaching" (p. 485). The latter includes the beliefs about school teachers' effective instructional ability and students' academic successes. In the end, Goddard et al. (2000) specified the term of collective teacher efficacy by focusing on collective beliefs of teachers regarding their teaching ability and students. Therefore, the present study considers collective teacher efficacy as the term which reflects the collective beliefs of teachers' teaching competence and students' academic successes because the focus of collective teacher efficacy is an influence on teacher professionalism and professional development.

4. PROFESSIONAL LEARNING COMMUNITY

School organizations have adopted hierarchies and managerialism to maximize efficiency and productivity with belief in terms of legitimacy and rationality (Meyer & Rowan, 1992; Scott, 1995; Tschannen-Moran, 2009), even though school organizations may sometimes be unable to adapt to the external environment (Hoy & Miskel, 2008). However, the external environment changes, often derived from economic crisis, globalization, and in particular, the introduction of accountability policies, have functioned as the key driver that demanded school organization to change day-to-day

schooling (Grubb & Flessa, 2006; Harris, 2003b, 2008; Hartley, 2007). In these contexts, scholars, practioners, and educators have implemented PLC in order to improve teaching and learning, develop teacher professionalism as well as to innovate schools since the 1990s (Bryk et al., 1999; Giles & Hargreaves, 2006; McLaughlin & Talbert, 2006; Stoll & Louis, 2007).

Why are PLC suggested as an important model for school reform and professional development? Professional development has been considered as one of the most important factors in order to improve student learning, instructional skill and teacher capacity (Glazer & Hannafin, 2006; Joyce & Showers, 1995; Tschannen-Moran, 2009; Wong & Nicotera, 2007). The recent popularity of school-based PLC comes from the perception of the importance of “situated professional learning” (Glazer & Hannafin, 2006, p. 179). In other words, the most important reason can be derived from a shift of the learning paradigm from the established passive learning to autonomous learning by means of active interaction teacher, student, subject, and school milieu (Dewey, 1902; Schubert, 2009).

Another reason is the change of consciousness about school organizational structure; the consciousness about the overarching model which has been recognized as loosely coupled has been changed since the 1990s because it needed to adapt to radical environment change of school organization (Halverson, 2007). The move highlights teacher professionalism in instruction and after all, interest to reform school organization into PLC (Dufour, 2004; Mullen, 2009). Considering that the “social-psychological condition of teaching is an important intervening variable in the improvement of school” (Louis, 1998, p. 5), PLC can be understood as an important aspect of the present organizational or working conditions of teachers (Bryk & Schneider, 2002; Leithwood, 2007; Leithwood et al., 2010).

Conceptual Definition of Professional Learning Community

There is not a consensus definition among educators and educational scholars with regard to what constitutes a PLC (Mullen, 2009; Stoll, Bolam, McMahon, Wallace, & Thomas, 2006). In general, however, PLC means that the community within, between, and across school provides school members, i.e. school teachers, with a chance for professional development, instructional improvement, and an opportunity to participate in school reform (Harris & Jones, 2010; Lieberman & Mace, 2008; Little, 2002; McLaughlin & Talbert, 2006; Monroe-Baillargeon & Shema, 2010). The notion of PLC can be interchangeably used with teacher learning community, or professional community (Bryk et al., 1999; Stoll et al., 2006). However, there is no difference in the meaning among the concepts, except whether the subjects who comprise the PLC are school teachers only, or school teacher, principal, and outside educational specialists (Kim et al., 2010; Seo, 2009).

PLC is a combined concept of professional, learning, and community: *professional* means being a subject of the learning community; *learning* is a theoretical mechanism, and *community* can be understood as a notion that professional learning takes place in the community. In the same context, Mullen (2009) noted that PLC is an integral concept of professional *learning* and *community*, both of which have been traditionally separated. Mullen understood that the PLC model focuses on professional knowledge and students' learning and needs within a community which shares interests, key values, and reciprocal responsibility. However, Mullen also recognized that the term PLC can be defined in a variety of ways, and several scholars have done so.

Bryk et al. (1999) conceptualized PLC broadly as professional community and defined professional learning community as a school in which teachers interact with each other by sharing norms and focusing on teaching and learning and its improvement. In a

similar vein, Morrissey (2000) defines PLC as “a school that engages the entire group of professionals in coming together for learning within a supportive and self-created community’ (p. 4). Muijs and Harris (2003) defined the concept as “a community where teachers participate in leadership activities and decision-making, have a shared sense of purpose, and engage in collaborative work and accept joint responsibility for the outcomes of their work” (Harris & Lambert, 2003, as cited in p. 440). Harris (2003a) defined a professional community as “one where teachers participate in decision making, have a shared sense of purpose, engage in collaborative work and accept joint responsibility for the outcomes of their work” (p. 321). Lambert (2005) noted that community is comprised of “a group of people who share common goals, aspirations for the future and care about one another” (p. 95). These conceptual definitions suggest PLC can function as an alternative mindset within a traditional school (Stoll & Louis, 2007) to improve teaching and learning and develop human resources.

Elements of Professional Learning Community

The reason it is important to understand key elements of PLC is that it is those elements that give school members the chance to nurture community toward being more professional (Mullen, 2009; Wong & Nicotera, 2007). Kruse, Louis, and Bryk (1995, pp. 28-34), who explained the characteristics of a school-based professional community, categorized those elements as shared norms and values, reflective dialogue, de-privatization of practice, collective focus on student learning, and collaboration. Louis and Marks (1998, pp. 562-563) defined the elements as a shared sense of purpose, collaborative activity, focus on student learning, de-privatized practice, and reflective dialogue.

Bryk et al. (1999, pp. 761-762) constructed a definition of PLC with six components such as reflective dialogue, de-privatized practice, staff collegiality/collaboration, focus on student learning, collective responsibility for school operations and improvement, and teacher socialization. Giles and Hargreaves (2006, p. 126) suggested three components such as collaboration, discussion, consistent emphasis of teaching and learning, use of assessment and student data. Meanwhile, Bryk et al. (1999) and Bryk, Sebring, Allensworth, Luppescu, and Easton (2010) suggested organizational factors to facilitate building professional learning communities as school size, principal leadership, and trust among educators. In the end, the key elements for building PLC can be summarized as shared vision and norms, teacher collaboration, and reflective communication (Bryk et al., 1999; Fullan, 2007; Kruse et al., 1995; Mullen, 2009).

Shared Vision

It is imperative to have a common vision and share goals to be a successful and effective school (Morrissey, 2000; Rosenholtz, 1985). Kruse et al. (1995) noted that the foundation of a school-based professional community is “shared norms and values” (p. 28). In addition, they claimed that “Without a core of shared beliefs about institutional purposes, practices, and desired behavior, the other elements of professional community ... cannot emerge” (p. 29). In this sense, the collective focus on student learning that Kruse et al. (1995) suggested can be understood as shared vision because the problem of “how pedagogy is linked to the process of student learning” (Louis et al., 1995, p. 32) would be linked with shared beliefs, values, and goals of school members concerning schooling. Borrowing Bryk et al.’s (1999) term, shared vision can also be expressed as “normative control” (p. 755) and “socialization” (p. 756) among professional members

within schools in that a shared vision controls beliefs, values, and activities of educators as a kind of norm. As Rosenholtz (1985) noted, the extent to which teachers achieve the goal of improved student achievement has an impact on teachers' educational activity and psychology, such as motivation, feelings and general satisfaction with their work.

Building school vision has been considered one of the most important factors in the transformational leadership of a principal (Leithwood & Jantzi, 2000). However, from the perspective of a PLC, the responsibility for building school vision among educators does not belong to principal alone, but rather to all school members. This does not imply that a principal's effort is not necessary and useful to building a school's vision. The important point is the fact that the role and behavior of a particular individual is not significant; rather, it is important to *share* the vision and goals of schooling.

Teacher Collaboration

The concept of collaboration among educators also has been considered as one of the important elements in the literature of school improvement and effectiveness (Fullan, 2007; Harris, 2008; Louis et al., 1995; Mortimore, Sammons, Stoll, Lewis, & Ecob, 1988; Mullen, 2009; Resnik, 2010; Teddlie & Reynolds, 2000). The concept of collaboration in PLC implies that teachers who are subject to teach students should also learn and collaborate with colleagues to improve teaching and learning (Bryk et al., 1999; Reyes, Scribner, & Paredes Scribner, 1999; Resnick, 2010).

The component of teacher collaboration in PLC "builds on reflective dialogues and the de-privatization of practice" (Wong & Nicotera, 2007, p. 185). In particular, collaborative learning would be thought of as *sine qua non* in the era of accountability because as Louis et al (1995) noted, "teacher isolation and lack of connection to the world outside the school becomes even more problematic when society demands

improved performance” (p. 16). In this sense, the notion of collaboration also can be understood as collegiality among teachers (Little, 1982; Jackson & Temperley, 2007).

Reflective Communication

Reflective dialogue or communication among school educators is one of the critical factors to form and sustain PLC (Bryk et al., 1999; Kruse et al., 1995; Little, 1990; Louis & Marks, 1998; Wong & Nicotera, 2007). In fact, communication is also of critical importance not only to PLC per se, but also the overall school life of teachers (Hoy & Miskel, 2008). If so, what does reflective communication and the concept of reflection in dialogue mean specifically? We can understand the meaning by considering the statement discussed in Kruse et al. (1995).

Rich and recurring discourse promotes high standard of practice, and both generate and reinforce core beliefs, norms, and values of the community. In other words, talk is the bridge between educational values and improved practice in schools. Reflective practice denotes a self-awareness about what one does and, according to Schön (1993), is a condition toward which all professionals should strive. By engaging in reflection, teachers become students of their craft as they puzzle through the assumptions basic to quality practice. (p. 30)

Given that the goal of PLC is improving teacher professionalism, it could be implied that the notion of reflective communication within school-based PLC means that teachers communicate to cooperate closely in managing instructional practice with colleagues (Bryk et al., 1999; Kruse et al., 1995; Wong & Nicotera, 2007).

5. TEACHER JOB SATISFACTION

Job satisfaction has been one of the most frequently examined topics in psychology, industry, education, and management. Teacher job satisfaction also has been considered as one of the important indicators to evaluate or estimate educational attainments or output in the literatures of school effectiveness (Purkey & Smith, 1983).

Several researchers have highlighted the need to (re)consider teacher job satisfaction in implementing high-stakes educational policies successfully (Leithwood, 2007; Leithwood et al., 2002; Olorube, 2006; Shann, 1998), which was thought of as individual motivation, emotion, or feelings about the workplace and one's job (Leithwood, 2007; Shin & Reyes, 1991). Clearly, "teacher satisfaction is a pivotal link in the chain of education reform" (Shann, 1998, p. 68).

In the same context, Heller, Clay, and Perkins (1993) claimed that "school[s] must give more attention to increase teacher job satisfaction" (p. 75) in order to achieve the goal of educational reform. However, according to Leithwood and Beatty (2009) who treated teacher job satisfaction as a kind of the teacher emotion, teacher job satisfaction has remained a "badly neglected focus of attention" (p. 91) among researchers and policy makers as well as in the literature of school improvement. In other words, teachers, as one of the principal agents in both school management and instructional practice, should be considered as determinants and one of the most important factors and agents which influence the quality of education and teaching and learning.

Recently, the issues about the highly-qualified teacher shortage (Ingersoll, 2001) have been continually publicized and discussed because the problems are associated with teaching quality (Olorube, 2006) and teacher satisfaction (Liu & Ramsey, 2008). Hall, Pearson, and Carroll (1992) pointed out that many teachers who want to leave their school have dissatisfaction and negative attitude about their teaching profession. In this sense, we need to note Maeroff's (1988) statement: "Any effort to upgrade teaching must begin with improving the circumstances of teachers so that they can feel better about themselves and what they do for a living" (p. 19).

Similarly, Ingersoll (2001) discussed that school organizational factors such as a lack of support from administrators, student discipline issues, and lack of input and

decision-making power encouraged school teachers to leave their profession. Most recently, Borman and Dowling (2008) suggested that “the characteristics of teachers’ work conditions are more salient for predicting attrition than previously noted in the literature” (p. 398), while noting that “The characteristics of the schools in which teachers work are also important moderators of attrition, with higher attrition in urban and suburban schools, private schools, elementary schools, and schools with a lack of collaboration, teacher networking, and administrative support” (p. 396).

Of course, the problem of school attrition is caused by several factors, but this issue can supply educational policy makers and scholars with important implications to consider because the problem is closely related to teachers’ job perception, and their feelings or emotions (Bogler, 2001). When we understand teacher job satisfaction as part of emotion which is “part of the seamless blend of thinking and feeling” (Leithwood & Beatty, 2009, p. 92), we realize the importance of teacher job satisfaction in that it influences individual teachers’ behavior in their workplace (Leithwood, 2007).

In studies of school effectiveness, teacher job satisfaction has been regarded as educational output as mentioned earlier. However, teacher job satisfaction should be considered a process factor in order to successfully reform and improve educational system or policy, while considering the reality of school organization and agents. That is because emotion, feelings, and motivation of teachers are main agents in school and classroom management that can function as an important factor in achieving the goals of schooling and instructional practice (Borich, 2004).

Conceptual Definition of Teacher Job Satisfaction

Most researches on teacher job satisfaction are based on the work of Herzberg, Mausner, and Snyderman (1959) that identified the satisfying and dissatisfying factors

which called Herzberg's two-factor theory. The satisfying factors, called motivators, are associated with higher order needs, and the dissatisfying factors, called hygiene factors, are related with lower order needs. There have been a variety of definitions about job satisfaction throughout the history of studying job satisfaction, but the term job satisfaction would be simply defined as "a pleasurable or positive emotional state resulting from the appraisal of one's job or job experiences" (Locke, 1976, p. 1300) or "any combination of psychological, physiological, and environmental circumstances that cause a person to say, 'I am satisfied with my job'" (Rinehart & Short, 1994, p. 577). Hoppock (1935) depicted job satisfaction as "any combination of psychological, physiological and environmental circumstances that cause a person truthfully to say, 'I am happy with my job.'" (p. 47). Even though Miskel and Ogawa (1988) discerned motivation and job satisfaction, this study basically views job satisfaction as a closely related concept with and a kind of motivation, feeling, and emotion (Jiang, 2005; Leithwood, 2007; Shin & Reyes, 1991).

Elements of Teacher Job Satisfaction

As with a variety of definitions of teacher job satisfaction, no agreement exists regarding the key factors of such satisfaction (Evans, 1997). Borrowing Evans' (1997) term, this problem can be described by "the problem of construct validity" (p. 321). For this reason, there exist a variety of categorizations of teacher job satisfaction. Smith, Kendall, and Hulin (1975) who developed the Job Descriptive Index categorized teacher job satisfaction as the type of work, pay, and opportunities for promotion, supervision, and relationship with coworkers. Cheng (1996) defined teacher job satisfaction as a concept comprising teachers' job attitudes; it includes extrinsic satisfaction, intrinsic

satisfaction, social satisfaction, influence satisfaction, role clarity, fair role loading, job meaning, and job responsibility.

