1-1-2010

The dissemination of teacher learning: A study of the similarities and differences between public school levels and locations

Jacqueline M. Krohn
Walden University

Walden University

COLLEGE OF EDUCATION

This is to certify that the dissertation by

Jacqueline Krohn

has been found to be complete and satisfactory in all respects,
and that any and all revisions required by
the review committee have been made.

Review Committee
Dr. Karin Treiber, Committee Chairperson, Education Faculty
Dr. Wade Smith, Committee Member, Education Faculty
Dr. Justus Randolph, University Reviewer, Education Faculty

Chief Academic Officer

David Clinefelter, Ph.D.

Walden University
2010

ABSTRACT

The Dissemination of Teacher Learning:

A Study of the Similarities and Differences

Between Public School Levels and Locations

by

Jacqueline M. Krohn

M.S. in Writing Education, National-Louis University, Evanston, IL 1989

B.A. in Elementary Education, St. Norbert College, DePere, WI 1984

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Education

Walden University

November 2010

ABSTRACT

Teacher learning, whether in-service, continued education, or experience based, is a key component of school reform. Specific research on the use of teacher learning to improve student achievement and instructional practices in and across schools is limited. The research questions addressed in this study were: (a) the degree to which teacher learning is disseminated throughout a school organization to improve student learning and instructional practices, and (b) differences and similarities in the dissemination of teacher learning between schools. Watkins and Marsick's learning organization theory, Senge's system theory, and Dewey's constructivist learning theory were used as the theoretical framework. A variation of Watkins and Marsick's Dimensions of the Learning Organization Questionnaire was administered to a random sample of public school teachers. Descriptive statistics and general linear model analyses were used to assess the dissemination of teacher learning across individual, team and organizational levels, and between school levels and locations. Findings indicated the dissemination of teacher learning is inconsistent at the individual, team, and organizational levels of learning, with no significant differences across school levels and locations. The findings inform social change through the increased use of effective strategies to improve the dissemination of teacher learning, instruction practices, and student achievement across and between schools in the state in which this study was conducted.

The Dissemination of Teacher Learning:

A Study of the Similarities and Differences

Between Public School Levels and Locations

by

Jacqueline M. Krohn

M.S. in Writing Education, National-Louis University, Evanston, IL 1989

B.A. in Elementary Education, St. Norbert College, DePere, WI 1984

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Education

Walden University

November 2010

ProQuest LLC
789 East Eisenhower Parkway
P.O. Box 1346
Ann Arbor, MI 48106-1346

DEDICATION

To three strong women in my life: Eugenia, Therese, and Edna who always found their way. To the four strong men of my life: my father Sylvester (1917-2006), for always catching me when I jumped. And to my sons Thomas and Jacob who were patient, encouraging and understanding while I worked through this program. We three often sat at the dining room table doing our homework together. Finally, to my husband Jay, who endured and persevered through this journey, always sees me, and knows what I love.

ACKNOWLEDGMENTS

I would like to acknowledge Dr. JoeAnn Hinrichs for starting this journey with me. Thanks for helping me through KAMs and part of the Ph.D. program. I would like to acknowledge Dr. Karin Treiber for not only starting this dissertation journey with me but seeing it to the end. “Press on!” was always her motto and I did. Thanks to Dr. Wade Smith for his knowledge of professional learning communities and methodology. I would also like to acknowledge Dr. Brett Baden, whose persistence and patient teaching guided and facilitated this process so that I was able to complete this task with a profound understanding of numbers and the importance of data. Thank you, my cyber friend. Finally I want to acknowledge my family because their love and encouragement supported me as I worked through all of the trials, tribulations, successes, and celebrations. Thanks to my wonderful sons and to my loving husband.

TABLE OF CONTENTS

LIST OF TABLES……vi

LIST OF FIGURES……viii

CHAPTER 1: INTRODUCTION TO THE STUDY……..……..1
Teacher Learning……1
Statement of the Problem……...3
Purpose of the Study……..4
Nature of the Study……5
Research Questions……8
Theoretical Framework……11
Definitions……....13
Assumptions……...……..14
Limitations of the Study……...15
Scope and Delimitations of the Study……..15
Significance of the Study……15
Summary……..16

CHAPTER 2: LITERATURE REVIEW…..……..17
Introduction…...……..17
Foundation of Selected Literature……19
The Art and Science of Education……...…19
The Learning Organization……..…20
The Seven Dimensions of the Learning Organization…….24
Dimension One: Creating Continuous Learning Opportunities....…..……...24
Dimension Two: Promoting Inquiry and Dialogue……..……..25
Dimension Three: Encouraging Collaboration and Team Learning…...……27
Dimension Four: Establishing Systems to Capture and Share Learning…...28
Dimension Five: Empowering People Toward a Collective Vision……..29
Dimension Six: Connecting the Organization to its Environment…….31
Dimension Seven: Strategic Leadership to Support Learning……...32
Professional Learning Communities…….34
Professional Learning Communities in Minnesota……...37
Performance Variables……..38
Individual Learning Performance…….....38
Team Learning Performance…….....39
Organizational Learning Performance……..39
Methodology and Related Studies……....40
Summary……...43

CHAPTER 3: METHODOLOGY....44
Introduction....44
Research Design....44
Population and Sample....46
Target Population....46
Sample and Sample Frame....46
Instrumentation....47
Research Questions and Hypothesis....48
Research Questions....48
Research Question 1....48
Research Question 2....48
Research Question 3....49
Research Question 4....49
Data Collection and Analysis....50
Protection of Participants....53
Summary....55

CHAPTER 4: RESULTS....56
Introduction....56
Research Questions....57
Research Question 1....57
Research Question 2....58
Research Question 3....58
Research Question 4....59
Research Method....59
Data Collection and Analysis....60
Frequency Tables....61
Research Question 1: Findings....63
Individual Level of Learning....64
Team Level of Learning....68
Organizational Level of Learning....71
Research Question 1: Conclusion....76
Research Question 2: Findings....79
Performance of Learning Organizations....80
Research Question 2: Conclusion....83
Research Question 3: Findings....83
Research Question 3: Conclusion....90
Research Question 4: Findings....90
Research Question 4: Conclusion....106
Summary....107

CHAPTER 5: DISCUSSION, RECOMMENDATIONS, AND CONCLUSION……..108
Introduction……..……...……..……108
Interpretation of Findings……..……....111
Dimensions of the Learning Organization…….…113
Performance…….…….…..…..115
Teacher and School Characteristics…….....115
School Levels and School Locations……...……...……..116
Recommendations for Action……...……..117
First Recommended Action: Additional Surveys……..……...……..117
Second Recommended Action: Analysis of Local School.……118
Third Recommended Action: Recognize and Trust Teachers' Abilities……...…119
Fourth Recommended Action: Clear, Continuous Communication……...…120
Recommendations for Future Study……...……120
Contributions to Positive Social Change……...…121
Researcher's Reflection……..……..…..122
Summary...……...……..……124

REFERENCE LIST…….125

APPENDIX A: DLOQ/DTLCQ PERMISSION LETTER……..……135

APPENDIX B: SENGE PERMISSION LETTER……..……137

APPENDIX C: LEARNING BY DOING PERMISSION LETTER…….…….139

APPENDIX D: DIMENSIONS OF TEACHER LEARNING COMMUNITIES QUESTIONNAIRE (SCHOOL VERSION)…….....……..…141

APPENDIX E: DTLCQ CONTENT VALIDATION QUESTIONNAIRE …...……150

APPENDIX F: SURVEY COVER LETTER AND CONSENT FORM……151

APPENDIX G: DTLCQ VARIABLE LIST ……...……153

APPENDIX H: FREQUENCY TABLE FOR SURVEY RESPONSES…….....156

APPENDIX I: CORRELATION SUMMARY TABLE…….158

APPENDIX J: ANOVA AND POST HOC TABLES……..……..163

APPENDIX K: SURVEY NOTES……..204

CURRICULUM VITAE…….……206

LIST OF TABLES

Table1.Pilot Study Crohnback's Alpha Internal Consistency……..……..53

Table 2.Please select the answer that best describes your school:
Elementary, K-5; Intermediate 6-8; Senior High 9-12…….62

Table 3.Please select the answer that best describes your school location:
Urban, Suburban, or Rural……...62

Table 4.Individual Level of Learning: Scored as Almost Never.....…….....64

Table 5.Individual Level of Learning: Scored as Almost Always…….....66

Table 6.Responses to Team Level of Learning Questions:
Measures of Central Tendency……68

Table 7.Organizational Level of Learning:
Responses to the Almost Never Range……71

Table 8.Organizational Level of Learning:
Responses in the Almost Range……...75

Table 9.Performance of Learning Organization:
Responses in the Almost Range…….…..80

Table 10.Current Job Title…….…84

Table 11. Total Years of Experience…….85

Table 12. Years at Current Location…….86

Table 13. Total Number of Staff……86

Table 14.Total Number of Advanced Degrees……..…86

Table 15. Total Number of Volunteers…….…….87

Table 16. Total Number of Students…….…….87

Table 17.Significant Distinguishing Factors on a Scale from 1-5…….……88

Table 18.Correlation Coefficient: Positive Relationships of Teacher
Learning to Teacher and School Characteristics……...……..88

Table 19.Correlation Coefficient: Negative Relationships of Teacher Learning to Teacher and School Characterstics…….90

Table 20.Numeric Notations for Bonferonni Post Hoc Test…….92

Table 21. General Linear Model for ALLIND Tests of Between-Subjects Effects……..93

Table 22.Bonferroni Post Hoc for ALLIND School Level * School Location……..…93

Table 23.General Linear Model for ALLTEM Tests of Between-Subjects Effects……..95

Table 24.Multiple Comparisons Dependent Variable: ALLTEM School Location…….95

Table 25. Bonferroni Post Hoc for ALLTEM School Level * School Location……..96

Table 26.General Linear Model for ALLTEM Tests of Between-Subjects Effects…….97

Table 27.Two-Way Anova Summary Chart…….98

Table 28.Performance of Learning Organizations: Two-Way ANOVA School Level and School Location…….102

Table 29.Post Hoc Test School Location PERF47…….103

Table 30. Post Hoc Test School Location PERF48……104

Table 31.Post Hoc Test School Level PERF57……..104

Table 32.Post Hoc Test School Location PERF57…….105

Table 33.Post Hoc Test School Location PERF59…….105

Table 34. Dimensions of the Learning Organization: Learning Levels and Survey Questions……...112

LIST OF FIGURES

Figure 1. Five disciplines of the learning organization……..22

Figure 2. Learning by doing …….36

CHAPTER 1:

INTRODUCTION TO THE STUDY

Teacher Learning

Successful school reform relies upon teacher learning (Dewey, 1929; DuFour & Eaker, 1998; DuFour, 2004; DuFour, DuFour, Eaker, & Many, 2006). Optimally, teacher learning should be used as a strategic tool to build collaborative teams with a focus on student learning and improved instruction (DuFour, 2004; Watkins & Marsick, 1996, 1999). However, individual teachers' learning does not always permeate team and whole staff levels. This problem extends to understanding teachers' perceptions of their learning as a constant, systemic process to meet current and future challenges in and across schools (DuFour et al., 2006; Pedder, 2007; Phillips, 1999; Watkins & Marsick, 1996, 1999). Using teacher learning as a strategic tool within a systemic process has developed from Watkins and Marsick's (1993, 1996, 1999) model of the learning organization as well as from the learning theories of Dewey (1929) and Senge (2000).

Marsick and Watkins's (1999; 2003) model of the learning organization demonstrated four levels of learning: independent, team, organizational, and environmental, associated with seven dimensions of learning organizations: (a) the creation of continuous learning opportunities, (b) the promotion of inquiry and dialogue, (c) encouragement for collaboration and team learning, (d) systems to capture and share learning, (e) empowerment of the people toward a collective vision, (f) connection to the environment, and (g) strategic leadership for learning. Marsick and Watkins (1999; 2003) discovered that if productive learning is to occur continuously, it must be promoted at the

individual, team, organizational, and environmental levels. In their view, the scaffolding and sculpturing of the learning process incorporates both art and science. Learning communities are social in nature requiring a leader who is a visionary and like the sculptor who liberates the quintessential model of the learning community (Watkins & Marsick, 1996, 1999). These changes in the learning structure must become an integral part of the practices and routines of the organization to enable the best learning, and to increase performance levels (Watkins & Marsick, 1999, 2003).

The works of both Dewey (1929) and Senge (1994) relate to Watkins and Marsick's (1993, 1996, 1999) work on the learning organization. Dewey promoted the merger of scientific methods and the art of education as a means to build efficacy among teachers, to examine problem areas, and implement the necessary improvements. Dewey's model for the use of teacher learning directly relates to Senge's modern prototype of the learning organization where the knowledge base of a learning organization is continuously improved through the expansion of individual learning throughout the entire organization.

Chapter 1 of this study contains the statement of the problem and information on the background of the study, the purpose for the study, proposed theoretical framework, assumptions, limitations, scope, and delimitations of the study. In addition, I will address research questions, the nature of the study and the significance of the study. Chapter 2 contains the Literature Review and will describe the theoretical framework of this study in more detail.

Statement of the Problem

The problem addressed in this study is that individual teachers' learning does not always permeate team and whole staff levels (DuFour, 2004; DuFour & Eaker, 1998; Fichtman-Dana & Yendol-Hoppey, 2008; Thompson, Gregg, & Niska, 2004). The problem extends to teacher perceptions of their learning throughout the school organization and the degree to which their learning is a constant, systemic process to help them meet current and future challenges in and across schools (DuFour et al., 2006; Pedder, 2007; Phillips, 1999; Watkins & Marsick, 1996).

Teacher learning is a key component of school reform but cannot lead to successful reform in isolation (Dewey, 1929; DuFour, 2004; DuFour & Eaker, 1998; DuFour et al., 2006). Teacher learning, whether in-service or experientially based, can stimulate participants to think proactively about growth at individual, team, and entire staff levels (Watkins & Marsick, 1996, 1999). Teacher learning can continue to improve with the use of an intentional and meaningful focus on student learning and improved instruction through the operation of collaborative, continuous reflection and dialogue in collegial teams (DuFour et al., 2006; Hipp, Huffman, Pankake, & Olivier, 2008, p. 174; Many, 2009). In addition, teacher learning varies among and between schools thus generating the need for differentiated strategies that build collaborative teacher learning communities (DuFour et al., 2006; Pedder, 2007). In this study, the independent variables were school level and school location. The dependent variable was the level of the dissemination of teacher learning. It was predicted that the dissemination of teacher learning would be greater at the individual and team levels of learning than at the

organizational level and that elementary school organizations would be more effective at disseminating teacher learning than the intermediate and senior high school levels. (Pedder, 2007). Due to variations in resources at some locations, it was also predicted that the dissemination of teacher learning would be more effective in suburban areas rather than urban or rural areas (Bowers, Metzger, & Militello, 2010).

Schools must provide teachers with opportunities to collaborate and learn from one another in what Hargreaves (1999) called "a complex social distribution of professional knowledge" (p. 124). Schools must assess the current working professional knowledge of their staff as well as create and disseminate new teacher knowledge (Hargreaves, 1999).

Purpose of the Study

The primary purpose of this study was to collect and analyze data to (a) determine the degree to which teacher learning is disseminated throughout their school learning organization to improve student learning and instructional practices, as well as (b) to draw conclusions about differences and similarities in the dissemination of teacher learning across and between elementary, intermediate, and secondary schools as well as in rural, suburban, and urban schools. In the study I utilized an online questionnaire to gather information of teachers' perceptions of the dissemination of learning and to compare and contrast differences and similarities across and between schools.

Nature of the Study

Descriptive statistics and inferential analysis were utilized in this study to answer the research questions related to teacher learning in Minnesota public schools. The research design for this proposed study consisted of the use of survey methodology to collect quantitative information to analyze differences in the dissemination of teacher learning according to three levels of learning (individual, team, and group) in their association to the seven dimensions of the learning organization. For the purpose of this study, the fourth level of learning, global, was combined into the organizational level. Survey research can be based upon quantitative data and is described by Nardi (2006) as "a skill, an art, and an intellectual process involving collaboration, patience, and creativity" (p. 14). Quantitative survey methods use standardized questions suitable for gaining insight into the opinions and attitudes of the population with the aim of guaranteeing anonymity. Survey methods are also useful for probability sampling and understanding current trends (Hara, 1995; Nardi, 2006).

The research questions focused on teacher perceptions of the seven dimensions of the learning organization in relation to the three levels of learning, individual, team, and group, the use of teacher learning throughout the school organization, as well as to compare and contrast between and across schools (Marsick & Watkins, 2003). The first three dimensions of the learning organization which are the creation of continuous learning opportunities, the promotion of inquiry and dialogue, and encouragement for collaboration and team learning, pertain to individuals, their learning, and the steps they need to take to work in collaborative groups to share learning (Watkins & Marsick,

1999). The remaining four dimensions, systems to capture and share learning, empowerment of the people toward a collective vision, connection to the environment, and strategic leadership for learning, pertain to the organization and what it must do to ensure that learning is captured, shared and utilized for change (Watkins & Marsick 1999). Hereafter, the seven dimensions of the learning organization will be referred to as the dimensions of learning.

In this research study, I examined a database of public schools in the state of Minnesota. First, the names and email addresses of elementary and secondary public school teachers were typed into a secure database on my computer. Next, an email message was sent to the targeted population explaining the survey and providing a link to the survey. Survey Monkey (2009), an online survey tool, was used so each staff member had access to the survey and so that responses could be transmitted efficiently to the researcher. Survey Monkey uses firewalls and intrusion protection software, as well as daily audits of security to ensure the best possible measures for participant anonymity (Rea & Parker, 2005).

To analyze the data I used descriptive statistics and inferential analysis to assess the extent to which teacher learning is disseminated throughout the school organization to improve student learning and instructional practices. The data were separated according to three categories based upon grade levels taught. Participants chose one category from a list of three possibilities, Elementary Level-grades Kindergarten through 5, Intermediate Level – grades 6 through 8, or High School Level – grades 9 through 12, because these titles have been used in the state of Minnesota to delineate teacher licensure. Grade levels

5 and 6 can intersect both elementary and intermediate levels in certain school districts depending on the distribution of the students. For the purpose of this study, grades 5 and 6 remained as listed in the aforementioned categories (MN Dept of Education, 2009). Descriptive and inferential analyses were used to draw conclusions about the differences and similarities in dissemination of teacher learning across and between elementary and secondary schools. The data were separated based upon three other distinctions based upon participant response delineating their schools as rural, suburban, or urban. The population for this study included the 50,246 elementary and secondary public school teachers in the state of Minnesota (Local Schools Directory, 2010). As the researcher, I collected a computer-generated random sample of 10,000 participant email addresses to use in the study.

In this research study I used a variation of the Dimensions of the Learning Organization Questionnaire (DLOQ, Watkins & Marsick, 1997, 1999) called the Dimensions of Teacher Learning Communities Questionnaire (DTLCQ). Written permission was procured from Watkins to use the DLOQ as a foundation for the DTLCQ (Appendix A). It was altered in language only in a few places to meet the purposes of surveying educational professionals. In chapter 3 I provide the explanation of the altered instrument, statistical analysis of the instrument, and the specifics of a pilot study that correlates to the DTLCQ.