Evans (1997) saw teachers' job satisfaction as job fulfillment and job comfort, interpreting both terms as "*a state of mind of mind determined by the extent to which the individual perceives her/his job related needs to be being met*" (originally with italics in a text, p. 328). Dinham and Scott (1998) noted that teachers are satisfied with their job when it satisfies intrinsic motivators "such as self-growth, mastery of professional skills, and supportive environment" (as cited in Bogler, 2001, p. 668). Bogler (2001) who used the term "teacher's occupation perception" (p. 667) confirmed two key factors of teacher job satisfaction as self-fulfillment conditions, the internal conditions of the job, and physical conditions as the intrinsic and extrinsic characteristics. However, Jorde-Bloom (1986) noted one of the shortcomings of the research on teacher job satisfaction is that they "take a static view, looking at a teacher (or group of teachers) at one point in time rather than examining how work values and attitude change over the course of a teacher's career" (p. 170).

6. THE RELATIONSHIP BETWEEN FACTORS

The present study postulates the direct and mediating effect of distributed leadership on teacher professionalism in order to test the structural effects of distributed leadership on teacher professionalism (Hallinger & Heck, 1996; Leithwood et al., 2010; Supovitz, Sirinides, & May, 2010). In other words, as expressed in Figure 1 below, this study seeks to illustrate the mediating relationships of collective teacher efficacy, professional learning community, and teacher job satisfaction as well as direct relationships in terms of the effects of distributed leadership on teacher professionalism. The relationships between factors are comprised of 1) the direct effect relationship of

distributed leadership on teacher professionalism; and 2) the mediating effect relationship of distributed leadership on teacher professionalism through collective teacher efficacy, professional learning community, and teacher job satisfaction.

Direct Effect Relationship of Distributed Leadership on Teacher Professionalism

Many researchers reported that a principal's strong instructional leadership influences instructional improvement (e.g., Edmonds, 1979; Hallinger & Murphy, 1985; Joo, 2006). However, recent empirical studies support the effect of practicing distributed leadership and the relationship more clearly between distributed leadership and teacher professional development (Stroll & Louis, 2007). Camburn and colleagues (Camburn & Han, 2009; Camburn, Rowan, & Taylor, 2003) also suggest the close relationship between distributed leadership and teaching activity and instructional change.

As noted earlier, teachers have been thought of as a key agent to improve school effectiveness and management (Darling-Hammond & Bransford, 2005; Lieberman & Mace, 2008, 2010). The literature has stressed teacher leadership and participation as one of the most important factors in school management and improvement (Harris & Muijs, 2005; Leithwood & Jantzi, 1998; Muijs & Harris, 2003). In addition, teacher leadership and participation has been considered as a critical factor to improve student achievement and school organization culture (Chung et al., 2008; Lieberman & Mace, 2008).

Teachers' participation in school management contributes to school improvement (e.g., Ovando, 1994). According to Ovando (1994), teachers' involvement in school management "advance teacher empowerment and increase professionalism" (p. 2).

Mediating Effect Relationship of Distributed Leadership on Teacher Professionalism

The present study postulates the mediating effect of distributed leadership on teacher professionalism through collective teacher efficacy, PLC, and teacher job satisfaction. As mentioned earlier, the mediating relationship among factors in structural equation modeling should be based on theoretical or empirical evidence between factors to connect the relationship. In this part, this study presents evidence by focusing on three mediating factors of the effects of distributed leadership on teacher professionalism.

Mediating Effect by Collective Teacher Efficacy

Practicing distributed leadership or teacher leadership influences the collective and positive beliefs of teachers (Goddard, Hoy, & Woolfolk Hoy, 2004; Leithwood et al, 2010; Mascall, Leithwood, Straus, & Sacks, 2008, 2009; Mayrowetz, Murphy, Louis, & Smylie, 2007). Recently, Leithwood et al. (2010) who described collective teacher efficacy as one of the emotional elements found that the effect of distributed leadership practice on collective teacher efficacy is weak but statistically significant (direct effect = 0.1). Mascall et al. (2008, 2009) found that planned distribution of leadership is closely related to high levels of collective optimism or belief among educators, while unplanned distribution of leadership is associated with low levels of academic optimism toward students. Mayrowetz et al. (2007) who understood successful job redesign as a form of distributed leadership practice suggested the need for “creating a new collective set of beliefs that permit[s] the change to take hold among most members, despite stress” (p. 83) in order to successfully redesign job and roles in schools. Goddard et al. (2004) reported a significant relationship between teacher participation and collective teacher efficacy.

Collective and positive school culture have been identified as a key factor in the improvement of student attainment and school effectiveness (Bryk & Schneider, 2002; Mascall et al., 2008; Mayrowetz et al., 2007). In particular, collective teacher efficacy and teacher beliefs influence instructional improvement and teacher professionalism (Beard & Hoy, 2010; Goddard & Goddard, 2001; Leithwood et al., 2010; Talbert & McLaughlin, 1992). In effective schools, such strong cultures exist and they influence student achievement (Purkey & Smith, 1983). In the same context, Hoy and his colleagues (Woolfolk Hoy et al., 2008; Hoy & Miskel, 2008; Hoy et al., 2006; McGuigan & Hoy, 2006; Smith, & Hoy, 2007) found that collective and positive academic optimism comprised collective teacher efficacy, faculty trust, and academic emphasis on student achievement. Hoy and his colleagues' main discussion suggests that psychological and cultural characteristics of school organizations make a difference in student achievement and teachers' behavior related to teaching and learning. Considering the conceptual properties of collective teacher efficacy, we know, as stated earlier, that it also contributes to improving teacher professionalism through widely shared beliefs among teachers (Beard & Hoy, 2010; Goddard & Goddard, 2001; Hoy et al., 2006; Leithwood et al., 2010; Talbert & McLaughlin, 1992).

Mediating Effect by PLC

Practicing distributed leadership in school organizations contributes to building PLC (Lambert, 2003; Leithwood, Louis, Anderson, & Wahlstrom, 2004; Putney, 1996; Scribner et al., 2007; White, 2002). Recently, Supovitz et al. (2010) who tested the effects of principal leadership and teacher peer influence on teachers' instructional practice found that principal leadership indirectly influences teachers' instructional practice through fostering instructional collaboration and communication. In particular,

leadership collaboration and co-performance among teachers has been considered as a critical factor to reform schools (Little, 1990; Muijs & Harris, 2003) and to improve student learning outcomes (Resnick, 2010).

The literature suggests that PLC clearly contributes to improving teacher professionalism (Bryk et al., 1999; Little, 1990; Mullen, 2009; Muijs & Harris, 2003; Stoll et al., 2006; Talbert & McLaughlin, 1992). Sergiovanni (2000) suggested that “developing a community of practice may be the single best most important way to improve a school” (p.139). Little (1990) contended that schools where teachers learn together have the possibility for better quality teaching. Bryk et al. (1999) noted that forming and practicing PLC provides a chance to learn a new instructional method and develop shared norms and meaning. Talbert and McLaughlin (1992) also claimed that PLC helps teachers to learn a new teaching skill and contributes to professional development. In addition, they suggested that relationships between colleagues, i.e., within subject department plays important role in “sustaining and engendering enthusiasm for commitment to courses and classes on a day-to-day basis” (p. 14). In additional research, Talbert and McLaughlin (1994) note that teachers who participate in learning community have high levels of professionalism, especially considering that school working conditions and environments, shared vision, reflective communication, trust and cooperation among educators often constrain teacher professionalism.

Mediating Effect by Collective Teacher Efficacy and PLC

When we understand collective teacher efficacy as one dimension of school culture, practicing distributed leadership significantly influences collective teacher efficacy (Goddard et al., 2004; Leithwood et al., 2010; Mascal et al. 2008, 2009). The direct effect of distributed leadership practice on collective teacher efficacy connects with

building professional learning community. As mentioned before, the reason collective teacher efficacy is becoming more commonly discussed results from the assumption that school can have significant impact on student achievement regardless of a students' socio-cultural background such as students' family SES and previous academic achievements, and their demographic background (Hoy et al., 2006).

We can see the usefulness and relationship between collective teacher efficacy and PLC in the discussion of DuFour and Eaker (1998). According to them, the dominant benefit of the PLCs is a change of school culture. More specifically, the statement by DuFour and Eaker (1998) is helpful when attempting to understand the relationship between collective teacher efficacy and PLCs when we consider that collaboration can be elaborated by collective beliefs of school staffs. Meanwhile, Mullen (2009) noted that building PLCs influences local school culture by focusing on student learning and achievement and learning for teaching. Conversely, a culture based on collective beliefs which focuses on student learning and achievement can contribute to developing a PLC (Mawhinney, Hass, & Wood, 2005) in that positive and collective school culture can facilitate shared vision, reflective communication, trust and cooperation among teachers. PLCs which are formed by the direct relation between collective teacher efficacy and distributed leadership practice (Leithwood et al., 2010) contribute to improving teacher professionalism and student achievement (Mullen, 2009; Muijs & Harris, 2003; Stoll et al., 2006).

Mediating Effect by Teacher Job Satisfaction

Practicing distributed leadership or democratic decision-making in school management influences teacher job satisfaction (Bogler, 2001; Harris & Muijs, 2005; Imper, Neidt, & Reyes, 1990; Ovando, 1996; Rice & Schneider, 1994). Dinham (1995)

found that job dissatisfaction of teachers is closely associated with school structural and administrative settings. This implies that the style of school decision making significantly influences teacher job satisfaction. Ovando (1996) found that empowering teachers improves organizational effectiveness as well as teachers' work satisfaction. Perie and Baker (1997) reported that a school's administrative support and leadership is closely related with school teachers' job satisfaction, while it is not related to salary and benefits. Bogler (2001) also found that the leadership style of the principal influences teacher job satisfaction. In another study, Bogler (2002) suggested participative decision making in school management is positively associated with teacher job satisfaction (see also Kirby, Paradise, & King, 1992; Koh, Steers, & Terborg, 1995; Rossmiller, 1992; Silins, 1992).

Teacher job satisfaction clearly affects teachers' instructional practice and their professionalism (Bogler, 2001; Perie & Baker, 1997). Perie and Baker (1997) reported that teachers who have strong job satisfaction influence "the quality and stability of instruction" (p. 2). Bogler (2001) contended that "satisfied teachers will be more enthusiastic about investing time and energy in teaching their students." (p. 679). In the same context, when we consider that enthusiasm in teaching skill functions as helping behavior (Borich, 2004), it is possible to understand Bogler's conclusion about the relationship between teacher job satisfaction and teacher professionalism which is represented by effective teaching methods or activities. In the end, considering that teacher job satisfaction is an aspect of emotion, teacher job satisfaction directly influences instructional practice of teachers in that, as Borich (2004) noted, one element comprised of effective teaching skills is teachers' affect; the higher teacher job satisfaction, the greater teacher professionalism.

Mediating Effect by PLC and Teacher Job Satisfaction

Practicing distributed leadership affects building PLC (e.g., Lambert, 2003; Leithwood et al., 2004) as mentioned earlier. In turn, the effects of distributed leadership on PLC connect with teacher job satisfaction (Harris & Jones, 2010; Hord, 1997; Kruse et al., 1995; Talbert & McLaughlin, 1994). Perie and Baker (1997) reported that “the more favorable the working conditions were, the higher the satisfaction scores were” (ix). In addition, they clearly stated that “Workplace conditions affect not just current job satisfaction, but satisfaction with teaching as a career, need to be identified and examined by policy makers” (p. 2). Lee, Smith, and Croninger (1995) reported that in schools which have a strong professional learning community, “teachers and other staff members experience more satisfaction and higher morale, while students drop out less often and cut fewer classes. And both staff and students post lower rates of absenteeism” (as cited in Hord, 1997, p. 27). The effects of teacher job satisfaction directly connect with teacher professionalism (Bogler, 2001; Perie & Baker, 1997; see also Borich, 2004) through the path of distributed leadership practice and building PLC.

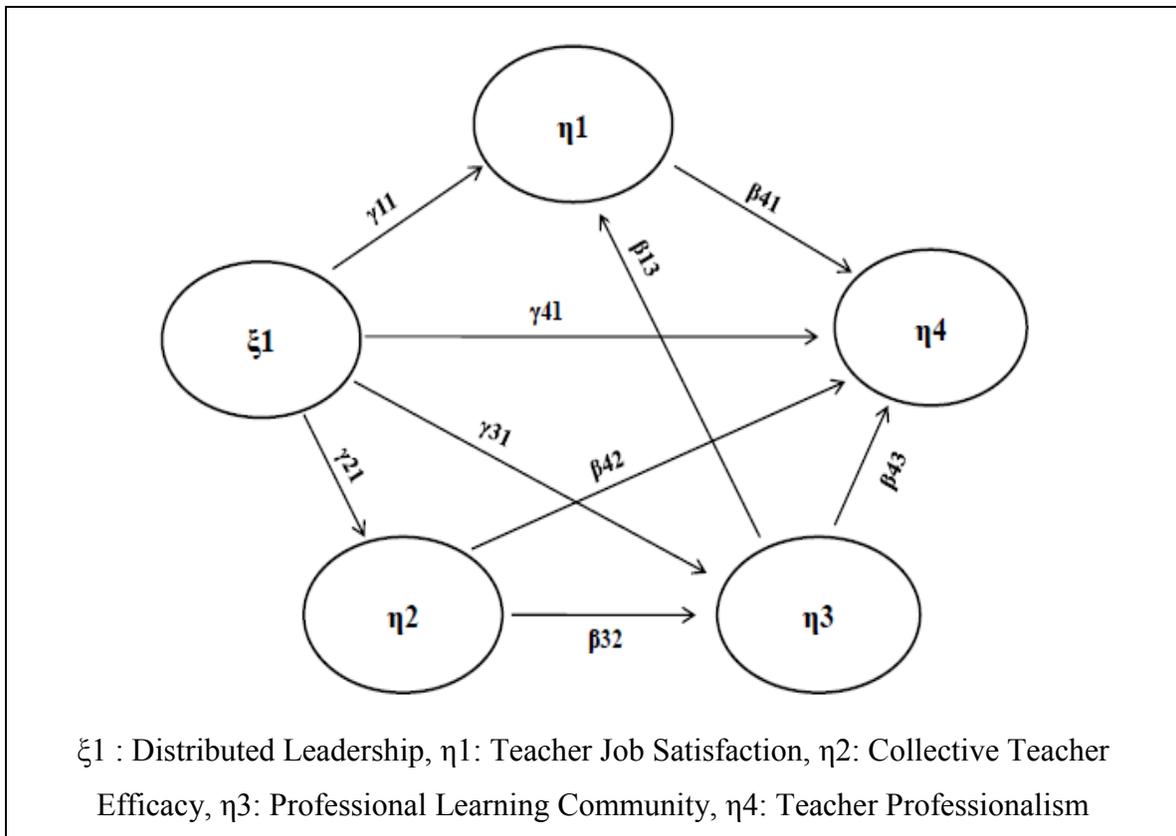
Mediating Effect by Collective Teacher Efficacy, PLC and Teacher Job Satisfaction

I have reviewed the mediating effects of distributed leadership on teacher professionalism. Lastly, this study explores the indirect effect of distributed leadership on teacher professionalism when mediated by three factors at the same time: collective teacher efficacy, PLC, and teacher job satisfaction. This mediating effect relationship means a comprehensive mediating relationship exists among distributed leadership, collective teacher efficacy, PLC, teacher job satisfaction, and teacher professionalism.

7. RESEARCH MODEL

To illustrate graphically, the researcher constructed a Structural Equation Model (SEM) to reflect the direct and mediating effects of distributed leadership practice on teacher professionalism (Figure 1) after scrutinizing theoretical or empirical literature base between the factors. The model also served to elaborate current theory regarding school effectiveness and improvement (Muijs & Harris, 2003; Thoonen et al., 2011). Specifically, the model was based on 3rd year teacher data of *the Korea Educational Longitudinal Study* (KELS) of 2007 conducted by the Korean Educational Development Institute (KEDI).

Figure 1: Research Model



8. SUMMARY

The most important procedure for constructing and analyzing a structural relationship is that the relationship between factors should be supported by theoretical or empirical bases (Byrne, 2010; Harrington, 2009; Heck & Hallinger, 2009; Kline, 2005). In addition, one must review the definition, conceptual properties, and elements of each factor to in order to reconstitute the items of open data. In this sense, this chapter reviewed the definition and properties, and elements of distributed leadership, collective teacher efficacy, PLC, teacher job satisfaction, and teacher professionalism and the relationship between their factors. The literature review supports not only the direct and mediating relationship between distributed leadership and teacher professionalism postulated by the research model, but also provides evidence to construct the measure and items of this study, thereby ensuring validity and reliability of the measure. In chapter three, the specific research design and methods will be described to test the three research questions.

CHAPTER THREE: RESEARCH DESIGN AND METHODS

The purpose of this study was to test the direct and indirect effects of distributed leadership on teacher professionalism mediated by collective teacher efficacy, professional learning community, and teacher job satisfaction by using teacher data of *the Korea Educational Longitudinal Study (KELS)* of 2007. This chapter includes a KELS survey introduction, the method for dealing with missing data, data analysis method, and reliability and validity of the measurement.

1. KELS SURVEY INTRODUCTION

This study analyzes a 3rd year KELS teacher-level data set. The KELS has been conducted by the Korean Educational Development Institute (KEDI) since 2005. The KELS surveys the affective and cognitive accomplishments as well as educational activity and experience in school and family that secondary students have experienced. This data are then used to estimate the effects of the student experiences on the affective and cognitive development of students in the short term. In addition, the KEDI tracks selected students until 2023 in order to make a longitudinal assessment about whether educational attainment from schooling affects a vocational selection (Kim & Namgung, 2008).

KELS Population and Sample

The KEDI sampled 6,908 first grade students in 150 middle schools in 2005 and has followed up annually with the selected students (Kim & Namgung, 2008). The student samples were extracted from 703,914 students from the 2,929 middle schools across the country. The sampling method employed was *stratified cluster random sampling* (Kim & Namgung, 2008). The KEDI divided the country into strata depending

on city size and extracted the sample schools as clusters from each stratum (Kim, 2007). The four resulting strata-based categories were: Seoul, metropolitan cities, small and medium sized cities, and town and village (rural area). The number of selected schools was determined by proportionate stratified sampling (Kim & Namgung, 2008). KEDI selected the 50 student samples from the selected middle schools and then the final subjects were sampled by random sampling method (Kim, 2007).

The sample of parents was extracted from the parents of the students selected for the survey. Similarly, the sample of teachers was the home room and the subject area teachers of the selected students. The reason KEDI limited the subject at the grade level teachers is because KEDI assumed in the research design that these teachers are most familiar with the sampled students and know them best. The teacher population in Korean middle schools is 103,340. The teacher sample from 150 middle schools includes 26 schools in Seoul, 38 schools in metropolitan cities, 66 schools in small and medium sized cities, and 20 schools in town and village. The number of schools by established type includes 121 public schools and 29 private schools. The total number of teachers selected from the population is 2,655 teachers (Kim, 2007).

KELS Teacher Survey Instrument

The KELS survey is based on an *input-process-output model* (Kim, 2007; Kim & Namgung, 2008). The survey questionnaire for teachers also followed this model. The main indicators for the KELS teacher survey (Kim, 2007) are:

- Input indicators: gender, age, major field of university, the highest degree teachers hold, teaching career (in current school and the total teaching career), position, subject which in charge of, teacher union in which participate.
- Process indicators: the extent to which a variety of teachers' meetings revitalizes, motivation to choose teaching career, instructional activities, the extent to which teachers use Information and Computer Technology (ICT),

various test results, and a test results, factors which disturb schooling and instruction in the classroom, the extent to which students' deviant actions occur, perception about behavior of colleagues, collective and individual efficacy of school teachers, teaching- and schooling-related cooperation, style of principle leadership, perception about support of teaching activities.

- Output indicators: teacher satisfaction.

2. DEALING WITH MISSING DATA

In general, Full Information Maximum Likelihood (FIML) estimation is considered as a good method to deal with missing data in SEM. According to Kline (2005), missing data does not matter in the case that there are a few missing observations in a large data set. However, this study uses the Expectation-Maximization (EM) algorithm which is comprised by the estimation step and the maximization step (Kline, 2005) to test the significance level of the indirect effect (SPSS, 2007).

3. DATA ANALYSIS METHOD

As noted above, this study analyzes a 3rd year data set of *the Korea Educational Longitudinal Study (KELS)* of 2007 using Structural Equation Modeling (SEM) as a quantitative method. SEM is a useful statistical technique to quantitatively test theoretical relationships between and among a variety of factors (Byrne, 2010; Kline, 2005) in studying leadership and school effectiveness (Heck & Hallinger, 2009). This study used two statistical computer programs.

First, PASW Statistics 18.0 serves as the main program to test descriptive statistics and reliability for observed and latent variables, to sum the value of items for observed variables, and to perform correlation analysis. Second, AMOS 18.0 was used to test validity of the measurement model and the research questions. AMOS is a useful statistical program to help test structural relationships between and among variables

which cannot be solved by regression analysis and factor analysis and to draw the structural relationship of variables on the screen (Kline, 2005).

Model Evaluation

There are a variety of indices to assess fit of the model. To assess fit of the model, however, this study used Chi-square (χ^2), Root Mean Square Error of Approximation (RMSEA), Normed Fit Index (NFI), Relative Fit Index (RFI), Incremental Index of Fit (IFI), Tucker-Lewis Index (TLI), and Comparative Fit Index (CFI). Table 1 juxtaposes the model-fit indices and their statistical criteria. The value of NFI, RFI, IFI, TLI, and CFI should be greater than 0.90; RMSEA is recommended up to 0.05, but up to 0.08 can be acceptable (Browne & Cudek, 1993; Gefen, Straub, & Boudreau, 2000). It is essential to consider overall statistical criteria in order to evaluate the fit of the research model with the data because the value of chi-square (χ^2) is influenced by the sample size (Kline, 2005). The specific content about each statistical criterion is as follows:

Table 1: Model-Fit Indices and Statistical Criteria

Model-Fit Indices	χ^2	RMSEA	NFI	RFI	IFI	TLI	CFI
Statistical Criteria	Non-significant value	Less than 0.08	Larger than 0.90				

Model Modification

If the model does not fit satisfactorily, the researcher may modify the research model by using the results of modification indices which are provided by the output result of the AMOS program until the model-fit indices are met (Arbuckle, 2009). However, there is a critical assumption when the model is modified; that is, it also should be based on a theoretical base between variables (Byrne, 2010; Kim, Kim, & Hong, 2009).

4. MEASUREMENT

According to Kim (2007), the *KELS* questionnaire was designed by referring to the Research on the Level of Schooling and the Actual Condition of Korea and Educational Longitudinal Study of 2002 (ELS: 2002). Therefore, we know that reliability and validity of the *KELS* questionnaire is ensured by the previous studies. In addition, reliability and validity of the questionnaire also have been confirmed by a variety of researchers using *KELS* data in Korea (e.g., Kim & Kim, 2008; Kim & Park, 2008). However, this research design reconfirms reliability and validity of the measurement before analyzing data and test the research model.

Validity of Measurement

This research went through three stages to establish validity of measurement. First, the *KELS* teacher questionnaire was reorganized to be adapted to each observed variable through scrutinizing the previous theoretical background and instrument (Ting, 2011). Second, after completing the first process, the present study asked five scholars (including three Koreans) who major in educational administration to review the validity of each sub factor of three latent factors and two observed variables and confirm whether each item reflects the sub factor domain and each observed variable (Carmines & Zeller, 1991). Lastly, this study analyzed the result of parameter of default model (research model) to confirm validity of the measurement model. If each observed variable is significant at the .001 level, we can conclude that each observed variable explains the latent variable reasonably (Kim et al., 2009). The result of the parameter estimation is summarized in Table 2 below. All p-values are under 0.001. Therefore, we can conclude that the measurement model of this research is valid.

Table 2: Parameter of Measurement Model

Observed Variable	Distributed Leadership	PLC	Teacher Professionalism
Principal Leadership	1		
Teacher Participation	.468 (.016) ***		
Shared Vision		1	
Teacher Collaboration		.577(.021) ***	
Reflective Communication		.555(.033) ***	
Helping Behavior			1
Key Behavior			1.718(.078) ***

Note: *** < 0.001, standard error. Modified model.

Reliability of Measurement

This study tested internal consistency of each sub factor for the latent variable and observed variable. Even though there is no consensus about the most appropriate standard to apply, internal consistency can be assumed if the sub factors and observed variables have internal consistency or homogeneity if the Cronbach's α (alpha) is more than roughly 0.7 (Kline, 2005). Reliability is described in the next section.

Distributed Leadership

The study reconstituted the KELS items by understanding distributed leadership as democratic or collaborative leadership in school management (Harris, 2008a; Spillane, 2006). This research measured distributed leadership through *principal leadership* (9 items) and *teacher participation* (5 items). Responses to all items used a five-point scale that ranged from “strongly disagree (1)” to “strongly agree (5)”. The reliability of each observed variable was principal leadership (0.924) and teacher participation (0.893) respectively. The reliability of all items is 0.929.

Table 3: Measurement of Distributed Leadership

Variable	Item
Principal Leadership 9 items	<p><u>Q: Please indicate to what extent you agree with the following questions on the principal of the school.</u></p> <ul style="list-style-type: none"> • Our school principal discusses decision-making with teachers. • Our school principal often meets with teachers. • Our school principal is interested in school improvement as well as new ideas from teachers. • Our school principal makes an effort to coordinate teachers' work. • Our school principal holds meetings (for a better collaboration between school departments) from time to time. • Our school principal makes an effort to develop teachers' capacity. • Our school principal delegates his or her authority to teachers. • Our school principal critically deals with problems in educational field. • Our school principal brings challenging tasks to teachers.
Teacher Participation 5 items	<p><u>Q: To what extent are teachers' opinions reflected in determining the following mission?</u></p> <ul style="list-style-type: none"> • Teachers' opinions are reflected in determining the position, home room teacher, and work responsibility. • Teachers' opinions are reflected in budget decisions. • Teachers' opinions are reflected in the regulations and rules decisions. • Teachers' opinions are reflected in plans for school activities. • Teachers' opinions are reflected in determining supervision in school.

Teacher Professionalism

This study reorganized KELS items by following Borich's (2004) notion. Teacher professionalism is constituted by *key behavior* (11 items) and *helping behavior* (6 items). Each item was used a five-point scale that ranged from "strongly disagree (1)" to "strongly agree (5)". The reliability is key behavior (0.823) and helping behavior (0.691). The reliability for teacher professionalism is 0.862.

Table 4: Measurement of Teacher Professionalism

Variable	Item
Helping Behavior 6 items	<p><u>Q: The following are questions about the teaching method and content which you are doing. Please check applicable box.</u></p> <ul style="list-style-type: none"> • At the beginning of each class, I revisit the course content of the previous class. • At the beginning of each class, I introduce a brief content of the class content. • The level of my teaching goal is appropriate to students, not too easy or too difficult. • I repeat and give the class summary at the end of classes. • I check how much students understand the content in class. • I give students homework to be met with their ability.
Key Behavior 11 items	<p><u>Q: The following are questions about the teaching method and content which you are doing. Please check applicable box.</u></p> <ul style="list-style-type: none"> • I am willing to answer students' questions. • I check students whether they have any questions. • I ask students. • I encourage students to think. • I give students the opportunity to express their opinions. • I give examples to explain abstract concepts. • I clearly explain the class content so that it is easily understood. • I provide a variety of appropriate resources to solve the problems. • I take advantage of appropriate teaching methods classes (teaching materials and facilities), considering the characteristics of class. • I check to extent that students understand the content. • I adjust the level of difficulty of the class to meet students' level.

Collective Teacher Efficacy

The research constituted the items by referring to Collective Teacher Efficacy Scale of Goddard, Hoy, and Woolfolk Hoy (2000). There are 6 items. Responses to all items used a five-point Likert scale that ranged from “strongly disagree (1)” to “strongly agree (5)”. The reliability for collective teacher efficacy is 0.844.

Table 5: Measurement of Collective Teacher Efficacy

Variable	Item
Collective Teacher Efficacy 6 items	<p data-bbox="428 373 1312 443"><u>Q: The following is the statement for teachers of your school. Please indicate to what extent you agree with the following statements.</u></p> <ul data-bbox="428 447 1370 810" style="list-style-type: none"> <li data-bbox="428 447 1360 485">• Our school teachers have the ability to deal well with difficult students. <li data-bbox="428 489 1308 527">• Our school teachers are proficient in a variety of teaching methods. <li data-bbox="428 531 1308 600">• If a student doesn't understand something the first time, our school teachers will try another way. <li data-bbox="428 604 1286 674">• Our school teachers have the confidence needed to motivate their students. <li data-bbox="428 678 1370 747">• Though there are students who do not want to learn, our school teachers do not give them up. <li data-bbox="428 751 1341 821">• Our school teachers constantly try to enhance their teaching materials and methods.

Professional Learning Community

This study reorganized KELS items by referring to the indicators of Bryk et al. (1999). I constructed sub factors such as *shared vision* (4 items), *reflective communication* (5 items), and *teacher collaboration* (3 items). Responses of items about shared vision and teacher collaboration ranged from “strongly disagree (1)” to “strongly agree (5)”. Scales of items about reflective communication ranged from “never (1)” to “often (5)”. The reliability for these items is: shared vision (0.907), reflective communication (0.799), and teacher collaboration (0.840), respectively. The reliability of professional learning community is 0.852.

Table 6: Measurement of Professional Learning Community

Variable	Item
Shared Vision 4 items	<p><u>Q: The following are questions about the goals for education in your school. What is your opinion?</u></p> <ul style="list-style-type: none"> • Our school teachers are aware of the school's educational goals. • Our educational goals are reflected in educational our activities. • Teachers share our school administrator’s educational goals and values. • The spirit of our educational goals is reflected in principal’s school management.
Reflective Communication 5 items	<p><u>Q: Do you have a talk with school teachers about the following questions?</u></p> <ul style="list-style-type: none"> • I talk about students’ schoolwork with colleagues. • I talk about students’ attitudes in class and behaviors with colleagues. • I talk about the content or students’ workload with colleagues. • I talk about students’ attendance and absence with colleagues. • I talk about students’ attitudes in school life with colleagues.
Teacher Collaboration 3 items	<p><u>Q: Please indicate to what extent you agree with the following questions.</u></p> <ul style="list-style-type: none"> • Teachers can easily get help from colleagues about school educational activities and tasks. • Teachers share their values and beliefs about school educational activities and major tasks with colleagues. • Our school teachers collaborate with each other well.