The DLOQ was derived from studies completed within the business community in international and national organizations, family businesses, financial and high-tech organizations, and in nonprofit organizations (Marsick & Watkins, 2003; Piercy, 2007).

Researchers at national and international levels offered evidence that performance is affected by the various dimensions of the learning organization (Marsick & Watkins, 2003). A search of the Walden University Library using the terms *teacher learning* and *learning organization* and/or *teacher perceptions* returned hundreds of peer-reviewed education journals on those topics from the years 2006-2009.

However, specific research on the degree to which teachers believe their learning is used throughout the learning organization to improve student achievement and instructional practices, as well as a comparison of similarities and differences regarding teacher learning in and across schools, is limited. A search of the Walden University Library databases using the terms *teacher learning* and *student achievement and instruction* and *elementary and secondary schools* returned less than 200 peer-reviewed education journals on those topics from the years 2006-2009. The research supporting this statement will be addressed in chapter 2.

Research Questions

The research study addressed the following research questions and tested the hypotheses that follow from them. For the research questions and hypothesis, the terms educators, and school staff encompass classroom teachers, librarians, and specialists including special education, social workers, music, physical education, and art teachers.

The null and alternative hypotheses described the dissemination of teacher learning testing the difference in means across groups. Tests of relationships of multiple variables (and groups) were used to answer each question related to the dissemination of teacher learning; hence multiple variables were used and compared in the actual tests of

null and alternative hypotheses between groups. The actual tests addressed whether means for different groups were different, or larger/smaller than each other as was most appropriate in each individual comparison. For example, hypothesis 1.01 tested the significant level of differences and similarities of the dissemination of teacher learning in, between, and across different types of schools and in different school settings (urban/suburban/rural).

Research Question 1

What is the degree to which teachers believe the dissemination of teacher learning is taking place throughout their Minnesota public schools learning organization?

Null Hypothesis (H_O)

1.01 The dissemination of teacher learning is not taking place at a significant level in the teachers' learning organization.

Alternate Hypothesis (H_A)

1.01The dissemination of teacher learning is taking place at a significant level in the teachers' learning organization.

Research Question 2

What is the degree to which teachers believe Minnesota schools are using teacher learning to improve student achievement and instructional practices?

H_O 2.01 There is no significant relationship between the dissemination of teacher learning and improved student learning and instructional practices.

H_A 2.01 There is a significant relationship between the dissemination of teacher learning and improved student learning and instructional practices.

Research Question 3

Is the dissemination of teacher learning related to school characteristics (such as the amount of funding, responsiveness to challenges, and school performance), as well as teacher characteristics (such as years of experience, number of years at the same location, and advanced degrees)?

H_O3.01 There is no significant difference between the dissemination of teacher learning related to school characteristics.

H_A 3.01 There is a significant difference between the dissemination of teacher learning related to school characteristics.

H_O 3.02 There is no significant difference between the dissemination of teacher learning and teacher characteristics.

H_A 3.02 There is a significant difference between the dissemination of teacher learning and teacher characteristics.

Research Question 4

Is the dissemination of teacher learning less pervasive at certain schools or certain levels? The associations tested in hypotheses 1 through 3 will be tested for the elementary, intermediate, and secondary school samples, as well as rural, suburban, and urban school samples.

H_O 4. 01 There are no significant differences in the associations tested in hypotheses groups 1-4 across and between elementary, intermediate, and secondary schools.

H_A 4.01 There are significant differences in the associations tested in hypotheses groups 1-4 across and between elementary, intermediate, and secondary schools.

H_O 4. 02 There are no significant differences in the associations tested in hypotheses groups 1-4 across and between rural, suburban, and urban schools.

H_A 4.02 There are significant differences in the associations tested in hypotheses groups 1-4 across and between rural, suburban, and urban schools.

Theoretical Framework

The theoretical framework for this study includes Watkins and Marsick's (2003) theory of the learning organization, Senge's (1994) system theory, and Dewey's (1929) constructivist learning theory. Marsick and Watkins conjectured that individuals shape an atmosphere of learning because of certain discrepancies or challenges that occur and "act as triggers that stimulate a response" (p. 134). At the individual level of learning, a strategy is chosen and acted upon with or without consideration of the outcome. At the organizational level of learning, response to the trigger may be based upon collective thinking and a collaborative effort. Performance of the learning organization can be increased at each of these levels by implementing seven action imperatives described by Watkins and Marsick (1993, 1996). Marsick and Watkins (2003) discovered that if learning were to be effective in cultivating strategic as well as informal learning to increase production, improve performance, and reach the objectives of strategic planning, a constructive means of operation needed to be employed.

Watkins and Marsick (1996) incorporated Senge's five learning disciplines into their model of the learning organization (Watkins & Marsick 1996, 2003). Individual learning is a means by which members within the organization gain new knowledge and skills. Team-level learning involves a group of members who build their knowledge in an

effort to take collaborative and intentional action. Organizational learning includes general operating policies and procedures, and the informational systems that connect teams with the organization.

Senge (1994) described five learning disciplines for the learning organization that relate to Dewey's (1929) constructivist theory, namely, personal mastery, building shared vision, mental models, team learning, and systems thinking. Personal mastery prompts individuals to be proactive in their learning, building shared visions promotes lasting commitments, mental models provide a means toward a more productive view (Senge, 1994), and team learning fosters group interaction and offers perspectives of the bigger picture (Senge, 1994; Senge et al., 2000). Finally, through systems thinking individuals can cultivate a new way to view themselves and the world in which they live and work.

Marsick and Watkins (2003) also based their theory of the learning organization on the work of Dewey (p. 134). Dewey's constructivist learning theory is twofold: (a) the learner is the focus when thinking about learning and indicated that learners needed to construct knowledge and learning for themselves, and (b) knowledge is not independent of experience either by the individual learner or a community of learners. In terms of education, Dewey's (1929) art and science methodologies should be merged as a means to view problems and generate new solutions that might lead to diversification. By using art and science methodologies, Dewey conjectured that all members have the potential to advance in their field due to their shared learning and knowledge.

The theoretical framework provided the foundation for the research questions, which addressed the extent to which teacher learning is disseminated between and across

Minnesota public schools. This research did not identify causal relationships but instead revealed the level to which teacher learning is disseminated based upon multiple variables including school and staff characteristics.

Definitions

Dimensions of learning organizations: The seven independent variables identified and researched by Marsick and Watkins (1997) as: (a) the creation of continuous learning opportunities, (b) the promotion of inquiry and dialogue, (c) encouraging collaboration and team learning, (d) systems to capture and share learning, (e) empowerment of the people toward a collective vision, (f) connection to the environment, and (g) strategic leadership for learning.

Dimensions of learning organization questionnaire (DLOQ): The original questionnaire developed by researchers Watkins and Marsick (1997).

DLOQ-C: A revised version of the DLOQ developed by and for a study of churches as learning organizations (Piercy, 2007).

Professional learning communities (PLCs): The essential elements of learning within the school environment. These groups provide a collaborative venture focused on student learning and promote a streamlining of curriculum to its essence so teachers can share leadership responsibilities as well as develop practices that improve instruction (DuFour et al., 2006). Although the term PLC is not a focus in this study, the meaning behind the phrase is useful therefore it is included.

School communities: The group of participants within a given school including all staff members, professional educators, administrators, students, and parents (DuFour et al., 2006).

Teachers: According to Minn. Stat. 122A.15, a teaching license is required for all personnel employed in public schools or education including classroom teachers, counselors, librarians, secondary teachers, media generalists, media supervisors, recreational personnel, school psychologists, school social workers, speech therapists, and vocational teachers.

Assumptions

Assumptions for the proposed study included the following:

1. Participants were straightforward and truthful when answering questions related to the performance of their own learning community.
2. All teachers were engaged learning on a continual basis as part of professional development.
3. The study participants consistently and accurately assessed the dissemination of teacher learning throughout their organization.
4. Study participants consistently and accurately categorized their schools as either rural, suburban, or urban.
5. The study participants understood their relationship to their own school communities.
6. Participants knew that anonymity was guaranteed and confidentiality secured, without fear of retribution.

7. Because the population sample was built with care to establish equality among the various groups of this study including elementary, intermediate, secondary, and urban, suburban, and rural, it is assumed that participant responses were balanced in numbers and in distribution across school types and locations.

Limitations of the Study

The study was limited to educators in the 340 public elementary and secondary school districts of Minnesota. The participants responded to items on a questionnaire pertaining to performance outcomes and the professional learning communities within their own school community. Teacher opinions were not be tested for validity relative to some external, objective criteria. The responses may or may not reflect the consensus of their entire school district and thus a limitation of the study is its limited generalizability beyond the sample of public school teachers in the state of Minnesota.

Scope and Delimitations of the Study

The scope of this study comprised the responses of professional educators of the 340 school districts, including elementary and secondary schools, in the state of Minnesota to a variation of the DLOQ. The research study was delimited to teachers in the public school districts in the state of Minnesota who were surveyed during a two-week period during the 2009/2010 academic year.

Significance of the Study

Successful educational reform efforts rely on the teachers and (Shavelson & Towne, 2002) researchers have shown that these efforts rely heavily on the learning of teachers (Berry, Hoke, & Hirsch, 2004; Borko, 2004). The findings in the study may add

to the literature on the effective use of teacher learning across and between schools. Results confirmed or refuted that the dissemination of teacher learning is taking place at each of the three levels, individual, team, and whole staff, to improve student learning and instructional practices. Study results revealed problem areas with the dissemination of teacher learning in and across schools. These findings are intended to inform social change through improved strategies to increase the dissemination of teacher learning to improve instructional practices and student achievement across and between schools in the state of Minnesota.