Teacher Job Satisfaction

Measures for teacher job satisfaction were based on the study that Kim and Kim (2008) used. Each item used a five-point scale that ranged from “strongly disagree (1)” to “strongly agree (5)”. The reliability of teacher job satisfaction is 0.896.

Table 7: Measurement of Teacher Job Satisfaction

Variable	Item
Teacher Job Satisfaction 7 items	<p data-bbox="428 359 1317 426"><u>Q: Please indicate to what extent you are satisfied with the following questions.</u></p> <ul style="list-style-type: none"> <li data-bbox="428 432 1370 499">• I welcome each day with positive expectations of what I will experience in my school. <li data-bbox="428 506 1208 541">• If I could choose a career again, I would be a teacher again. <li data-bbox="428 548 1105 583">• I have good professional experiences at this school. <li data-bbox="428 590 1292 657">• My profession as a teacher continues to stimulate my professional growth. <li data-bbox="428 663 1349 699">• I have been satisfied with the teaching profession in the last two years. <li data-bbox="428 705 922 741">• I feel proud that I work in the school. <li data-bbox="428 747 1110 783">• Teaching in this school helps my own development.

5. SUMMARY

In this chapter, I discussed the KELS survey, measurement items for the research model, validity and reliability measurement, and suggested the way to deal with missing data and analyze KELS teacher data. As mentioned earlier, the most important assumption for constructing and analyzing a structural relationship is that the relationship between factors should be supported by theoretical or empirical bases (e.g., Byrne, 2010). In addition, one needs to consider the measure and items that the existing literature suggested in order to reconstitute the items of open data. To ensure the reliability and validity of the measurement model, this research scrutinized the literature on distributed leadership, teacher professionalism, collective teacher efficacy, professional learning community, and teacher job satisfaction. KELS items were then (re)constructed for the teacher survey questionnaire. As a result, reliability and validity of the measurement model were ensured statistically.

CHAPTER FOUR: RESULTS

The study tested the direct and indirect effects of distributed leadership on teacher professionalism. This research analyzed a research model using the teacher data of KELS 2007. I used PASW Statistics 18.0 to analyze descriptive statistics and to calculate Pearson’s correlation coefficients among latent and observed variables. The AMOS 18.0 program was used to assess the fit of the research model and to estimate the direct and indirect effects among latent variables. This chapter includes the background characteristics of respondents, descriptive statistics, correlations, model evaluation, and the effects among research variables.

1. BACKGROUND CHARACTERISTICS

Table 8 shows background information about demographic characteristics. 32.9% of the KELS respondents were men and 67.1% were female, respectively. The age breakdown is as follows: 16.1% of those who responded to the survey were 29 years old or younger, 30.5% were ages 30-39, 40.5% were ages 40-49, and 12.2% were ages 50-59. The average age of the participants was approximately 40-years-old.

Table 8: Demographic Characteristics of Respondents

Background Variables		Frequency (n)	Valid Percent (%)
Gender	Male	868	32.9
	Female	1772	67.1
Age	Under 29	423	16.1
	30-39	801	30.5
	40-49	1064	40.5
	50-59	320	12.2
	Over 60	19	0.7
	Mean: 39.73, Standard Deviation: 8.653, Range: 40 (Minimum 22- Maximum 62)		

Table 9 depicts the professional characteristics of the respondents. According to the results, most participants in the KELS 2007 had a Bachelor's degree (68.8%). Teachers who had a post-graduate degree represented 31.2% of the participants. Approximately one-third of teachers in the KELS 2007 had teaching experience of less than 10 years. 31.5% of teachers had teaching experience between 10 years and 19 years. The mean number of years of teaching experience was 14 years (SD = 9.091). Most respondents had a regular teaching position (67.2%), while the portion of teacher leaders, such as department chairs, was 24.4%.

Table 9: Professional Characteristics of Respondents

Background Variables		Frequency (n)	Valid Percent (%)
Education	Bachelor's degree	1790	68.8
	Post-graduate degree	810	31.2
Teaching Experience	Under 10	989	37.6
	10-19	829	31.5
	20-29	710	27.0
	30-39	104	3.9
	Over 40	1	.0
	Mean: 14.03, Standard Deviation: 9.091, Range: 39 (Minimum 1 - Maximum 40)		
Position	Teacher leaders	637	24.4
	Regular teacher	1758	67.2
	Short-term teaching position	216	8.3
	Part-time instructor	4	.2

2. DESCRIPTIVE STATISTICS

The study calculated descriptive statistics for each research variable. Table 10 provides descriptive statistics for latent and observed variables. After using the Expectation-Maximization (EM) algorithm for each item, the author summed the value of each item to calculate the mean of each observed variable, and then the sum of the value was divided by the number of items. The mean of each latent variable was calculated by

dividing the number of observed variables after summing the mean of each observed variable.

As a result, the mean of principal leadership (M = 3.382, SD = 0.697) and teacher participation (M = 3.342, SD = 0.730) was lower than the mean of other observed variables. More specifically, Korean middle school teachers perceived that they often communicated with other teachers (M = 4.106, SD = 0.610). In addition, the mean of collective teacher efficacy (CTE) was 3.637 (SD = 0.493), 3.453 (SD = 0.648) for shared vision, 3.810 (SD = 0.638) for teacher collaboration, 3.799 (SD = 0.431) for helping behavior, and 3.967 (SD = 0.384) for key behavior. Table 10 also illustrates descriptive statistics for the latent variables. As Table 10 indicates, the mean of teacher professionalism (M = 3.883, SD = 0.371) that teachers perceived was higher than the mean of PLC (M = 3.79, SD = 0.478) and distributed leadership (M = 3.362, SD = 0.634), respectively.

Table 10: Descriptive Statistics (n=2,655, a five-point scale)

Variable	Mean	Std. Deviation	Variance
Distributed Leadership (LV)	3.362	.634	.402
Principal Leadership	3.382	.697	.486
Teacher Participation	3.342	.730	.533
Collective Teacher Efficacy	3.637	.493	.243
PLC (LV)	3.790	.478	.228
Shared Vision	3.453	.648	.420
Reflective Communication	4.106	.610	.372
Teacher Collaboration	3.810	.638	.407
Teacher Job Satisfaction	3.544	.706	.499
Teacher Professionalism (LV)	3.883	.371	.138
Helping Behavior	3.799	.431	.186
Key Behavior	3.967	.384	.148

Note: LV=latent variable.

3. CORRELATIONS

The researcher calculated Pearson's correlation coefficients to test the degree of linear association among the variables. Table 11 shows the correlation matrix among the latent and observed variables. According to Pearson's correlation coefficients, all variables were significantly correlated with other variables. Nonetheless, Pearson's correlation coefficients between principal leadership and teacher participation ($r = 0.578^{**}$) showed a relatively high level of correlation when compared with other correlation coefficients. This implies that the more school teachers perceived that the principal practiced shared leadership, the more they perceived that their opinion was reflected in determining important school activities.

Similarly, Pearson's correlation coefficients ($r = 0.653^{**}$) between helping behavior and key behavior revealed that the two variables are highly correlated with each other. We also need to note the relationships between principal leadership and shared vision ($r = 0.577^{**}$). The result shows that the more school teachers perceived that the principals shared their leadership role and function with school teachers, the more the school teachers perceived that they shared the same vision and goals of schooling. Table 11 also indicates that observed variables used to measure each latent variable are significantly correlated with each other. For example, teacher professionalism, which was measured by helping behavior (HB) and key behavior (KB), was significantly and positively correlated with its observed variables.

Table 11: Correlation Matrix among Latent and Observed Variables (n=2,655)

	DL	LD	FP	CTE	PLC	SV	TC	RC	TJS	TP	HB	KB
DL	1	.883**	.894**	.356**	.482**	.572**	.346**	.161**	.436**	.204**	.182**	.189**
LD	.883**	1	.578**	.355**	.472**	.577**	.324**	.156**	.428**	.198**	.175**	.186**
FP	.894**	.578**	1	.279**	.386**	.443**	.293**	.130**	.349**	.165**	.148**	.151**
CTE	.356**	.355**	.279**	1	.596**	.507**	.506**	.332**	.415**	.352**	.315**	.325**
PLC	.482**	.472**	.386**	.596**	1	.740**	.806**	.720**	.437**	.369**	.325**	.349**
SV	.572**	.577**	.443**	.507**	.740**	1	.411**	.245**	.448**	.294**	.279**	.254**
TC	.346**	.324**	.293**	.506**	.806**	.411**	1	.410**	.367**	.254**	.206**	.259**
RC	.161**	.156**	.130**	.332**	.720**	.245**	.410**	1	.166**	.290**	.251**	.278**
TJS	.436**	.428**	.349**	.415**	.437**	.448**	.367**	.166**	1	.251**	.203**	.257**
TP	.204**	.198**	.165**	.352**	.369**	.294**	.254**	.290**	.251**	1	.920**	.898**
HB	.182**	.175**	.148**	.315**	.325**	.279**	.206**	.251**	.203**	.920**	1	.653**
KB	.189**	.186**	.151**	.325**	.349**	.254**	.259**	.278**	.257**	.898**	.653**	1

Note: 1. DL=Distributed Leadership (latent variable), LD=Principal Leadership, FP=Teacher Participation, CTE=Collective Teacher Efficacy, PLC=Professional Learning Community (latent variable), SV=Shared Vision, RC=Reflective Communication, TC=Teacher Collaboration, TJS=Teacher Job Satisfaction, TP=Teacher Professionalism (latent variable), HB=Helping Behavior, KB=Key Behavior. 2. ** p < .01.

4. MODEL EVALUATION

To test Research Question One (Does the model of this research fit the observed data?), the study analyzed how well the research model fit the data. The author estimated unknown parameters by using the maximum likelihood (ML) estimation method of the AMOS program. Even though the research used chi-square statistics (χ^2), the results can be easily influenced by sample size when the sample size is larger than 200 (Kline, 2005).

Considering that the sample size of the KELS data is large ($n=2,655$), we need to assess the goodness-of-fit of the model through other indices. Therefore, this study evaluated the fit of the model to the data by considering RMSEA, NFI, RFI, IFI, TLI, and CFI. As Table 12 indicates, the initial hypothesized research model (Figure 2) showed an inadequate fit to the KELS data because RMSEA (0.092), RFI (0.889), and TLI (0.893) values did not meet statistical criteria. Therefore, we needed to modify the initial research model.

In the modifying process, the critical step is to simultaneously consider the theoretical and empirical foundations and the modification indices (MIs) between two variables provided by the AMOS program (Kim et al., 2009). In this case, revising the initial research model by using the MIs in the AMOS program is similar to the Lagrange Multiplier (LM) test technique which “estimates the decrease in the chi-square test statistic that would occur if a parameter were to be freely estimated” (Worthington & Whittaker, 2006, p. 830).

Figure 2: Initial Hypothesized Model

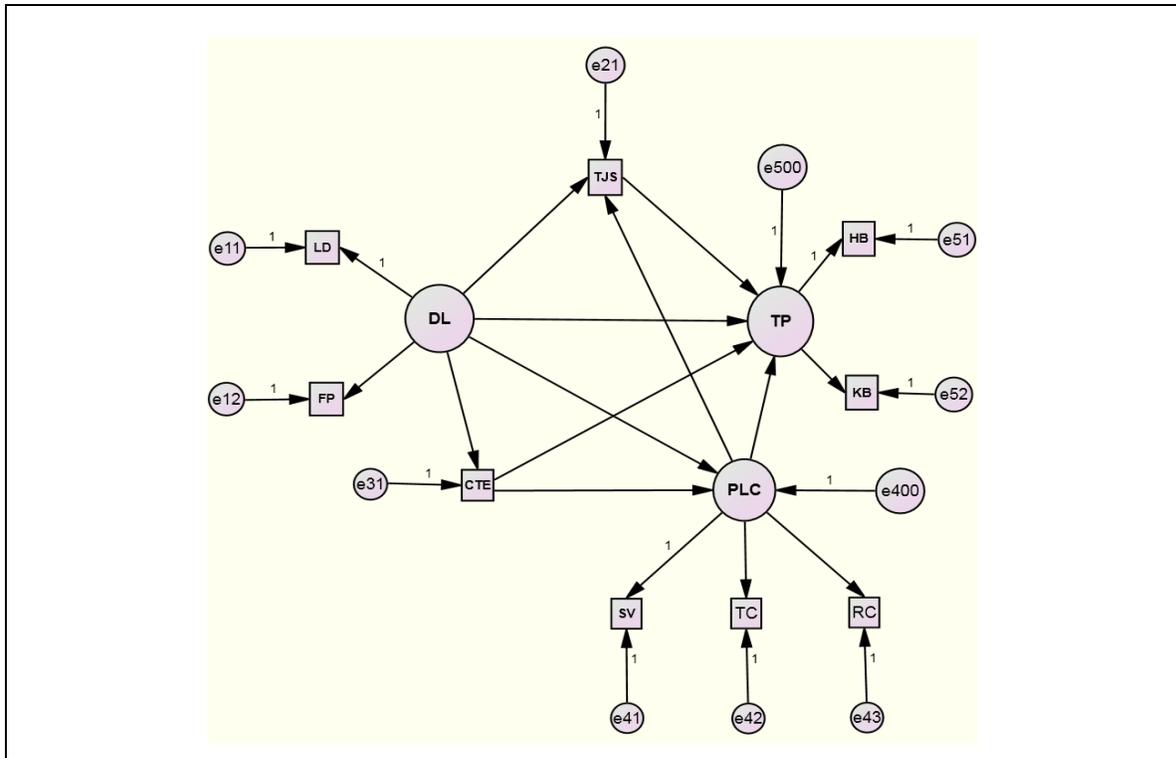


Table 12: Model-Fit of the Initial Hypothesized Model

Model-Fit Indices	χ^2	RMSEA	NFI	RFI	IFI	TLI	CFI
Statistical Criteria	Non-significant value	Less than 0.08	Larger than 0.90				
Basic Model	466.074*** (df=20)	.092	.938	.889	.941	.893	.940

According to Table 13, the MI between e42 (teacher collaboration) and e43 (reflective communication) equals 168.369. This means the chi-square value can be significantly decreased by approximately the same amount as the MI value, whereby the goodness-of-fit can be improved (Byrne, 2010). According to Byrne, par change in Table

13 means “the predicted estimated change in either a positive or negative direction” (p. 86). Therefore, it is possible to connect the correlation between e42 and e43.

With regard to a theoretical foundation between the two variables, Kruse et al. (1995) noted that teacher collaboration and reflective communication were significantly related to each other. Considering the two facts above, the study modified the initial hypothesized model by drawing the correlation between teacher collaboration (e42) and reflective communication (e43) (see Figure 3).

Table 13: Covariance between Error Terms of the Initial Hypothesize Model

	M.I.	Par Change		M.I.	Par Change
e43<->e31	22.570	.720	e52<->e42	4.309	.201
e43<->e21	15.036	-.886	e52<->e41	17.837	-.492
e42<->e31	33.907	.493	e51<->e21	9.140	-.470
e42<->e43	168.369	1.139	e51<->e42	13.113	-.216
e41<->e31	37.382	-.624	e51<->e41	8.633	.212
e41<->e43	14.346	-.400	e11<->e43	34.567	-1.497
e41<->e42	13.549	-.216	e11<->e42	46.316	-.962
e52<->e21	8.037	.714	e11<->e41	54.942	1.249
e52<->e43	17.289	.720	e12<->e43	5.410	-.375

Note: e means error term. e11=Principal Leadership, e12= Teacher Participation, e21= Teacher Job Satisfaction, e31= Collective Teacher Efficacy, e41= Shared Vision, e42= Teacher Collaboration, e43= Reflective Communication, e51= Helping Behavior, e52= Key Behavior.

Table 14 shows the model-fit indices of the revised model. As Kline (2005) indicated, the value of chi-square can be easily influenced by the sample size. Considering that the sample size of the KELS data set was 2,655, the modified model indicated a significant improvement in model-fit indices between the initial research model and the modified model. As a result, all model-fit indices excluding the chi-square

statistics ($p < .001$) met the statistical criteria. Therefore, we can conclude that the modified research model accounted for the KELS data well.

Figure 3: Modified Model

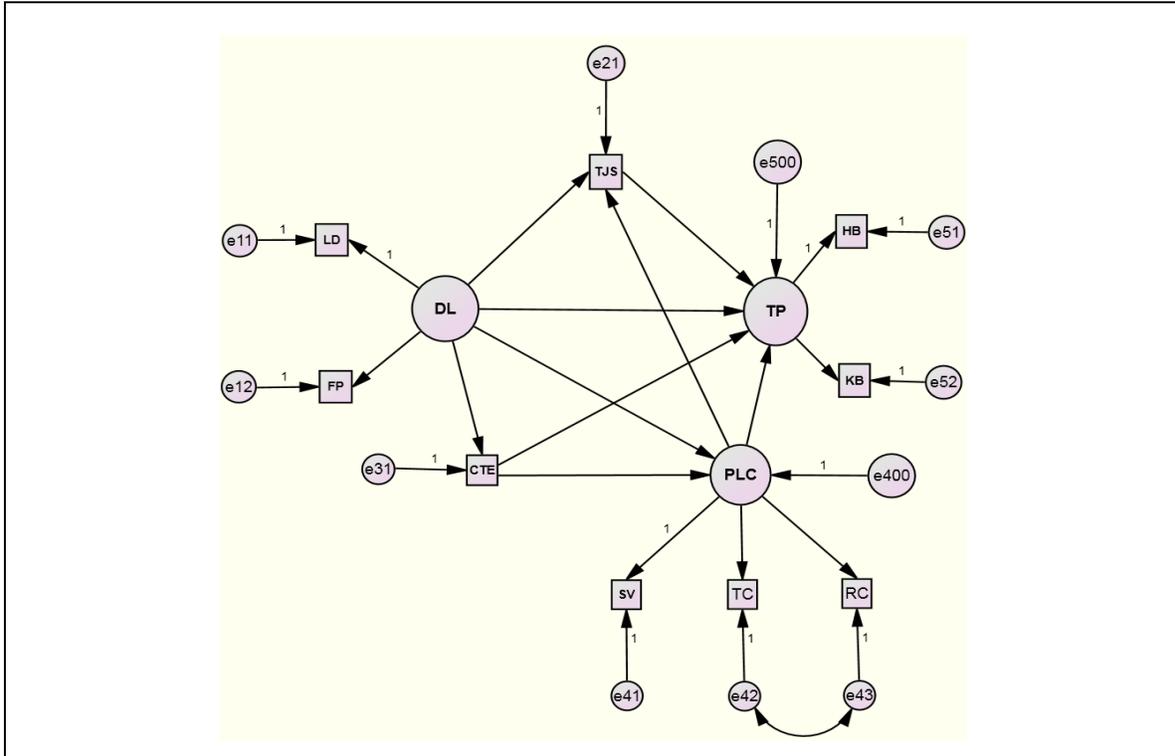


Table 14: Model-Fit of the Revised Model

Model-Fit Indices	χ^2	RMSEA	NFI	RFI	IFI	TLI	CFI
Statistical Criteria	Non-significant value	Less than 0.08	Larger than 0.90				
Modification Model	285.158*** (df=19)	.073	.962	.928	.965	.933	.964

Note: *** $p < .001$.

5. EFFECTS BETWEEN RESEARCH VARIABLES

We can analyze the effects between latent variables because the modified model fits the data (Byrne, 2010). The study used the AMOS 18 program to test Research Questions Two (Does distributed leadership directly influence teacher professionalism?) and Three (Does distributed leadership indirectly influence teacher professionalism mediated by collective teacher efficacy, professional learning community, and teacher job satisfaction?).

The AMOS program provides critical ratio values in terms of direct relationships between research variables (latent variables). When the value is higher than 1.96, we can conclude that the relationship between variables indicates statistical significance (Byrne, 2010). The study used bootstrapping to test the significance level of indirect effects and total effects after dealing with missing data through the Expectation-Maximization (EM) algorithm. Therefore, we can confirm the significance level of indirect and total effects; the effect is significant when the level is under 0.01. Table 15 depicts the analysis results consisting of direct, indirect, and total effects between research variables, which were calculated by the AMOS program.

Total effects can be calculated by the sum of direct and indirect effects. According to Kline (2005), the standardized total effects can also be interpreted as path coefficients (p. 129). The AMOS program also provides the Squared Multiple Correlations ($SMC = R^2$). The SMC value “represents the proportion of variance that is explained by the predictors of the variable in question” (Byrne, 2010, p. 189). Therefore, the modified research model accounted for 29.3% of the variance associated with teacher professionalism. The next section specifically analyzes the data related to the second and third research questions of the study.

Table 15: Effects Decomposition

Path	Direct Effect	Indirect Effect	Total Effect
DL -> CTE	.417**	N/A	.417**
DL -> PLC	.632**	.200**	.832**
DL -> TJS	.071	.440**	.512**
DL -> TP	-.526**	.792**	.266**
CTE -> PLC	.480**	N/A	.480**
CTE -> TJS	N/A	.254**	.254**
CTE -> TP	-.146	.491**	.345**
PLC -> TJS	.530**	N/A	.530**
PLC -> TP	1.01**	.011	1.02**
TJS -> TP	.021	N/A	.021
SMC (R ²)	CTE: 0.174, PLC: 0.882, TJS: 0.348, TP: 0.293		

Note: 1. DL=Distributed Leadership, CTE=Collective Teacher Efficacy, PLC =Professional Learning Community, TJS=Teacher Job Satisfaction, TP=Teacher Professionalism. 2. The indices of effect means standardized estimate. 3. ** p < .01.

The Direct Relationship of Distributed Leadership and Teacher Professionalism

The study hypothesized that stronger perception of distributed leadership would be significantly and directly associated with teacher professionalism. As Table 15 indicated above, the results demonstrate both that distributed leadership that teachers perceived negatively influences teacher professionalism ($\beta = -0.526$) and that the estimate was significant ($p < .01$). This implies that a 1 standard deviation increase in distributed leadership would yield a 0.526 standard deviation reduction in teacher professionalism (see Heck & Hallinger, 2009; Klein, 2005). The AMOS output also suggests significant indirect effects between distributed leadership and teacher professionalism through mediating variables.

The Indirect Relationship between Distributed Leadership and Teacher Professionalism Mediated by CTE, PLC, and Teacher Job Satisfaction

The research proposed that the indirect associations between distributed leadership and teacher professionalism are mediated by CTE, PLC, and teacher job

satisfaction. According to the results depicted in Table 15 above, although distributed leadership that teachers perceived did not significantly affect teacher professionalism, distributed leadership indirectly and significantly influenced teacher professionalism ($\beta = 0.792, p < .01$). In addition, the total effect was significant ($\beta = 0.266, p < .01$).

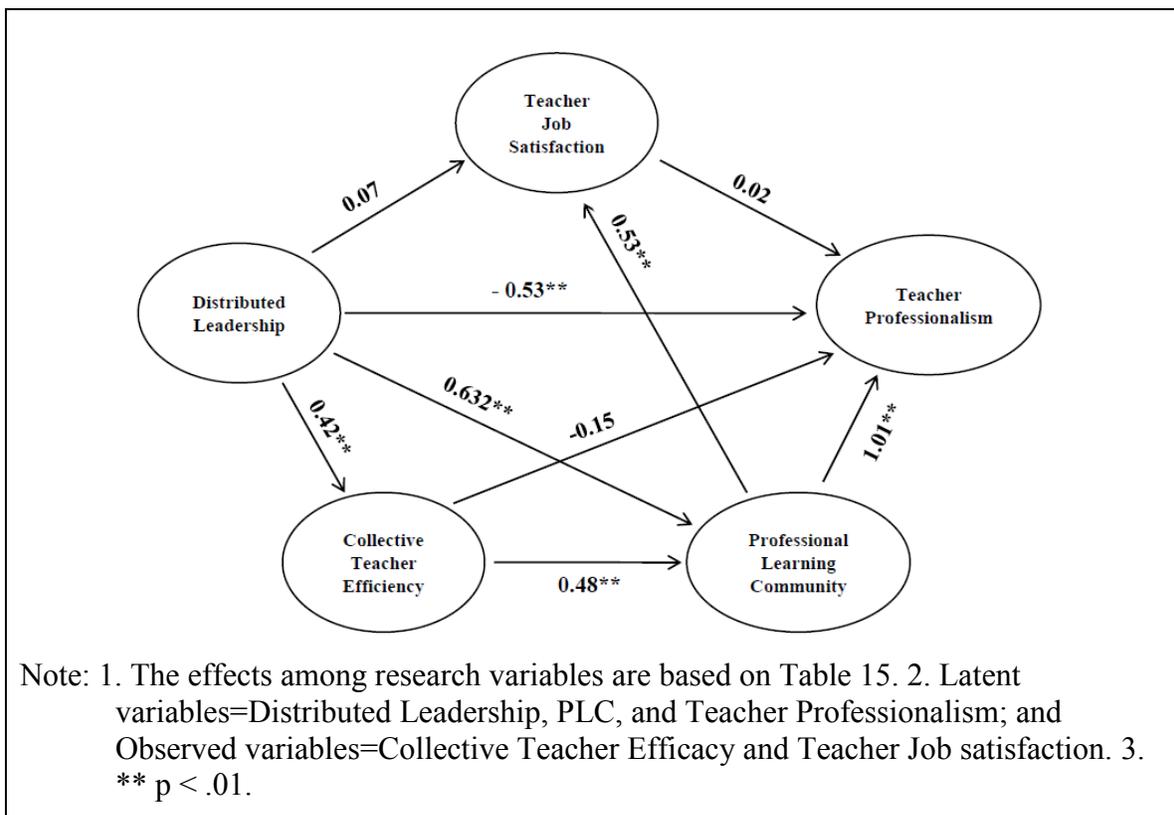
In addition to testing the direct and indirect relationship between distributed leadership and teacher professionalism, the effects of three mediating variables deserve to be considered (see Table 15 and Figure 3). First, distributed leadership significantly influenced CTE ($\beta = 0.417, p < .01$) while CTE was not directly and significantly related to teacher professionalism ($\beta = -0.146, p > .05$). Distributed leadership accounted for 17.4% of the variance associated with CTE.

Second, PLC was significantly and directly influenced by both distributed leadership ($\beta = 0.632, p < .01$) and CTE ($\beta = 0.480, p < .01$), respectively. The total effect of distributed leadership on PLC was especially large ($\beta = 0.832, p < .01$). More importantly, distributed leadership and CTE accounted for 88.2% of the variance associated with PLC. PLC was also positively and significantly related to both teacher job satisfaction ($\beta = 0.530, p < .01$) and teacher professionalism ($\beta = 1.01, p < .01$), respectively. In addition, the statistics revealed a significant total effect ($\beta = 1.02^{**}$) of PLC on teacher professionalism.

Third, teacher job satisfaction was not directly related to distributed leadership ($\beta = 0.071, p > .05$) and teacher professionalism ($\beta = 0.021, p > .05$). However, distributed leadership indirectly affected teacher job satisfaction ($\beta = 0.440, p < .01$), and the total effect between the two factors was also significant ($\beta = 0.512, p < .01$). In addition, teacher job satisfaction was directly and significantly related to PLC ($\beta = 0.530, p < .01$). The modified research model accounted for 34.8% of the variance associated with teacher job satisfaction.

Figure 4 graphically depicts the direct and indirect effects between distributed leadership and teacher professionalism mediated by CTE, PLC, and teacher job satisfaction. Although latent variables are conventionally represented by a circle and observed variables by a rectangle, the study illustrates all observed and latent variables with circles for convenience.

Figure 4: Effects of Distributed Leadership on Teacher Professionalism.



6. SUMMARY

After reviewing theoretical and empirical bases (Byrne, 2010; Harrington, 2009; Heck & Hallinger, 2009; Kline, 2005), the study constructed a structural equation model to analyze the structural effect of distributed leadership on teacher professionalism. This research tested the three research questions by using the AMOS program. According to

the results, all model-fit indices of the modified research model met the statistical criteria, excluding the chi-square statistics. Given that the value of chi-square can be easily influenced by sample size, we can conclude that the modified research model successfully accounted for the KELS data because the sample of the study was very large (n=2,655) (Byrne, 2010; Kline, 2005). Next, distributed leadership that teachers perceived negatively influenced teacher professionalism, and the estimate was significant.

Meanwhile, indirect associations between distributed leadership and teacher professionalism mediated by CTE, PLC, and teacher job satisfaction revealed significant results. First, distributed leadership indirectly and significantly influenced teacher professionalism mediated by CTE, PLC, and teacher job satisfaction. Second, distributed leadership significantly influenced CTE, and total effect of CTE on teacher professionalism was significant. Third, PLC was significantly and directly related to CTE, teacher job satisfaction, and teacher professionalism. Lastly, the effect of teacher job satisfaction was not significant while distributed leadership indirectly affected teacher job satisfaction. The findings suggest implications for theory, research, school leadership practice, and policy-making and implementation. The research summarizes the literature, the research method, and the analysis results and then discusses their implications for theory, practice, and research specifically in Chapter 5.

CHAPTER FIVE: SUMMARY, DISCUSSION, AND CONCLUSIONS

The research analyzed the direct and indirect effects of distributed leadership on teacher professionalism by using the KELS 2007 data set. The researcher constructed a structural equation model mediated by collective teacher efficacy (CTE), professional learning community (PLC), and teacher job satisfaction, after scrutinizing theoretical foundations and reported evidence on the relationships between research factors. The analysis results from the AMOS program suggested critical findings and implications. Chapter 5 includes a summary of the study and its implications for theory, research, and practice, as well as conclusions.

1. SUMMARY OF THE STUDY

This study was driven by the question: how can schools achieve their goals in radically changing times and in an era of accountability? In this sense, this research focused on improving teacher professionalism through collective collaboration and leadership practices, as well as through positive variables such as satisfaction, among others. In addition, the researcher determined teacher satisfaction to be critical to teacher professionalism because teachers are clearly the primary agents in practicing instruction in the classroom. The researcher summarizes the literature, the research method, and the analysis results.

The Literature

Radical educational reform initiatives have involved teacher professionalism and instructional reform (Harris, 2009; Scheerens, 2010). In particular, the emergence of result- and performance-based accountability in education required teacher professional development. In this context, the discourse of distributed leadership research has gained

popularity with practitioners, educators, scholars, and policy makers (Leithwood et al., 2007; Mayrowetz et al., 2009). When we consider that sustainable school reform cannot be accomplished by a single leader, distributed leadership practice in school organizations is a useful approach to achieve school goals, build organizational capacity, and to improve teaching and learning. Distributed leadership emphasizes concepts such as multiple leaders and followers, situations and their interactions (Spillane et al., 2001). In the same vein, the current research stressed the importance of school culture, individual emotions, and professional learning communities (Leithwood et al., 2010). In the end, research suggests that it is critical to consider *both* a school's staff *and* a school's organizational factors to achieve an organizational goal and to overcome the limitations of government-centered policy making and implementation.