Summary

In chapter 1, I presented an introduction to the problem of teacher learning, the problem statement, the research questions and proposed plan for data collection and data analysis, the theoretical framework, and a justification for this study. In chapter 2, I synthesize the literature review on the theoretical framework, the basis for the research methodology, and the literature of the research methods used in the proposed study. The methodology and research process are described in detail in chapter 3. Chapter 4 contains the review of research methods, data analysis, research questions, null hypotheses, alternate hypotheses, and the descriptive statistics and inferential analysis for each research question. Chapter 5 contains the interpretation of the study data, my conclusions, reflection, implications for social change, and recommendations for action and future research.

CHAPTER 2:

LITERATURE REVIEW

Introduction

In this chapter I present a critical review of literature on the topics of the learning organization, the three levels of learning, the seven action imperatives and teacher learning communities. The primary purpose of this study was to collect and analyze data to (a) determine the degree to which teacher learning is disseminated throughout their school learning organization to improve student learning and instructional practices, as well as (b) draw conclusions about differences and similarities in the dissemination of teacher learning across and between elementary, intermediate, and secondary schools as well as in rural, suburban, and urban schools.

Key word searches included *teacher learning, learning organizations, student achievement and instruction, elementary and secondary schools,* and *teachers as learning teams.* Cross-reference tools were employed when needed or when applicable. A review of peer reviewed journal articles also provided a resource. A search was conducted using the Walden University Library Research Databases including ERIC, SAGE, Google Scholar, Academic Search Premier, Dissertations and Theses, Education Research Complete, ProQuest Central, and Teacher Reference Center.

Locating empirical research in the scholarly literature that focused on professional learning communities did not prove problematic. However, specific research on the degree to which teachers believe their learning is used throughout the learning organization to improve student achievement and instructional practices, as well as a

comparison of similarities and differences regarding teacher learning in and across schools, is limited. A literature review of the selected research design is presented in chapter 3.

Theoretical support for the problem statement and the research questions is included in this literature review. The review contains Dewey's theory of incorporating methods of both art and science in education. The art of education improves the social condition and the science of education provides insight into the design, laws and overall knowledge and purposes of education (Dewey, 1897). A connection between Dewey's theory and the notion of a learning organization was made using the theories of Senge (1994, 2000, 2006) and Watkins and Marsick (1993, 1996). Senge's (2000, 2006) five key components of learning organizations coincides with Marsick & Watkins's (2003) model that demonstrated three levels of learning, independent, team, and group, are associated with seven dimensions of learning organizations: (a) the creation of continuous learning opportunities, (b) the promotion of inquiry and dialogue, (c) the encouragement of collaboration and team learning, (d) the use of systems to capture and share learning, (e) empowerment of the members of an organization toward a collective vision, (f) connection from the organization to the environment, and (g) strategic leadership for learning within the organization.

An analysis and synthesis of Watkins and Marsick's (1993, 1996) seven dimensions of the learning organization will be included. Each of the dimensions is described in terms of the learning organization as well as professional learning communities within the school setting. The literature that relates to the performance

measures used in the study is also synthesized in this chapter. Research surrounding aspects of the design and implementation of professional learning communities along with a review of literature pertaining to past research designs will be utilized to support the instrument used in the current study.

Foundation of Selected Literature

Teacher learning is a key element of current school reform efforts (Aubusson et al, 2007; Kassissieh, & Barton, 2009; Kubiak, 2009; Stoll, Bolam, McMahon, Wallace, & Thomas, 2006). Learning communities work with the assumption that all organizations have the capabilities to learn (Cherubini, 2008; Kassissieh, & Barton, 2009; Thompson, Gregg, & Niska, 2004). Marsick and Watkins (2003) based their theory of informal and incidental learning in part on the work of Dewey (1916) who purported that a community of learners is sustained through continuous regeneration. Senge's (2000, 2006) five key components of learning organizations coincide with Marsick and Watkins's (2003) model that demonstrated three levels of learning associated with seven dimensions of learning organizations, which will formulate the framework for this study.

The Art and Science of Education

Dewey (1897) emphasized the amalgamation of science and art methodologies as a means to implement educational reform. According to Dewey, the art of education represented the best type of community in which teachers and students collaborate to improve the state of society. The science of education offered a means by which the design and laws of growth increase the overall knowledge and purposes of education. In a later work, Dewey (1929) endorsed the integration of educational practice and scientific

methods as a means to examine problems and procedures by using innovative measures. He contended that educational practice, as an art, did not allow for a common efficacy among teachers. The effective art of highly gifted and intuitive teachers benefited only those pupils who were assigned to that teacher (Dewey, 1929). Thus, viewing education as both an art and science expanded the development of systematic sharing involving all teachers (Dewey, 1929). Dewey (1929) regarded teachers as the "channels of reception and transmission" (p. 47) by which scientific research reached students and argued in 1897, that until educators achieved the "independence and courage to insist that educational aims are to be formed as well as executed with the educative process" (p. 74), they would not realize their own purpose and influence. His key point for this study is his supposition that the command of scientific method through teacher cooperation and collaboration could assist in the achievement of this end.

The Learning Organization

Dewey's prototype of systematic sharing for all teachers and his philosophy of learning, directly relates to the methods of the learning organization. Dewey (1916) noted that learning is something in which the learner chooses to actively participate. A learning organization is one that is continuously expanding its knowledge base and ability to improve by utilizing individuals at every level of that organization (Senge, 1994). The learning and the degree of learning is a continuous and systematic process, which determines the organization's ability to adapt to the constant change of society (Phillips, 1999; Watkins & Marsick, 1996). All members of the organization are encouraged to

collect, share and utilize knowledge applicable to meeting the current and future challenges of the organization (Phillips, 1999; Watkins & Marsick, 1996).

The learning organization model is a direct reflection of Dewey's theory of incorporating scientific methods into the art of education. Dewey (1929) explained that the "[c]ommand of scientific methods and systematized subject-matter liberates individuals; it enables them to see new problems, devise new procedures, and, in general, makes for diversification rather than for set uniformity" (p. 12). Subsequently, the diversification provides a means by which all members can advance in the field through shared learning and knowledge (Dewey, 1929). Senge (2000), like Dewey, recognized that learning commences when ideas with which people are content become inadequate. Senge (1994) argued that a learning organization continually expands the capacity to create through five learning disciplines.

Senge (1994) described five learning disciplines operating within the learning organization based upon the idea that organizations can only learn through the individuals who also learn (p. 131). He conceptualized the five learning disciplines as personal mastery, building shared vision, mental models, team learning and systems thinking. Each of these terms will be briefly annotated here. For Senge, personal mastery indicates that individuals must be proactive in understanding and articulating how their own actions affect the world (Senge, 1994; Senge et al., 2000). Personal mastery goes beyond skill, competence and spirit; it is a means by which one lives life from a creative, proactive standpoint as opposed to a reactive view. Building shared visions promotes lasting commitments and the focus of a mutual purpose and mental models help to view

deficiencies with an openness and ability to transform to a more productive view (Senge, 1994). As a discipline, mental models provide a method of reflection and inquiry used to develop the awareness of attitudes and perceptions of the individual and the overall organization (Senge et al, 2000). Team learning fosters group interaction and the ability to look beyond individual perspectives to the bigger picture (Senge, 1994; Senge et al., 2000; Levine & Marcus, 2007). Systems thinking cultivates a new way for individuals to view themselves and the world in which they live and work. Systems thinking is what Senge (1994) called the "conceptual cornerstone" of the learning organization (p. 69). "Without systems thinking, there is neither the incentive nor the means to integrate the learning disciplines once they have come into practice" (Senge, 1994, p. 69). Figure 1 in Appendix B presents Senge's model of the five disciplines of the learning organization.

Watkins and Marsick (1996) incorporated Senge's five learning disciplines into their model of the learning organization denoting four different levels of learning: (a) individual, (b) team, (c) organizational, and (d) global. Individual learning is a means by which members within the organization gain new knowledge and skills. Learning occurs when "disjunctures, discrepancies, surprises, or challenges act as triggers that stimulate response" (Watkins & Marsick, 2003, p. 34). Based upon the meaning or understanding of the trigger, a strategy is chosen and implemented. Between the initial trigger and the strategy selection "is an implicit filtering of the information through selective perception, values, beliefs, and framing of the situation" (p. 34). These reactions are a product of prior knowledge and experience; actions can be limited by the individual's skills based upon their prior experiences. As a result of this process, individuals use meaning to

reconstruct and retain learning based upon the experience. Individuals can share and continue to build upon the knowledge within teams.

Team level learning involves a group of members who build knowledge in an effort to take collaborative and intentional action. Organizational learning envelops the general operating policies and procedures, and the informational systems that connect teams with the organization (Watkins & Marsick, 2003). Global learning encompasses international thinking and the crossing of environmental and societal boundaries encompassing the world outside the organization (Watkins & Marsick, 2003). When the action for solving the problem involves a group of people, the learning is interaction and interdependence (Marsick & Watkins, 2003, p. 36). Finding success balances on the organization's ability to act in a cohesive manner and "requires alignment of vision about what to do, shared meaning about intentions, and the capacity to work together across many different kinds of boundaries" (p. 36). Collaboration leads to collective action and once completed, evaluation of the results can take place. Learning in the organization includes building new capacities and understandings for what works and what does not (Marsick & Watkins, 2003).