To construct a structural equation model, the relationship between research factors should be based on theoretical or empirical foundations. This study reviewed previous research to understand the potential relationship of distributed leadership on teacher professionalism mediated by CTE, PLC, and teacher job satisfaction.

First, the current distributed leadership research mainly focuses on student achievement (e.g., Heck & Hallinger, 2009; Leithwood et al., 2010). However, the direct relationship between distributed leadership and teacher professionalism can be found from the theoretical foundations (Spillane & Diamond, 2007) and the case research (e.g., Copland, 2003; Halverson, 2003) regarding relationships between distributed leadership and teaching activity and instructional change. We can find these relationships from the literature in terms of teacher leadership (Harris & Muijs, 2005).

Second, Leithwood et al. (2010) recently found a significant relationship between distributed leadership and CTE; however, the empirical evidence regarding the direct relationship between CTE and teacher professionalism is relatively scarce. Nonetheless,

we can postulate that CTE as a process factor significantly influences teacher professionalism. The relationship between CTE and teacher professionalism can be found in Hoy and his colleagues (e.g., Hoy et al., 2006; McGuigan & Hoy, 2006). Additionally, if we think of CTE as one dimension of school culture, then the relationship between CTE and PLC can be supported by Mawhinney et al. (2005) and Stoll et al. (2006).

Third, distributed leadership research supports the mediating effect of PLC (e.g., Lambert, 2003; Scribner et al., 2007). Distributed leadership emphasizes continual inquiry and collaborative learning among school members. In addition, building PLC contributes to improving teacher professionalism (e.g., Mullen, 2009; Stoll et al., 2006). These relationships are supported by a variety of theoretical and empirical research studies regarding distributed leadership, organizational learning, and PLC. Meanwhile, the effects of PLC directly influence teacher job satisfaction (e.g., Harris & Jones, 2010; Talbert & McLaughlin, 1994), when we understand PLC as the working conditions in a school.

Fourth, even though examples of the direct relationship between distributed leadership and teacher job satisfaction is scarce, we can find a clue from previous research regarding the style of school decision-making or democratic school governance. In other words, democratic decision-making in school management leads to high teacher job satisfaction (e.g., Bogler, 2002; Imper et al., 1990). The effects clearly influence teachers' instruction and their professionalism (e.g., Borich, 2004; Perie & Baker, 1997).

Summary of the Method

With regard to the research model (Figure 1), this study suggested three research questions: Does the model of this research fit the observed data? Does distributed leadership directly influence teacher professionalism? Does distributed leadership

indirectly influence teacher professionalism mediated by CTE, PLC, and teacher job satisfaction?

This study analyzed a 3rd year KELS teacher-level data set (KELS: 2007) conducted by the Korean Educational Development Institute (KEDI) using Structural Equation Modeling (SEM). The KELS surveys affective and cognitive accomplishments as well as educational activity, experience in school, and the family life of secondary students. The teacher population in Korean middle schools was 103,340. The total number of teachers selected from the population was 2,655. The researcher used the Expectation-Maximization (EM) algorithm, which is comprised by the estimation step and the maximization step to test the significance level of the indirect effect and to deal with missing data. To analyze the KELS data set, I used PASW Statistics 18.0 and AMOS 18.0. First, PASW Statistics 18.0 served as the main program to test descriptive statistics and reliability for observed and latent variables, to sum the value of items for observed variables, and to perform correlation analysis. Second, AMOS 18.0 was used to test the validity of the measurement model and the research questions.

Summary of the Results

To test Research Question One (Does the model of this research fit the observed data?), the research analyzed the adequacy of the research model to the data by using the AMOS program. As a result, the initial model showed an inadequate fit to the data. More specifically, the RMSEA (0.092), RFI (0.889), and TLI (0.893) values were below statistical criteria. This study revised the initial research model by using the results of modification indices provided by the output result of the AMOS program. The model-fit of the revised model provided an adequate fit to the data; all model-fit indices excluding

the chi-square statistics met the statistical criteria of the study. Therefore, the modified research model successfully accounted for the KELS data.

Next, the study tested Research Question Two (Does distributed leadership directly influence teacher professionalism?) and Three (Does distributed leadership indirectly influence teacher professionalism mediated by collective teacher efficacy, professional learning community, and teacher job satisfaction?). First, distributed leadership negatively influenced teacher professionalism. Second, distributed leadership indirectly and significantly influenced teacher professionalism mediated by CTE, PLC, and teacher job satisfaction. Lastly, it should be noted that there were casual relationships between research factors. First, distributed leadership significantly influenced CTE, and the total effect of CTE on teacher professionalism was also significant. Second, PLC was significantly and directly related to CTE, teacher job satisfaction, and teacher professionalism. Especially, distributed leadership and collective teacher efficacy accounted for 88.2 % of the variance associated with PLC. Thirdly, the casual effect between distributed leadership and teacher job satisfaction was not significant, while distributed leadership indirectly affected teacher job satisfaction.

2. DISCUSSION OF RESULTS

The results of the study revealed 1) that the research model properly accounted for the KELS data, 2) that distributed leadership negatively influenced teacher professionalism, and 3) that distributed leadership indirectly and significantly influenced teacher professionalism mediated by CTE, PLC, and teacher job satisfaction. Additionally, the effects of these mediators also indicated significant relationships between study variables. The study discusses the research results specifically because the

discussion provides a solid foundation to suggest implications for theory, research, and practice.

The Model-Fit of the Research Model

The research analyzed the model-fit of the research model to the KELS data. The results indicated that the initial research model was not fitted to the data. To improve the model-fit indices, I revised the initial research model by referring to the results of modification indices provided by the output result of the AMOS program. When researchers focus on only improving the fit of the model, they can break the important methodological foundation (Kline, 2005). In other words, there is a critical assumption to be considered by researchers when the model is modified: it should also be based on a theoretical base between variables (Kim et al., 2009). Considering these two preconditions, the researcher connected the correlation between teacher collaboration (e42) and reflective communication (e43). The theoretical foundation between the two sub-factors of PLC was provided by Kruse et al. (1995).

When we consider the model-fit of the research itself, the findings indicate that the research model as being constituted of distributed leadership, forming positive school culture and individual emotion, and conducting cooperative efforts and sustainable dialogue is an appropriate model, which may contribute to improving teacher professionalism. The results also suggest that we need to simultaneously consider teacher job satisfaction, as well as organizational factors, to improve teaching and learning at the classroom level. The institutional and government-centered reforms do matter, but the findings revealed implications for theory, research, practice, and policy-making and implementation in that school members' collaborative leadership practice, professional learning community, and teachers' positive culture and emotions contribute to developing

teacher professionalism. Nonetheless, the level of the effect and the significance of these effects showed a difference between research factors. Therefore, we need to discuss the direct and indirect effects of distributed leadership and teacher professionalism, respectively.

The Direct Relationship between Distributed Leadership and Teacher Professionalism

One of the aims of distributed leadership is to improve teaching and learning in a classroom as well as student achievement (Spillane, 2006; Spillane & Diamond, 2007). In other words, most quantitative research regarding distributed leadership has designated student achievement as the dependent variable (e.g., Leithwood et al., 2010; Heck & Hallinger, 2009, 2010). Therefore, research in terms of the relationship between distributed leadership and teacher professionalism is scarce. For this reason, this study constructed its direct relationship between these two factors. When we consider that the ultimate goals in the development of teacher professionalism are to improve student achievement (Supovitz et al., 2010; Thoonen et al., 2011), the design of this study had to make it a cornerstone to investigate the process between teacher professionalism and student achievement.

According to the AMOS output, distributed leadership negatively influenced teacher professionalism ($\beta = -0.526$) and the estimate was significant ($p < .01$). The analysis result indicated meaningful findings. Considering that KELS 2007 data are based on teachers' perceptions, the negative effect supports the discussion from Silins et al. (2002), Ritchie and Woods (2007), and Leithwood, Mascall, and Strauss (2009a). More specifically, according to Leithwood et al., there is a possibility that the school teachers thought that they have additional task burdens and responsibilities in evaluating their daily leadership practice as well as in practicing leadership "without actually increasing

their power” (p. 4). Given that the Korean organizational structure is based on rigid hierarchy and bureaucracy, and that teachers are swamped with a heavy workload because of dealing with official documents (Kim et al., 2010), we can infer a negative relationship between distributed leadership and teacher professionalism.

We need to note other possibilities about the negative effects between distributed leadership and teacher professionalism. Distributed leadership emphasizes the school organizational situation as well as behavioral elements of the principal and teachers (Gronn, 2000; Spillane et al., 2001). Therefore, when measuring distributed leadership practice in schools, researchers should consider situational sub-factors including positive school culture and professional school structure. This can be supported by the indirect effects of this research ($\beta = 0.792^{**}$) mediated by school culture, individual teachers’ satisfaction, and working conditions in schools. In the end, this result suggests several implications for theory, research, and practice. The implications are specifically discussed below.

The Indirect Relationship between Distributed Leadership and Teacher Professionalism Mediated by CTE, PLC, and Teacher Job Satisfaction

The findings indicated that distributed leadership indirectly and significantly influences teacher professionalism mediated by CTE, PLC, and teacher job satisfaction ($\beta = 0.792^{**}$). This finding supported Heck and Hallinger’s discussion (2009): the effects of leadership on organizational outcomes “should be conceptualized as indirect only or both direct and indirect” (p. 679). With regard to the indirect effects on teacher professionalism, we need to consider these effects by each mediating variable.

First, distributed leadership significantly influenced CTE ($\beta = 0.417^{**}$) and the indirect effect of CTE on teacher professionalism was significant ($\beta = 0.491^{**}$), while CTE was not directly and significantly related to teacher professionalism. The significant

direct effect between distributed leadership and CTE also can be found in Leithwood et al. (2010) and Mascal et al. (2008, 2009). Meanwhile, CTE postulated as collective and positive school culture in this study did not significantly influence teacher professionalism. Considering the significant indirect ($\beta = 0.491^{**}$) and total effect ($\beta = 0.345^{**}$) of CTE on teacher professionalism, this statistic means that collective and positive teachers' beliefs influence teacher professionalism through cooperative school working conditions and positive teachers' emotions.

Second, PLC was significantly and directly related to distributed leadership ($\beta = 0.632^{**}$), CTE ($\beta = 0.480^{**}$), teacher job satisfaction ($\beta = 0.530^{**}$), and teacher professionalism ($\beta = 1.01^{**}$) as a whole. The total effect of distributed leadership on PLC was especially large ($\beta = 0.832^{**}$). Distributed leadership and collective teacher efficacy accounted for 88.2 % of the variance associated with PLC. This result supports previous research regarding distributed leadership (e.g., Halverson, 2003; Harris, 2008) and professional learning communities (e.g., Scribner et al., 2007; Stoll et al., 2006). As Wenger (2000) discussed, professional learning communities and community of practice emerge based on the needs of the individuals within an organization. Therefore, this finding may be an inevitable result. In addition, the statistic revealed a significant direct ($\beta = 1.01^{**}$) and total effect ($\beta = 1.02^{**}$) of PLC on teacher professionalism. This result corresponds with earlier research between the two factors (e.g., Stoll et al., 2006; Talbert & McLaughlin, 1992). Meanwhile, Bryk et al. (1999) noted that "the path between professional community and instructional improvement is not necessarily a direct one" (p. 759). When we assume that PLC means organizational working conditions, it is not by chance that forming PLC focused on educational activities to improve teaching and learning can directly influence teachers' helping and key behaviors for instructional activities.

Thirdly, distributed leadership indirectly affected teacher job satisfaction ($\beta = 0.440^{**}$), and the total effect between the two factors was also significant ($\beta = 0.512^{**}$). However, teacher job satisfaction was not directly related to distributed leadership ($\beta = 0.07$) and teacher professionalism ($\beta = 0.71$). As discussed above, this result supports Bogler's findings, which indicated the indirect effect of principals' participative decision-making style on teachers' satisfaction. On the other hand, teacher job satisfaction was directly and significantly related to PLC ($\beta = 0.530^{**}$), but did not have a significant direct relationship with teacher professionalism ($\beta = 0.21$).

In Korea, Park and Yun (2007) analyzed the relationship between teaching profession satisfaction and teachers' teaching activities and found a weak but significant relationship ($\beta = 0.102^{**}$). In addition, they revealed an indirect effect between principals' transformational leadership, teaching profession satisfaction, and teacher professionalism ($\beta = 0.048$). Based on both the present study and earlier research, the direct effect of teacher job satisfaction on teacher professionalism is weak or not significant; rather, it would be possible to conclude that teacher job satisfaction indirectly contributes to improving teacher professionalism as a mediating variable between school leadership practice and teacher professionalism.

3. IMPLICATIONS

The most interesting findings of this study are that the research model fits the KELS data set, and that distributed leadership has an indirect effect on teacher professionalism mediated by CTE, PLC, and teacher job satisfaction. The researcher suggests that these meaningful findings have implications for theory, research, school leadership practice, and policy-making and implementation. The study specifically discusses these implications below.

Implications for Theory

The theory-lead assumptions of school organization and leadership research could be a substantial tool if they reflect and reveal “real” organizational realities, lives and leadership (Hoy & Miskel, 2008). We also need to consider school organization more comprehensively, rather than focusing on a single leader, follower, or school situation in isolation. Like many education scholars, this researcher believes that a vital first step in school improvement is to build positive teacher psychology and professional learning communities among school members in order to create positive and effective school and classroom outcomes. In this sense, I focused on connecting school realities to substantial improvement efforts, while considering the need for cooperative efforts and leadership practice among school members.

Distributed leadership theory assumes a close relationship and interaction between principal-plus (leaders and teachers) and situational factors (Gronn, 2000; Spillane et al., 2001). The findings revealed that distributed leadership measured by principal leadership and teacher participation indirectly influenced teacher professionalism mediated by school situational factors such as positive school culture (CTE), professional school structure (PLC), and teacher job satisfaction. The results support the theoretical foundations of distributed leadership: that cognitive activities of humans are stretched over and constructed within the situational aspects of school organization including school culture, school structure, and discourse (activity theory) and that organizational and individual capacity can be augmented by collaborative and co-performing leadership practice and efforts (organization learning theory). Additionally, the findings revealed the theoretical identification of distributed leadership as “a system-wide perspective that not only transcends organizational levels and roles but also organizational boundaries” (Bolden, Petrov, & Gosling, 2009, p. 259). In conclusion,

the researcher suggests that the results show the need for *a self-organizing school model* in order to overcome, or at least work effectively within, the limitations of government-centered policy making and implementation (Hargreaves & Fink, 2009).