Learning can be used strategically and continuously to think proactively about growth at individual, team, entire organization, and community levels (Collinson et al., 2009; Watkins & Marsick, 1996). The learning organization "must capture, share, and use knowledge" so members can work collaboratively while responding productively to organizational challenges (Watkins & Marsick, 1996, p. 3). Performance of the learning organization can be increased at each of these levels by implementing seven action

imperatives described by Watkins and Marsick (1993, 1996) as the seven dimensions of the learning organization. The following section provides a brief synopsis, analysis and application of each concept in this proposed study.

The Seven Dimensions of the Learning Organization

Dimension One: Creating Continuous Learning Opportunities

Creating continuous learning opportunities is the first of seven dimensions of Watkins and Marsick's (1993, 1996) learning organization model. This dimension, categorized within the individual and team levels of learning, is the basis for all others in a learning organization because as individuals learn and grow, so in turn, does the organization (Senge, 1994). This process is what Senge (1994) referred to as *adaptive learning* joining *generative learning* (p. 14). Adaptive learning is equivalent to problem solving and generative learning includes personal mastery, shared vision, team learning, mental models, and systems thinking. Generative learning requires a new and innovative perspective of the world (Senge, 1994).

Senge (1994) described the impetus of the learning organization as the modification of thinking in terms of viewing oneself as separate from the world to seeing the connections between oneself and the world. Collectively, learning organizations work together to realize and overcome the difficulties created by their own actions. A learning organization is one in which individuals continuously learn while creating and changing their own reality to form new knowledge (Hoekstra, Brekelmans, Beijaard, & Korthagen, 2009; Meirink, Meijer, Verloop, & Bergen, 2009; Senge, 1994; Watkins & Marsick, 1996). By doing so, individuals pass from one experience to the other utilizing previous

knowledge to solve problems and gain new information, a concept that echoes Dewey's contention that "What [one] has learned in the way of knowledge and skill in one situation becomes an instrument of understanding and dealing effectively with the situations which follow" (Dewey, 1938, p. 42). Dewey labeled this process of steady experience and growth as the principles of continuity and interaction. The united principles of continuity and interaction determine experience (Dewey, 1938).

Continuity provides the means by which experience is carried from one situation to another. In this way, the individual either expands or contracts her or his understanding of the environment as the knowledge of the world changes (Dewey, 1938). Interaction develops through continuity and creates understanding by revealing how past experience interacts with present situations (Dewey, 1938). Together continuity and interaction "provide the measure of the educative significance and value of an experience" (Dewey, 1938, p. 43). The principles of continuity and interaction (Dewey, 1938) correlate with Watkins and Marsick's (1993, 1996) first dimension of the learning organization. Learning organizations provide steady opportunities to learn, work, and grow strategically to improve how the organization itself responds to challenges. As a result, individuals, teams, and entire organizations can learn, construct meaning, and transform on a continuous basis (Giles & Hargreaves, 2006; Schechter, 2008).

Dimension Two: Promoting Inquiry and Dialogue

The second dimension of the learning organization model is promoting inquiry and dialogue (Watkins & Marsick, 1993, 1996). This dimension is also categorized within the individual and team levels of learning and allows the organization to create

and promote a cultural environment of experimentation using questioning techniques as a means for providing feedback (Servage, 2008; Spradley, 2008; Watkins & Marsick, 1996; Wood, 2007). According to Watkins and Marsick (1993) inquiry is unbiased and allows for the transcendence of preconceived judgments in pursuit of an improved resolution. Duschl (2008) described this process as *conversations of inquiry* in terms of scientific learning. Conversations of inquiry allow for "detailed dialectical exchanges between observations and theory and the accompanying data" (Duschl, 2008, p. 13). Dewey (1929) explained science as a method of inquiry in which facts can be better understood and controlled into more intelligent solutions. Inquiry and dialogue represent a high form of emotional intelligence (DuFour et al., 2006; Wood, 2007). This type of intelligence includes the ability to step outside of one's own perspective to see ideas from other points of view. Continuous improvement is achieved by seeking feedback, utilizing interpersonal relationships, positive, respectful communication, and proactive problem solving (DuFour et al., 2006; Servage, 2008; Spradley, 2008; Wood, 2007). Such a learning culture promotes and supports questioning, recommendations, and experimentation (Watkins & Marsick, 2003). It is by means of inquiry and dialogue that individuals within an organization can collaborate to produce new solutions that would not have transpired had they worked independently of one another (Hindin, Morocco, Mott, & Aguilar, 2007). Inquiry allows for creative or generative thinking and learning (Senge, 1990). It permits the possibilities of new solutions for an improved organizational system.

Dimension Three: Encouraging Collaboration and Team Learning

Watkins and Marsick (1993, 1996) considered the encouragement of collaboration and team learning as the third dimension of the learning organization and categorized this concept at the individual and team levels of learning. Represented within this dimension is the effectiveness of the organization through team learning and collaboration. Team learning allows for collaborative problem solving and thinking skills. Team members effectively influence the work of other individuals within the team and members of other teams within the organization. In this manner, continuous learning systems and positive transformations can take place throughout the organization (Graham, 2007; Hipp, Huffman, Pankake, & Olivier, 2008; Levine & Marcus, 2007; Piercy, 2007; Senge, 1994, 2000).

Team learning provides the connection between the individual and the organization as a whole. Senge et al. (2000) stated that learning is connection. Knowledge fields and the people who work within them do not exist independently of one another. The creation of knowledge and learning are complex, living systems consisting of unseen "networks and interrelationships" (p. 21). The active systems of knowledge and knowing create opportunities for and affecting the abilities of both individuals and groups to learn (Senge et al., 2000).

Within the school organization, teachers should work together as learning teams to improve their instructional effectiveness and student achievement. DuFour et al. (2006) made five distinctions regarding collaboration. They stated that working in collaborative groups provides teams the opportunities to discuss "the meaning of

standards promoting a more consistent curriculum" (p. 51). Through collaboration teachers can focus on the same priorities through the use of common pacing, more intentional instructional practices and the use of common formative assessments.

Dimension Four: Establishing Systems to Capture and Share Learning

The fourth dimension of Watkins and Marsick's (1993, 1996) learning organization model at the team level of learning is establishing systems to capture and share learning. Within a learning organization, learning is taking place on a continuous basis. In order for the model to sustain itself, it is imperative that the organization incorporates ways to integrate the learning into its day-to-day mode of operation. DuFour et al. (2006) explained that it is not the goal to simply learn a new strategy, but to create an innovative environment in which there are conditions for perpetual learning.

In order for the learning organization to establish systems to capture and share learning, change must not only occur at every level from individual to organizational, but must also become an integral part of continuous practice and routines throughout the organization (Crosby, 2007; Graham 2007; Spradley, 2008; Watkins & Marsick, 2003). Hargreaves (2003) used the term *knowledge society* to refer to the ability to capture and share learning within the learning organization. As a knowledge society, organizations provide opportunities to increase skill levels through continuous training. Barriers to learning are severed allowing work and communication to overlap with the use of flexible teams. In the ideal learning organization, problems and mistakes are viewed as learning opportunities and every member of the organization is involved in the planning

and development of the network of relationships to provide support for continuous learning (Doolittle, Sudeck, & Rattigan, 2008; Hargreaves, 2003).

In the school setting, teachers and administrators must make a commitment to continuous improvement for and of the organization. It cannot only include short-term teamwork but a commitment to group life, to personal development, and to ongoing formal professional learning. Teachers can no longer work in isolation within their own classrooms but must work as a whole community in order to improve student learning (Graham, 2007; Hargreaves, 2003). Sustaining the learning organization by capturing and sharing learning requires a focus on learning, working collaboratively for the sake of learning and developing accountability models to fuel continuous improvement (DuFour, 2004).

Dimension Five: Empowering People toward a Collective Vision

The fifth dimension of the learning organization model necessitates empowering people toward a collective vision (Doolittle et al., 2008; Pedder & MacBeath, 2008; Watkins & Marsick, 1993, 1996). This dimension is located on the organizational level of learning. Collective vision represents the initial starting point of a learning organization. Structural change is required within the organization in order for shared or collective vision to resonate throughout the entire infrastructure (Doolittle et al., 2008; Watkins & Marsick, 1993, 1996). The typical bureaucratic leadership structure of an organization impedes building a collective vision and the process of learning.

The structure of the learning organization requires widespread leadership in which members are empowered to assume responsibility for the collective vision of the

organization. Empowerment is defined as "a deliberate decision to allow others to take the risks that might create mistakes but that might also lead to learning" (Watkins & Marsick, 1993, p. 18). Members of learning organizations are empowered by taking part in opportunities to lead and control certain situations through continuous learning and development. Resources, the appropriate tools and training, in addition to constant support are provided in order to set and achieve goals for the overall improvement of the organization (Watkins & Marsick, 1993).

Watkins and Marsick (1993) viewed collective vision as a product of empowerment while Senge (1990) viewed shared vision as a means by which focus and energy not only lead to life aspirations but also to empowerment of the organization's members (Piercy, 2007). Within the school learning organization, it is imperative to develop a vision shared by all stakeholders. The leader must "share and combine the personal visions of faculty members into a collective vision molded and embraced by all" (Huffman, 2003, p. 22). Senge (2000) stipulated three closely related, yet separate, purposes for creating a shared vision for a school. The first purpose is a process by which members give voice to unexpressed problems and concerns. The second purpose is to provide a *generative* process through which members are able to discuss hopes and dreams for the students and school community. The third purpose is action. Through support from colleagues, staff must be able to participate in the school transformation with those they trust and those with whom trust is building (Senge). As a component of the change process, a school's collective vision develops over time and is "based upon common values and beliefs" (Huffman, 2003, p. 22). The practice of utilizing a school's

collective vision increases the development of interpersonal skills including trust, communication, and collaboration. In addition, it improves content knowledge for enhanced instructional practice and increased student achievement (Huffman, 2003).

Dimension Six: Connecting the Organization to its Environment

Connecting the organization to its environment is the sixth dimension of Watkins and Marsick's (1993; 1996) learning organization model and is part of the organizational level of learning. This dimension is a direct reflection of systems thinking and the organization's relationship to its environment. In order for the learning organization to sustain itself, it must consider the input and output of its system (Banathy, 1973; Watkins & Marsick, 1993). The environment affects schools that receive their clientele from the environment, which stipulates requirements and expectations for achievement. The larger environment outside of the school provides salaries, monetary resources for curriculum support, maintenance, and legal stipulations (Bertalanffy, 1969; Krohn, 2008). Education is an intentionally "constructed complex human activity system, operating at several system levels, embedded in and co-evolving with the larger society, interacting with other social service systems, and designed to carry out the specific societal function of nurturing learning and human development" (Banathy, 1991, p. 31). Therefore, a school is created by and receives input from society and as a result, the school affects society (Krohn, 2008). Bertalanffy and Banathy agree that the education system is affected by input to and output from the environment. The system must sustain balance within the environment and because of this, it is possible to transform over time (Bertalanffy, 1969). Banathy (1973) referred to this balance as the process of feedback control. Schools record

data based upon student performance and communicate these outcomes to the external environment. In this manner, school accountability is maintained and needed adjustments are made (Banathy, 1973; Krohn, 2008). Compatibility with the outside environment is maintained because through it, the system is able to operate, monitor and adjust itself to meet the needs of environment (Banathy, 1973). Members of the school learning organization can weigh the impact, see the connections, and judge the importance of various systemic inputs and outputs (Watkins & Marsick, 1993). Individuals can view their interdependence with the organizational environment as they relate to the environment (Piercy, 2007).

Dimension Seven: Strategic Leadership to Support Learning

Strategic leadership to support learning is the seventh dimension of Watkins and Marsick's (1993; 1996) learning organization and is on the global level of learning. All of the dimensions of the learning organization play a role in the initiation and implementation of the learning organization but it is the leadership role that is imperative for sustainability (1993). The key component of effective leadership is communication (DuFour, et al. 2006; Graham, 2007; Lieberman, & Pointer, 2009; Peretti, 2009) and leaders in any learning organization must provide clarity and consistent communication regarding the purposes of the organization, development regarding clientele, future goals and aspirations, progress indicators, and actions needed to achieve long and short-term goals.

Leadership within the school setting can no longer be left to one individual. In order to improve the effectiveness of schools, administrative leaders need to establish

leadership teams that work collaboratively to implement the complex demands and roles associated with school reform (Chrispeels, Burke, Johnson, & Daly, 2008; Lieberman, & Pointer, 2009; Leithwood, & Jantzi, 2008; Printy, 2008). In a case study on the tasks of leadership and the development of mental models, Chrispeels, et al. found that as teacher team members and principals engage through dialogue, collaborative work, and shared experienced, they develop shared mental models and strong leadership skills. Chrispeels, et al. (2008), referred to these groups as shared leadership teams and through their study they discovered that these teams provide a communication link between principal and other colleagues. Sharing of pedagogical knowledge increased and a change in teaching practices developed as well (Chrispeels, et al.).

Shared leadership is a part of implementing learning communities therefore a portion of the learning community structure is to move away from having a single school leader–the principal–to a format that allows teachers to become leaders in the learning process (DuFour, et al. 2006). The primary role of the lead teacher is to initiate and encourage continuous improvement in teaching and learning (Webb, 2005). Webb studied three theoretical styles of school leadership in her case study on teacher leadership. The first of the three studies focused on educative leadership through which teachers guide instructional practices through exemplary classroom knowledge and experience. Webb discovered that the role of the educator has become more complex with increasing demands for different leadership styles. Furthermore, the "value conflicts and work overload of trying to sustain educative leadership in the current educational climate are likely to lead to stress and burnout" (p. 86). Webb called the second

theoretical leadership style primary strategy that for her indicated school leadership is creative and innovative. Detrimental to this style are the stipulations required by government-mandated conformity. Teachers are expected to measure, track, and record student achievement as well as monitor performance prohibiting them from experimenting with creative instructional practices and exercising their innovative, professional judgment (Webb).

The final learning style theorized by Webb can be developed from educative leadership and has three core aspects including moral purpose, relationship building, and knowledge creation (Fullan, 2001; Webb, 2005). Teacher leaders can be successful with this style to efficiently manage workloads, promote the welfare and professional development of teachers, create a culture of collaboration with school initiatives, and model the necessary learning of the organization (Webb, 2005).

Professional Learning Communities

As schools began to incorporate the concept of collaborative teams, the term learning organization evolved into the phrase professional learning communities (DuFour & Eaker, 1998; Thompson, Gregg, & Niska, 2004). PLCs, however, are in danger of becoming part of the familiar cycle of reform in education, that is, enthusiasm leads to confusion, followed by problems with implementation and the conclusion that yet another reform effort has failed (DuFour, 2004). The term itself has been used to describe every group of individuals who are concerned with education and is so over-used that it is in danger of losing all of its important meaning altogether (DuFour, 2004). It is for this reason that the term PLC has been eliminated from this research paper.

Each of the words in the title PLC was purposefully chosen. A *professional* is considered an expert in a particular field who has advanced training and remains current on the ever-changing knowledge base (DuFour & Eaker, 1998; Thompson, Gregg & Niska, 2004). *Learning* implies ongoing study, practice, curiosity and growth towards continuous improvement (DuFour & Eaker, 1998; Thompson, Gregg & Niska, 2004). A *community* suggests that members work collaboratively to foster cooperation, support, and growth to achieve that which they could not accomplish as individuals (DuFour & Eaker; Thompson, Gregg & Niska). Based upon these definitions, a parallel can be drawn in the works of Dewey, Senge, Watkins and Marsick, and DuFour between the concept of professional learning communities and learning organization.

Dewey's (1897) view of interfacing scientific and artistic methods through teacher cooperation and collaboration coincides with Senge's (1994, 2006) concept of the learning organization for two reasons. First, Senge viewed his model of the learning organization as an operative model for school improvement. Secondly, the model of the learning organization is an efficient means by which teachers can become instructional leaders inside and outside of the classroom. Professional learning communities allow for team building, school transformation and continuous learning growth based upon Watkins and Marsick's (1993, 1996) three levels of learning and the seven dimensions of the learning organization.

Members of professional learning communities embrace, expect, and incorporate high levels of learning for all students. PLCs work collaboratively to clarify what students must and will learn, monitor student learning, and provide remedial support or

enriched instruction based upon the learning needs of the students (DuFour, et al., 2006; Hughes & Kritsonis, 2006). Inquiry into best practices in both teaching and learning is utilized when acting upon the needs of the learning community. Within the school setting, PLCs provide opportunities for learning that utilizes innovation and experimentation. Each member of the learning organization participates within the system of gathering evidence, developing and implementing strategies for improvement, analyzing effective changes, applying new learning, and assessing the entire process (DuFour, et al; Hughes & Kritsonis, 2006).

DuFour et al. (2006) described the four pillars of PLCs as mission, vision, values, and goals (Appendix C). Mission answers the question of the purpose of existence, which in turn leads to a clear purpose and allows for consensus of the main purpose of the school community. Vision conveys the type of action needed to assess the current reality of the school and implement strategies for improvement. The pillar of values entails the collective commitment of all members of the PLCs and guides their behavior toward initiation of the improvement procedures. Finally, goals are an essential element of the collective team process and provide steps toward benchmarks for achievement of those goals. Figure 2, found in Appendix C, presents DuFour, et al.'s (2006) model of the four pillars of professional learning communities.

DuFour, et al. (2006) stated that communication is another key component of professional learning communities. Powerful communication is simple and precise, based upon a few key ideas, and repeated often. An aspect of communication is celebrating what is valued in the community. Celebration allows appreciation and admiration to be

expressed with specific purpose to all members of the community. The celebration should be the responsibility of every member of the learning community and should establish a connection between the recognition of specific behaviors and the end goal or commitment that requires reinforcement (DuFour, et al., 2006). The implementation of PLCs follows a 4-stage process that begins with pre-initiation or the initial exploration of the concept (DuFour, et al, 2006). Stages one, two, and three include a slow introduction to the entire staff and a modification of thinking needed to embrace the structural changes needed to support the concept and practice of professional learning communities. The final stage is the sustaining stage and means that the concept is a driving force in daily work and has become internalized and embedded within the culture of the school. The sustaining stage is most conducive to implementing effective school reform efforts.

Professional Learning Communities in Minnesota

The state of Minnesota has implemented a means to encourage school reform through the use of PLCs as part of the state's Quality Compensation legislation. Quality compensation for teachers, according to Minn. Stat. 122A.60, provides opportunities for districts to participate in and develop professional learning communities as part of Minnesota's Alternative Teacher Professional Pay System (ATPPS). Districts must apply to and be accepted by the state of Minnesota for this volunteer program. In 2009, 39 school districts, out of a total of 340, participate in the Q Comp program (MN Dept of Education, 2008, MN State Legislature, 2009). One specific group, charter schools, comprises 143 of the public schools in Minnesota. These public entities are open to all students (MN Assoc. of Charter Schools, 2009). Twenty-one of the 143 charter schools

were implementing Q Comp in 2008 (MN Dept of Education, 2008). This information is relevant to the study because the survey data will be collected and sorted into three categories that relate to the school's characterization as a PLC. If school districts are operating the Q Comp program, then it is possible that they are utilizing PLCs according to state criteria, which stipulates that integrated professional development activities can be incorporated through the use of PLCs (MN Dept of Education, 2008).