Distributed leadership emphasizes the two important properties of emergence (Bennett et al., 2003; Gronn, 2000; Lichtenstein et al., 2006; Silins et al., 2002; Uhl-Bien, Marion, & McKelvey, 2007; Zhang & Faerman, 2007) and self-organization through networked organizational relationships among individual agents and professional learning communities (Lakomski, 2008; Morrison, 2002, 2010). These concepts can be represented by activity theory and organizational learning theory, which are the theoretical mechanisms of distributed leadership. As the theoretical foundation of distributed leadership, these concepts and their properties of self-organization, network and “connectedness” (Morrison, 2010, p. 377), and emergence through knowledge creation (Harris, 2008; Nonaka, 1994; Stacey, Griffin, & Shaw, 2000) are in line with those emphasized in complexity theory. Within an interdependent organizational relationship, developing organizational and individual capacity is critical to achieve organizational goals and to adapt to radical organizational change in a knowledge-based society.

Therefore, there is a growing interest in complexity theory as a mechanism to better understand the difficulties in school organization and leadership (Gronn, 2009; Harris, 2009; Leithwood et al, 2009a; Lichtenstein et al., 2006; Morrison, 2002, 2010; O’Day, 2002; Uhl-Bien et al., 2007; van Ameijde, Nelson, Billsberry, & van Meurs, 2009; Waterhouse, 2007). As Leithwood et al. (2009a) discussed, complexity theory can show the dynamic process of organizational development and evolution in “disequilibrium [and] instability” (p. 6). Thinking of distributed leadership in the context

of complexity theory means more specifically and purposefully focusing on the reality of leadership practice and school organization.

Complexity theory may contribute to understanding not only the reality of school organization and leadership practice (such as the various actors, educational artifacts, structures, and their interdependence and interaction), but also to the notion of synthesizing activity theory and learning organization as theoretical mechanisms of distributed leadership within such educational organizations. Moreover, complexity theory can help us to understand the dynamic evolution processes (self-organizing) and social-network relationships among school members as well as the interdependence and reciprocal and cooperative relationship of school organization's agents and organizational structure.

Both distributed leadership theory and complexity theory focus on knowledge creation through knowledge management. In this sense, complexity theory as a system of “metaphors for trying to better understand social organization” (Leithwood et al., 2009a, p. 6) has the potential to enlarge and elaborate distributed leadership theory because complexity theory is based on *a social constructivist perspective* (Klenke, 2008; Lodico, Spaulding, & Voegtle, 2010), which means “reality is socially constructed by individuals and this social construction leads to multiple meanings” (Lodico et al., 2010, p. 14). From this perspective of complexity theory, we need to analyze and understand the process of school leadership practice, relationships and dynamics among human and organizational environment in school organization in which micro and macro reality coexists (see Honig, 2006; O’Day, 2002).

Implications for Research

After Coleman (1966) and Jencks et al. (1972) suggested that the individual school does not make a difference in student achievement, and that the most important factor is students' family backgrounds, there have been a variety of research studies that dispute their conclusions (Goddard et al., 2000; Teddlie & Stringfield, 2007). Although the conclusions of Coleman and Jencks may be not completely "right" and even quite wrong (Hoy et al., 2006), since the mid-1960s, international school effectiveness research has focused on the critical assumption that school makes a difference (Teddlie & Reynolds, 2000).

The present research also began with a similar assumption - that schools make a difference. More specifically, the researcher postulated that school leadership is the most important variable in making a difference regarding organizational outcomes, and that under the era of accountability, it is important to improve teacher professionalism. In addition, this study assumed the need to *simultaneously* emphasize multifaceted aspects such as school culture, school members' emotions and working conditions. In this context, this research focused on previous research emphasizing the significant indirect effect of school leadership on organizational outcomes, and then constructed structural equation modeling composed of the direct and indirect effects.

In fact, several authors (e.g., Hallinger & Heck, 1996; Leithwood et al., 2010; Thoonen et al., 2011) suggested an indirect relationship between school leadership and organizational outcomes, i.e., student achievement. In this sense, most quantitative research tested the research model design by mediating the effects of regarding school leadership as a constructed structural model composed of school culture or climate, decision-making process, motivational factors such as commitment, and so on. The current school leadership research is no exception. Both suggest significant indirect

effects between school leadership and organizational results (e.g., Bogler, 2001; Heck & Hallinger, 2009; Joo, 2006; Leithwood et al., 2010).

For example, Bogler found an indirect relationship between the principals' participative decision-making style and teacher job satisfaction mediated by teachers' occupation perception. Leithwood et al. (who constructed the four mediators of rational, emotional, organizational, and family factors regarding the effect that distributed leadership has on student achievement) revealed a significant indirect relationship among these factors. Borrowing the discussion of Teddlie and Reynolds (2000), the most appropriate quantitative research method to test school effectiveness would be structural equation modeling, which enables researchers to test the effect of complex school process variables on school outcomes as well as to examine the effect of intervening variables on school effectiveness.

This study postulated teacher professionalism as a dependent variable. Considering that one of the ultimate goals of school organization is improving student achievement, researchers construct student achievement as a dependent variable to test school effectiveness; school makes a difference. Given that structural equation modeling is a useful research method to test direct and indirect effects and to control intervening variables (see Hoy et al., 2006), further research that includes student achievement and controls prior student achievement and students' socioeconomic status (SES) within the present research model is suggested.

This study included CTE as a kind of school culture and PLC as working conditions. However, the effects of other situational factors were not tested in this study. Distributed leadership theory emphasizes other situational elements such as educational artifacts (Spillane et al., 2001, 2004). In addition, earlier research did not test the effect of situational factors such as tools, routines, and school structure in relationship with other

organizational factors. Educational activities and leadership practice in school organizations are not separable from each other. Therefore, further research which includes organizational situational factors that can test the effects of the situational factors on organizational outcomes is also suggested.

Next, we need to note that current distributed leadership research has been excessively leaning towards qualitative research or simple survey research (Hulpia & Devos, 2010; Hulpia et al., 2009). Given that distributed leadership assumed the social construction perspective, research for distributed leadership practice may be consistent with qualitative research methods such as interviews and participant observations. However, we need to ask questions about the generalizability of the results or the evidence of distributed leadership focused on particular school contexts (Huff, 2006; Johnson & Onwuegbuzie, 2004). In this sense, “triangulation” (Avolio, Sosik, Jung, & Berson, 2003, p. 288) through qualitative and quantitative methods can be an effective method to more clearly understand the reality of school leadership practice and to test reciprocal relationships between complex organizational factors. This idea is true because distributed leadership theory assumes interdependency and interrelationship among organizational factors.

With regard to this discussion, it is necessary to develop indicators of distributed leadership that reflects the theoretical assumptions of distributed leadership. In addition, we need to test resultant hypotheses and complement the research results of qualitative studies about the relationship between distributed leadership and the output of school improvement and school effectiveness (Heck & Hallinger, 2009; Teddlie & Reynolds, 2000). Developing indicators of distributed leadership may be the cornerstone to contribute not only to triangulation, but also to sharing the valuable insights of distributed leadership practice (see Jermier & Kerr, 1997).

When we conduct distributed leadership research, we need to realize the significance of time in distributed leadership practice (Gronn, 2000; Heck & Hallinger, 2009; Spillane, 2006). Distributed leadership theory emphasizes that both organizational capacity and individual expertise can be developed through reciprocal learning within communities of practice *over time* (Copland, 2003; Halverson, 2003; Scribner et al., 2007). I focused on the current leadership practice perceived by teachers. Therefore, researchers should consider the factor of time to understand the improving processes of leadership practice over time (Heck & Hallinger, 2009).

Lastly, we need to note that distributed leadership emphasizes not only teacher participation and team activities within schools, but also principal leadership. With regard to this point, some often misunderstand that distribution of leadership would weaken traditional authority in school management. However, a distributed leadership perspective does not mean that a principal is not significant or is neglected. We should realize that the perspective of distributed leadership does not dismiss the significance of the role and function of the school principal (Hallinger & Heck, 2009; Joo & Kim, 2009). Rather, the theory not only conceptually emphasizes principal-plus, but the role and function of principal as a facilitator in school leadership and management (Copland, 2003).

When we consider that the current school structure is still based on bureaucracy and hierarchy, principal leadership is critical in distributing leadership tasks and roles. The findings of the research show that distributed leadership is constructed by principal leadership and teacher participation within the socio-cultural contexts of the school. This finding supports previous research on distributed leadership (Copland, 2003; Spillane et al., 2001; Halverson, 2003; Harris, 2008;). Therefore, researchers who analyze the effects

or study the practice of distributed leadership must consider the role of the principal as a facilitator in school management and leadership.

Implications for Practice

The findings suggest implications for school leadership practice. Considering the negative effect of distributed leadership on teacher professionalism, we need to reconsider implementing the daily leadership functions, roles, and tasks (Spillane, 2006). In other words, the important challenge to practicing distributed leadership is *how* the principal facilitates teacher participation in school management and *how* teachers participate in co-performing leadership practice without additional burdens. As the indirect effects indicated, the effect of distributed leadership on teacher professionalism can be augmented by collaborative working circumstances, positive collective culture and individual emotions. However, as Harris (2008) noted, it is critical that principals delegate their official authority to teacher leaders, or to teachers who substantially conduct school administration or play a key role in managing teachers. When the principal shares his/her leadership role and responsibility, the school organization can achieve its substantial goals for improving the school by using school members' expertise and skills (Copland, 2003; Harris, 2008).

This discussion directly relates to Korean school contexts because, according to OECD (2009, p. 197), Korean school principals do not function only as administrative leaders but also as instructional leaders (Kim et al., 2010). This means Korean school teachers, e.g., teacher leaders, have conducted themselves as real leaders in school administration and instruction. In Korea, it is necessary for the principals to officially think of school staff as co-leaders, and to delegate their authority and responsibility to

school staff in accordance with the principle of the division of labor and professionals (Gronn, 2000; Kim et al., 2010).

According to OECD's TALIS data (2009, p. 54), Korean teachers undertook twice as many days of professional development as the number of days of the TALIS average. Korean school principals should conduct their official authority to build a school organization as a professional learning community in order to respond to radically changing policy environments in the era of accountability. Improving teacher professionalism is critical in the era of accountability and standardized testing (Bryk et al., 1999; Giles & Hargreaves, 2006). A professional learning community contributes to the improvement of organizational capacity and professional development as well as to raising school accountability (Harris, 2008; Scribner et al., 2007). Principals can play an important role in building learning communities and school cultures that emphasize reciprocal learning within school (Copland, 2003). The efforts of school principals may lead to substantial school improvement by facilitating teacher participation in school leadership practice. In the end, the professional school organizational structure contributes to the active activities of teams and departments for improving teaching methods and activity.

We must consider the role of the principal as a facilitator to change school culture (Bryk et al., 1999; Copland, 2003). As the study revealed, CTE as a direct reflection of school culture (Hoy & Miskel, 2008) was significantly related to PLC and then the effect of PLC influenced teacher job satisfaction and teacher professionalism. Given that distributed leadership still emphasizes the importance of the principal in school leadership practice (Halverson, 2003), school principals should focus on their official authority to change a closed culture among teachers and top-down school management. Considering Bolman and Deal's (2008) framework, there is no doubt that the Korean

school organization can be represented by the structural frame controlled by legitimate authority. The Korean school organizational structure places great emphasis on the seniority system based on a strong administrative hierarchy and bureaucracy as well as on order and stability (Joo & Reyes, 2010; Kim et al., 2010). More specifically, as with most school governance structures, the Korean school organizational culture and governance dictates that teachers obey directions offered by their own superiors.

A closed organizational culture and an inflexible school structure can limit team activities and communication among educators. As Bryk et al. (1999) and Lambert (2005) noted, a positive school culture based on reciprocal trust and reflective communication among educators leads to improving teacher professionalism and building learning communities. Even though descriptive statistics of reflective communication were relatively higher than other observed variables, Korean school principals should try to encourage teachers more to be more engaged in reflective dialogue and to break the rigid organizational atmosphere and structure (Lee, 2007).

Policy Implications

The results indicate that any effort to improve teacher professionalism must consider human and organizational culture, individual emotion, and organizational working conditions simultaneously. This is critical regarding educational policy-making and implementation. Under the era of government-centered accountability policy, most governments have focused primarily on reforming individual organizational factors such as principals, teachers, or the school system (Kim et al., 2010). Not surprisingly, the Korean government has also neglected the organizational characteristics and dynamics of schools in educational policy-making and implementation (Shin, 2005).

However, as the results show, reforming school systems, as complex-open organizations, cannot be achieved by narrow approaches. It is especially true that the quality of teachers and their professionalism are considered critical factors in the era of performance-based accountability. More specifically, improving school organizations, which has an attribute as dual system represented by loosely-coupled system (Weick, 1976) in terms of teaching activity and tightly-coupled system in implementing government-oriented educational policies (Kim et al., 2010), calls for a multifaceted approach for humans, socio-cultural contexts, and their interaction (O'Day, 2002; Spillane & Burch, 2006; Spillane et al., 2001, 2004). This discussion is in line with Honig's attributes of school organization, which he presents as flexible, dynamic, and complex (Honig, 2006). Therefore, educational policy makers and implementers should consider the unique characteristics of school organization in making and implementing educational policies.

In addition, the Korean government should focus on institutional supports to reform school organization, thereby improving teacher professionalism through schools' self-organizing efforts. As mentioned before, the most important problem is that the Korean government has only focused on institutional reform without providing sufficient supports for educators. The evidence can be found from OECD comparison data (Kim et al., 2010). Although Korean teachers undertook the amount of professional development twice as often as the number of days of the TALIS average, they have not received sufficient institutional support from central and local governments (Kim et al., 2010; OECD, 2009). According to Jensen (2009), these results "lead to an important policy issue and one that is critical for teacher development and lifting school effectiveness" (pp. 238-239). In other words, the Korean government should provide school teachers

who have a strong aspiration for building professional capacity with administrative and financial supports.

The Korean government's efforts to improve teacher professionalism can encourage teachers to participate in the professional learning community and then the teachers' professional activities within school can facilitate effective educational policy implementation (Coburn & Stein, 2006; see also, Shin, 2005). One of the key activities would be that Korean government should consider establishing professional learning communities in which educators collaborate with each other to encourage teachers to practice reflective communication, and collaborative and continual learning by sharing school vision. With regard to this, the Korean government should try to reduce task burdens as well as teachers' administrative burdens not directly associated with teaching activity (Kim et al., 2010).

According to the Korean Federation of Teachers' Associations (KFTA, 2009), most Korean teachers have difficulty in dealing with official documents. The task and administrative burdens may be the most important barrier to improve teachers' effective teaching activities or methods. Therefore, the Korean central and local educational authorities should establish institutional standards and supports in order to alleviate time-consuming extraneous paper work. The supports contributed to providing sufficient time with teachers to participate in professional development activities (Kim et al., 2010). In summary, the discussion implies that when policy makers try to reform school management and school organization, e.g., in terms of teacher professionalism, they should consider school culture, individual teachers' emotions, and working conditions simultaneously.

4. CONCLUSIONS

School organization has faced rapidly changing circumstances. In particular, government-centered educational reform focused on student achievement has made educators more accountable by establishing performance standards and mandating educational quality (Poulson, 1998; Webb et al., 2004). In addition, with the high stakes test-based accountability policy in which the government intervenes and mandates various requirements, thus, increasing workload for both principals and teachers. As a result, educators' roles and functions as well as their relationships are becoming more complex and more tightly connected. Furthermore, Korean schools have been faced with the demand for reforming their organizational structure and enhancing the professionalism and the quality of teachers.