Performance Variables

When measuring organizations against the seven dimensions of the learning organization, Marsick and Watkins (2003) discovered a correlation between knowledge and financial performance. Knowledge performance represents an amount of capital exchange (Marsick & Watkins, 2003). In relation to school, this exchange might be accomplished through increased instructional practice and student achievement. The exchange is reliant upon teachers' abilities to collaborate in teams and to implement learning as individuals, teams, and whole staff using the learning organization model for their learning communities.

Individual Learning Performance

Teachers are continuous, life-long learners through knowledge of their subject area and their craft (Senge, 2000) while learning is a connection and means for creating knowledge. Beliefs and values about schooling and the learning environment are all part of the system of creating knowledge (Senge). All learners are able to build knowledge using an inner framework "of their individual and social experiences, emotions, will, aptitudes, beliefs, values, self-awareness, purpose and more" (p. 21). Furthermore,

learning can take place at the individual, team, and organization levels (Watkins & Marsick, 1993, 1996). Team level knowledge is a measure to use in the assessment of professional learning communities within the school setting (DuFour, et al. 2006).

Team Learning Performance

Building teams is an effective tool when it comes to learning and the field of education. Teachers are learning to remove themselves from the isolation of their classrooms in order to learn to work within team models (DuFour, et al. 2006). Team learning includes collective thinking and action (Senge, 2000). Through dialogues teachers can learn, grow, and build instructional practice based upon current best practice research. They can also build common assessments as effective measures for student performance. Professional learning communities practice collective inquiry in teaching, learning, and the present reality of the school (DuFour, et al. 2006). Through inquiry, they can increase student and overall school performance.

Organizational Learning Performance

Marsick and Watkins (2003) found that there is a direct link between organizational learning and an increase in performance. Although members of an organization may continue to learn at an individual or even a team level, it is at the organizational level that organizations retain knowledge and continue to grow. This theory is based upon the learning theory of Dewey (1938) who reasoned that the action of individuals is controlled and influenced by the "cooperative and interacting parts" of a whole situation (p. 54). As a result, the learning organization allows individuals to see their connections to the world as well as how to create and improve their own reality (Senge, 1994, 2006).

Methodology and Related Studies

The learning performance variables – individual, team, and organizational/whole staff (Watkins & Marsick, 1993, 1996; Senge 2000; DuFour, et al. 2006) in conjunction with Watkins and Marsick's learning organization action imperatives will be utilized as measures in this proposed study. Watkins & Marsick's learning organization theory has been tested and supported as a means to assess learning organization measures in various types of organizations (Watkins & Marsick, 1993, 1996; Yang, 2003) however, there is little empirical information that applies Watkins and Marsick's theory to public education on the their three levels of learning. Marsick and Watkins's (2003) DLOQ provides a framework for an adaptation of the survey for this proposed study. The proposed, adapted survey is entitled the Dimensions of Teacher Learning Communities Questionnaire (DTLCQ).

Previous research on the dimensions of the learning organization and the three levels of learning as espoused by Watkins and Marsick (1993, 1996) have determined that the DLOQ supported the notion that learning interventions lead to improved performance and business results (Marsick & Watkins, 2003). In addition, subsequent research indicated a significant relationship between learning and the performance variables of knowledge and finance in both profit and nonprofit organizations (McHargue, 2000; Piercy, 2007; Watkins & Marsick, 1993, 1996, 2003). In his dissertation, Piercy (2007) analyzed the performance variables of knowledge, financial, and mission performance in relation to the seven dimensions of the learning organization and the three levels of learning in a random selection of Christian churches in the United

States. Piercy based his research on the work of McHargue (2000) who administered a version of the DLOQ entitled DLOQ-NPO to large nonprofit organizations. In terms of education, research on teacher learning is still young (Borko, 2004). Previous research on teacher learning revealed common themes in relation to the impact on student learning and successful reform efforts, some of which pertain to the seven action imperatives as espoused by Marsick and Watkins (2003).

In 2004 Calabro conducted a case study on the establishment of effective learning communities. Her conclusions revealed that school staff is dedicated to learning through collaborative efforts and effective leadership. In addition, the study participants believed that learning was a collective effort and the responsibility of all members involved in the school organization and that reform efforts must be integrated into classroom practice. In her qualitative dissertation study, Tagaris (2007) studied the efficacy of professional learning communities in terms of addressing the learning of students with special needs. She found that teachers viewed the PLCs as providing more advantages than disadvantages. The advantages included collaboration, increased sense of community, student ownership of learning, increased teacher accountability, and efficient use of available time. The disadvantages included lack of time, increased collaboration resulting in a loss of autonomy, and the fear of starting something new. In his mixed methods dissertation study, Olson (2008) concluded that the use of professional learning communities, collaborative efforts and shared, supportive leadership revealed increased academic achievement in schools in Wisconsin. He discovered that through the utilization

of shared visions and values, school communities could effectively focus on increased student achievement and overall school improvement.

A survey conducted by Bowen, Ware, Rose, and Powers (2007) used six action imperatives, which reflect the employees' perspective of shared learning and shared responsibility (a) team orientation, (b) innovation, (c) involvement, (d) information flow, (e) tolerance for error, and (f) results orientation. They also developed six sentiments imperatives which reflect the expressions, emotions, and attitudes of the employees (a) common purpose, (b) respect, (c) cohesion, (d) trust, (e) mutual support, and (f) optimism. Their analysis included the use of the School Success Profile Learning Organization inventory (SSP-LO), a 44-item survey for school employees and their study was conducted for validity and reliability. In general, they found the instrument to be both valid and reliable but realized it did not reveal a high correlation therefore they were unable to use it to show causal relationships or rule out other potential influences on the variable outcomes. The researchers determined that more studies are needed for their survey instrument.

Pedder (2007) conducted a study of teachers' professional learning practices and values between and within schools in England. He found distinct differences between primary and secondary staff regarding their professional learning. Pedder's study indicated that secondary teachers, specifically those in the sciences and humanities needed to be supported in developing strategies and relationships required to build collaborative efforts for teacher learning. He also found that staff needed help determining the import of their learning in instructional practices.

Collaboration, collective efforts, and shared, effective leadership are common themes in the research synthesized in chapter 2. These findings coincide with several of Marsick and Watkins' action imperatives including: (a) encouraging collaboration and team learning, (b) empowering people toward a collective vision, and (c) strategic leadership to support learning. However, the research did not reveal any current data pertaining to the levels of learning, the seven action imperatives, and the performance variable of knowledge or the transfer of learning in the elementary and secondary public schools of Minnesota. As a result, a quantitative, descriptive study using a variation of the DLOQ (Marsick & Watkins, 2003) was chosen for this study.

Summary

In chapter 2 I included an analysis of the theories of Dewey, Senge, and Watkins and Marsick. The learning organization model was analyzed with a description of Senge's (1994, 2006) five disciplines in relation to Watkins and Marsick's seven dimensions of the learning organization (1996). Current research in relation to learning communities was examined to assist in determining the best instrument for use in this study. In chapter 3 the literature regarding the methodology and design of the research, and an analysis of the survey instrument to be used for this study are synthesized.

CHAPTER 3:

METHODOLOGY

Introduction

In this chapter I will present a discussion of the research design, the approach to the research, the sampling method, the sample size and characteristics, and the eligibility of the participants. The survey instrument, the original development of the DLOQ and succeeding revisions, its implementation and scoring, its validity and reliability, and the results of the pilot study will also be reported. In addition, data collection and analysis, as well as the protection of participants' rights will be delineated.

Research Design

The research design for this study was a quantitative design utilizing descriptive statistics and inferential analysis collect and investigate data to (a) determine the degree to which teacher learning is disseminated throughout their school learning organization to improve student learning and instructional practices, as well as (b) to draw conclusions about differences and similarities across and between elementary, intermediate, and secondary schools as well as rural, suburban, and urban schools. In the study I utilized an online questionnaire, the DTLCQ, a modified version of the DLOQ, a survey developed and validated by Watkins and Marsick (1997) and revised for nonprofit research by both McHargue (2000) and Piercy (2007). The DTLCQ was used to gather information of teachers' perceptions of the dissemination of learning and to compare and contrast differences and similarities across and between schools (Appendix D).

The DLOQ was used as the basis for the development and implementation of the DTLCQ to determine the current level to which teachers perceive their schools to be facilitating the transfer of teacher learning from individuals, to teams, to the entire staff to improve overall knowledge performance of the organization. To better suit the needs of educators, the language of the DLOQ was changed to coincide with the school organization environment. It has been altered in language only to meet the purposes of surveying educational professionals. For instance, *organization* was changed to *learning community* and *expected performance* was changed to *student achievement.* These changes provided survey questions to which teachers can relate and associate with their school learning communities.

There are advantages to the use of survey research. Questionnaire or survey research can be implemented in a timely manner generating data "that are extremely amenable to quantification and consequent computerization and statistical analysis" (Rea & Parker, 2005, p. 7). Web-based surveys are efficient in terms of time and money (Spitz, Niles, & Adler, 2007). Survey Monkey offers a high quality database with options for multiple choice or extended answers (Spitz, Niles, & Adler, 2007). Web-based surveys are also beneficial to reach a participant sample, provide instant access to possible participants reducing interviewer error and bias, improve response quality, and increase anonymity (Spitz et al., 2007).

The scientific approach is quantitative in nature and includes empirical data, a systematic approach, and unbiased procedures that can be replicated (Nardi, 2006). Survey research can be based upon quantitative data and is described by Nardi as "a skill,

an art, and an intellectual process involving collaboration, patience, and creativity" (p. 14). Quantitative survey methods use standardized questions suitable for gaining insight into the opinions and attitudes of the population with the aim of guaranteeing anonymity. Survey methods are also useful for probability sampling and understanding current trends (Hara, 1995; Nardi, 2006).