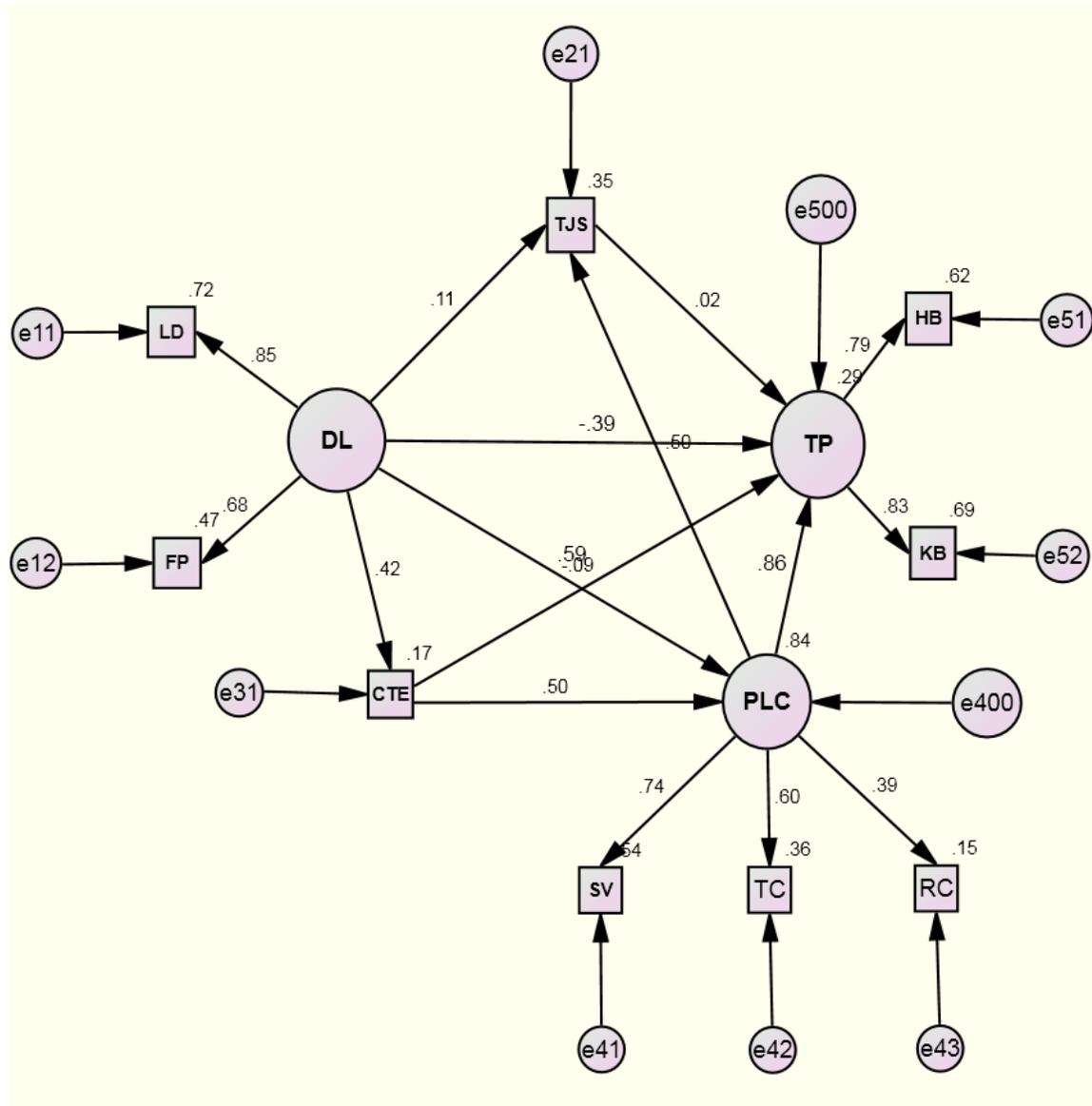
Korean educational scholars, policy makers, and legislators have been interested in institutional reform initiatives via what I perceive to be superficial and palliative problem solving strategies only. They have not considered the fundamental causes. I believe previous Korean educational reforms have failed because the reform initiators have not fully understood the day-to-day reality of school organizations and culture. In other words, the repeated attempts and failures of Korean educational policies have resulted from a fundamental lack of consciousness and understanding of the realities of school organizations as they relate to reform educational policy within those school organizations. In addition, the current school organization operates by traditional bureaucratic control, i.e., a single or heroic leader. Traditional school management and leadership strategies would not be desirable models to meet social needs and achieve substantial school reform in the knowledge-based society (Hartley, 2007). In other words, conventional organizational and leadership theory and school improvement strategies

have considered too often only school members' behavior and traits, but organizational structure and context, separately, or vice versa.

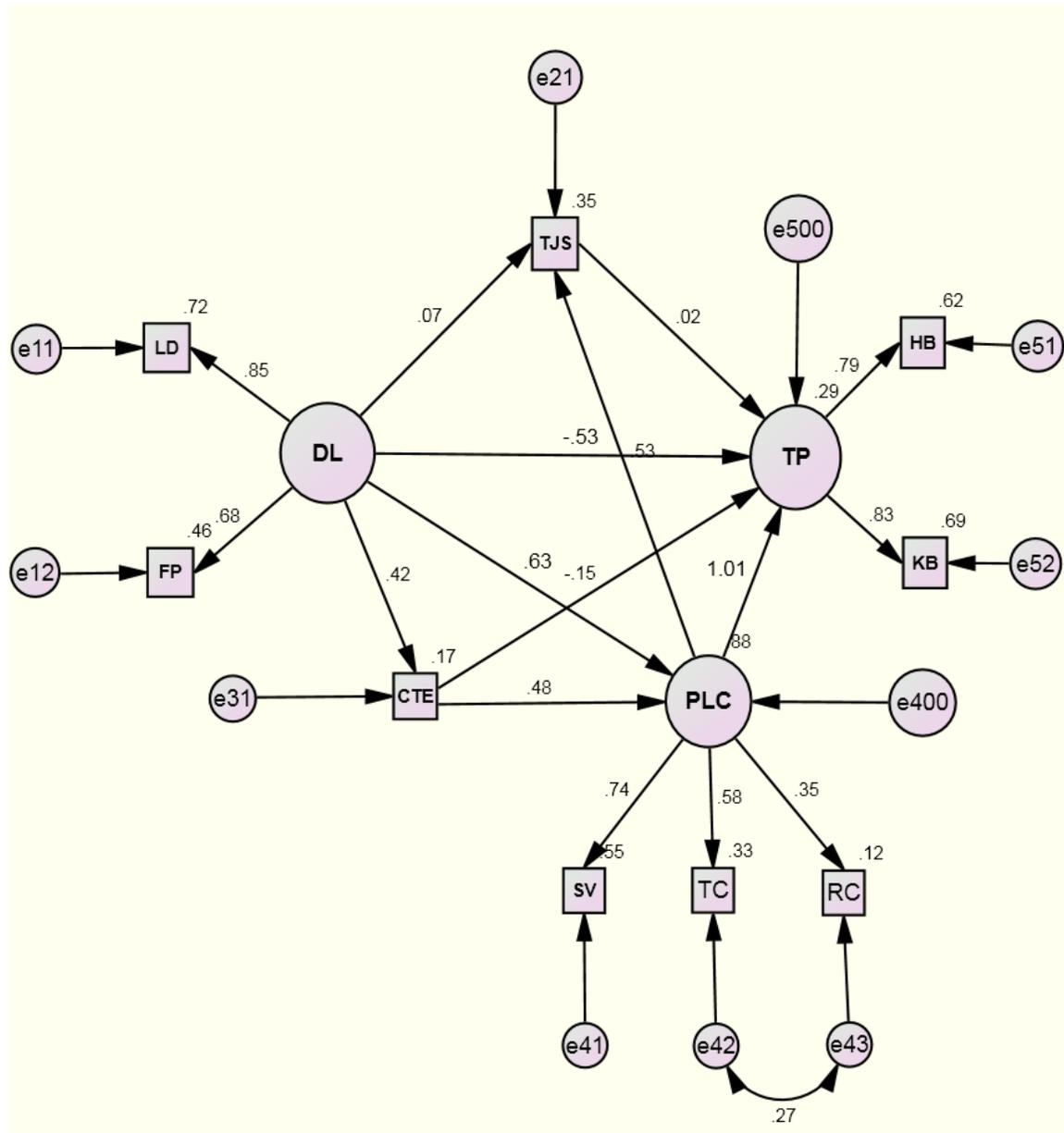
Public schools cannot achieve their goals and sustain fundamental reform without considering the day-to-day lives of educators, leadership practice, and educators' workload, and sometimes even re-culturing of schools. The important issue is that the assumptions of organizational and leadership theory for all stakeholders must be considered concurrently if these theories are to be a viable tool used in the process of understanding school organization and educational leadership practice. The school organization should be a place where school members all collaborate with each other to achieve organizational goals and where teachers and students are learning through reciprocal cooperation. Considering that teachers' professionalism is directly connected with student achievement, we need to recognize that the constant goal of schooling must focus on improving student achievement by developing teacher professionalism through collaborative leadership practice, professional learning community, and positive collective culture and individual emotion.

Appendix

THE STRUCTURAL EFFECTS OF DISTRIBUTED LEADERSHIP ON TEACHER PROFESSIONALISM (INITIAL HYPOTHESIZED MODEL)



THE STRUCTURAL EFFECTS OF DISTRIBUTED LEADERSHIP ON TEACHER PROFESSIONALISM (REVISED MODEL)



A LETTER OF PERMISSION FROM THE KEDI

March 7, 2011

Dr. Jody Jensen, Ph.D.
Chair, Institutional Review Board
P.O. Box 7426
Austin, TX 78713
irbchair@austin.utexas.edu

Dear Dr. Jensen:

The purpose of this letter is to grant **Young Hyeo Joo**, a prospective doctoral candidate at the University of Texas at Austin permission to use *the Korea Educational Longitudinal Study (KELS)* teacher data set. The study, "*The structural analysis of the effects of distributed leadership on teacher professionalism in Korea*" entails analyzing the KELS teacher data. More specifically, the study aims to test the structural effects of distributed leadership on teacher professionalism mediated by collective teacher efficacy, professional learning community, and teacher job satisfaction in Korea by using 3rd year teacher data of the KELS.

The KELS has been conducted by the Korean Educational Development Institute (KEDI) since 2005. The KELS aims to examine affective and cognitive accomplishments as well as educational activity and experience in school and family that secondary students have experienced. In addition, the KEDI will track

the selected students until 2023 in order to make a longitudinal assessment about whether educational attainment from schooling affects a vocational selection. In the KELS 2007 survey data, which **Young Hyeo Joo** is going to use, the total number of teacher responses was 2,655. The respondents were either the home room teachers or the subject area teachers of the selected students.

I think the study, “*The structural analysis of the effects of distributed leadership on teacher professionalism in Korea*” contributes to considering and connecting school members’ distributed leadership practice, collective teacher efficacy, teacher job satisfaction, and professional learning community toward improving teacher professionalism. I, Dr. Kim, Yang-Boon do hereby grant permission for **Young Hyeo Joo** to use the 3rd year KELS teacher data set.

Sincerely,



Dr. Kim, Yang-Boon

Tel: 82-2-3460-0323, E-mail: vitamin@kedi.re.kr

Director of Office of Educational Survey and Research
Educational Statistics and Information Research Division

Korea Educational Development Institute

220-1 Baumeo-gil, Seocho-gu Seoul 137-791 Republic of Korea

IRB EXEMPT DETERMINATION



OFFICE OF RESEARCH SUPPORT

THE UNIVERSITY OF TEXAS AT AUSTIN

P.O. Box 7426, Austin, Texas 78713 (512) 471-8871 -FAX (512) 471-8873
North Office Building A, Suite 5.200 (Mail code A3200)

FWA # 00002030

Date: **03/30/11**

PI(s): **Pedro Reyes**

Department & Mail Code: **SYS-ACADEMIC AFFAIRS**

Young Hyeo Joo

Title: **The structural analysis of the effects of distributed leadership on teacher professionalism in Korea**

IRB EXEMPT DETERMINATION: IRB Protocol # **2011-03-0006**

Dear: **Pedro Reyes**

Young Hyeo Joo

Recognition of Exempt status based on 45CFR 46.101(b).

Qualifying Period: 03/30/2011 - 03/29/2014 Expires 12 a.m. [midnight] of this date.
A continuing review report must be submitted in three years if the research is ongoing.

(4) Research involving the collection or study of existing data, documents, records, pathological specimens, or diagnostic specimens, if these sources are publicly available or if the information is recorded by the investigator in such a manner that subjects cannot be identified, directly or through identifiers linked to the subjects.

Responsibilities of the Principal Investigator:

Research that is determined to be Exempt from Institutional Review Board (IRB) review is not exempt from ensuring protection of human subjects. The following criteria to protect human subjects must be met. The Principal Investigator (PI):

1. Assures that all investigators and co-principal investigators are trained in the ethical principles, relevant Federal Regulations and institutional policies governing human subject research.
2. Will provide subjects with pertinent information (e.g. risks and benefits, contact information for investigators and IRB Chair) and assures that human subjects will voluntarily consent to participate in the research when appropriate (e.g. surveys, interviews).
3. Assures the subjects will be selected equitably, so that the risks and benefits of the research are justly distributed.
4. Assures that the IRB will be immediately informed of any information or unanticipated problems that may increase the risk to the subjects and cause the category of review to be reclassified to Expedited or Full Board Review.

5. Assures that the IRB will be immediately informed of any complaints from subjects regarding their risks and benefits.
6. Assures that confidentiality and privacy of the subjects and the research data will be maintained appropriately to ensure minimal risk to subjects.
7. Will report, by amendment, any changes in the research study.

These criteria are specified in the PI Assurance Statement that must be signed before determination of Exempt status will be granted. The PI's signature acknowledges that he/she understands and accepts these conditions. Refer to the Office of Research Support (ORS) website, www.utexas.edu/irb for specific information on training, voluntary informed consent, privacy, and how to notify the IRB of unanticipated problems.

1. **Closure:** Upon completion of the research study, a Closure Report must be submitted to the ORS.
2. **Unanticipated Problems:** Any unanticipated problems or complaints must be reported to the IRB/ORS immediately. For a description of unanticipated problems, please refer to the ORS webpage: <http://www.utexas.edu/research/rsc/humansubjects/policies/section7.html#7.3>
3. **Informed Consent:** The informed consent procedures laid out within your research proposal must be followed.
4. **Continuing Review:** If the study will continue beyond the three year qualifying period, a continuing review report must be filed.
5. **Amendments:** Amendments do not need to be filed with the ORS if the amendments do not change the risk level of the study (for example: increasing sample size, adding or removing co-Principal Investigators, adding or removing research sites, or minor modifications to the research protocol). Changes altering the level of risk to subjects must be requested by submitting an amendment application and revised proposal to the ORS prior to those changes being implemented. For a description of the types of modifications that require an amendment application, refer to the ORS webpage: <http://www.utexas.edu/research/rsc/humansubjects/policies/section6.html#635b> , or call 471-8871.

If you have any questions call or contact the ORS (Mail Code A3200) or via e-mail at orsc@uts.cc.utexas.edu.

Sincerely,



Jody L. Jensen, Ph.D.
Professor
Chair, Institutional Review Board

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