Dewey (1938) wrote of warrants or cases that could make knowledge claims. In his view scientific, mathematical and logical analysis can be part of the warrant that supports theory, hypotheses, or judgments (Shavelson & Towne, 2002). Because education has many layers and often decisions are made on an emotional basis considering what is believed to be best, Shavelson and Town argued that it is important to begin implementing reform efforts using scientific methods such as quantitative research and findings based upon mathematical analysis of data.

Population and Sample

Target Population

The universe for this research study included the 50,246 elementary and secondary public school teachers of Minnesota (Local Schools Directory, 2010). A database of participating schools is available to the public from the Minnesota Department of Education (2009). In my role as the researcher, I built a database of 10,000 emails to use in this study.

Sample Frame and Sample

A computer-generated random sample of 10,000 email addresses was drawn from the total sample of 50,246. Because all public schools in the state of Minnesota have

access to the Internet, inclusion of all 340 school districts was ensured (University of Minnesota, 2009). Typical rate of response for surveys via the Internet is between 5% and 20% (Fowerler, 2008). A list of 25 names and email addresses were derived separately from the database of 10,000 names in order to conduct a pilot study.

Instrumentation

The DTLCQ consists of 43 items using a Likert-type scale and is composed of three subscales, one corresponding to each of the three levels of learning. The items within each subscale correspond with each of the seven action imperatives. The individual level of learning was linked with questions 1 through 13. The second level, team learning, was addressed with questions 14 through 19, and the whole staff learning level was covered with questions 20 through 43. Each question was measured using a Likert-type scale that ranges from *Almost Never* (1) to *Almost Always* (6). Questions pertaining to changes in school/school district performance range from numbers 44 to 55 and used a scale ranging from *Not At All* (1) to *To a Great Extent* (6). The final nine questions, 56 to 63, were short answer and demographic in nature. The validity and reliability of the instrument are discussed in the Data Analysis section of this chapter. A pilot study was conducted to test the validity and reliability of the DTLCQ for the larger study conducted with the participants detailed in this chapter. As a result of the pilot study, the survey length and wording ambiguity were addressed.

Research Questions and Hypotheses

Research Questions

The research study addressed the following research questions and tested the hypotheses that follow from them.

Research Question 1

What is the degree to which teachers believe the dissemination of teacher learning is taking place throughout their Minnesota public schools learning organization?

Null Hypothesis (H_O)

1.01The dissemination of teacher learning is not taking place at a significant level in the teachers' learning organization.

Alternate Hypothesis (H_A)

1.01The dissemination of teacher learning is taking place at a significant level in the teachers' learning organization.

Research Question 2

What is the degree to which teachers believe Minnesota schools are using teacher learning to improve student achievement and instructional practices?

H_O 2.01 There is no significant relationship between the dissemination of teacher learning and improved student learning and instructional practices.

H_A 2.01 There is a significant relationship between the dissemination of teacher learning and improved student learning and instructional practices.

Research Question 3

Is the dissemination of teacher learning related to school characteristics (such as the amount of funding, responsiveness to challenges, and school performance), as well as teacher characteristics (such as years of experience, number of years at the same location, and advanced degrees)?

H_O3.01 There is no significant difference between the dissemination of teacher learning related to school characteristics.

H_A 3.01 There is a significant difference between the dissemination of teacher learning related to school characteristics.

H_O 3.02 There is no significant difference between the dissemination of teacher learning and teacher characteristics.

H_A 3.02 There is a significant difference between the dissemination of teacher learning and teacher characteristics.

Research Question 4

Is the dissemination of teacher learning less pervasive at certain schools or certain levels?

H_O 4. 01 There are no significant differences in the associations tested in hypotheses groups 1 - 4 across and between elementary, intermediate, and secondary schools.

H_A 4.01 There are significant differences in the associations tested in hypotheses groups 1 - 4 across and between elementary, intermediate, and secondary schools.

H_O 4. 02 There are no significant differences in the associations tested in hypotheses groups 1 - 4 across and between rural, suburban, and urban schools.

H_A 4.02 There are significant differences in the associations tested in hypotheses groups 1 - 4 across and between rural, suburban, and urban schools.

Data Collection and Analysis

The data analysis of the research study included a review of the pilot study. Based upon the pilot study data, it was estimated that 15 to 20 minutes would be needed to complete the questionnaire. Descriptive statistics helped to interpret the data to analyze the current state of teacher learning in Minnesota public schools. Inferential analysis was used to describe the degree to which teachers believe Minnesota schools are operating effective learning communities (Creswell, 2008; DuFour et al., 2006).

Data analysis for the study included measures of central tendency and the two-way ANOVA to measure equalities of means across groups. I described the current state of teacher learning and its dissemination between the three levels of learning along with the seven dimensions of the learning organization (Marsick & Watkins, 2003) utilizing teacher and school characteristics as well as type of school, elementary, intermediate, and senior high and location, urban, suburban, and rural.

The two-way ANOVA was used to measure the statistical equalities or inequalities of means between and across school groups. If $p < .05$ the null hypothesis was rejected for that hypothesis. In the event that the null hypothesis was rejected, the Tukey's and Scheffe's post hoc tests were performed to determine which groups differed from the others. Questions associated with the individual and team levels of the

organization were categorized according to types of schools and the corresponding dimensions of learning: (a) the creation of continuous learning opportunities, (b) the promotion of inquiry and dialogue, (c) encouragement for collaboration and team learning. Analysis included the assessment of the statistical differences in terms of which of the three dimensions of learning are most prevalent in the tested learning organizations. The two-way ANOVA and analysis was completed with the questions associated with the organizational level of learning and the four corresponding dimensions of learning: (d) systems to capture and share learning, (e) empowerment of the people toward a collective vision, (f) connection to the environment, and (g) strategic leadership for learning.

Permission from participants for the data collection was procured through and introductory survey letter and implied consent (Appendix F). The data were collected and coded via Survey Monkey, which allowed for the export of the data into an EXCEL spreadsheet. The interval data for each variable exported into EXCEL were spread between 6 columns to coincide with the scale used to answer each question. I combined the data into one column and coded questions according to level of learning as in IND for individual, TEM for team, and ORG for organizational (Appendix G). The interval data were transferred to the Statistical Package for the Social Sciences ([SPSS]; Nie, N. H., Hull, C. H., & Bent, D. H., 1968). SPSS was used for the statistical calculations and analysis of measures of central tendency, two-way ANOVA and post hoc tests.

For the research questions and hypotheses, measures of central tendency tested the dissemination of teacher learning between and across schools and levels of learning.

Multiple variables and multiple questions were used to describe the dissemination of teacher learning and were used to test the differences in groups. Actual analysis tested for equality of means to examine the extent to which (a) teacher learning is disseminated throughout school learning organizations to improve student learning and instructional practices, as well as (b) differences and similarities in the dissemination of teacher learning across and between elementary, intermediate, and secondary schools as well as in rural, suburban, and urban schools. For Research Question 1 descriptive statistics were used to assess how the sample perceives the dissemination of teacher learning in their learning organization, across the three levels of learning: individual, team, and whole staff. For Research Question 2 descriptive statistics were used to assess how the sample perceives the dissemination of teacher learning as a strategic tool to improve student achievement and instructional practices across the three levels of learning, as well as the similarities or differences across groups including elementary, intermediate, and secondary, and locations including urban, suburban, and rural. For Research Question 3 descriptive statistics were used to assess how the sample perceives the dissemination of teacher learning in relation to school characteristics (such as the amount of funding, responsiveness to challenges, and school performance), and teacher characteristics (such as years of experience, number of years at the same location, and advanced degrees) across the three levels of learning, as well as the similarities or differences across groups including elementary, intermediate, and secondary, and locations: urban, suburban, and rural. For Research Question 4 the associations tested in hypotheses 1 through 3 were tested for the elementary, intermediate, and secondary school samples, as well as rural,

suburban, and urban school samples. Descriptive statistics were used to assess how the sample perceives the dissemination of teacher learning across the three levels of learning, as well as the similarities or differences across groups including elementary, intermediate, and secondary, and locations including urban, suburban, and rural.

The coefficient alpha was used to test for internal consistency and reliability (George & Mallery, 2003; Gliem & Gliem, 2003). Table 1 displays the results of the Cronbach's Alpha, which was .940 and reveals an excellent internal consistency of scale items.

Table 1

Pilot Study Cronbach's Alpha Internal Consistency

Cases N	Cases %	Cronbach's Alpha	Cronbach's standardized items	N of items	Scale Mean	Scale Variance	Scale Stand Deviation
25	100%	.940	.942	57	209.1200	1162.027	34. 08851

Protection of Participants

An email message was sent to the targeted population explaining the survey through a cover letter, as well as a link to the survey. Implied consent was used on the first survey question as per the Institutional Review Board (IRB). The IRB approval number for this study is 04-01-10-0299759. Survey Monkey was used so each staff member had access to the survey and so that responses could be transmitted efficiently to the researcher. Every precaution was made to ensure anonymity through the use of Survey Monkey since the online tool allows potential participants to answer the survey questions without divulging personal information. Participant rights were protected and

anonymity guaranteed through removal of all personal information from the survey output. Survey Monkey provided a numeric identification code to be used in place of the first and last name and email addresses of the participants. Participants were provided informed consent including a letter explaining the survey, the purpose for the survey and the voluntary nature of the survey. They were able to check the appropriate box designating whether they consent to participate or not. They were offered the opportunity to exit the survey at any time and I will keep all information from the survey confidential and locked in a safety deposit box for five years, after which the information will be destroyed.

Eysenbach and Wyatt (2002) found that the protection of privacy or anonymity on the Internet is best achieved through private email. However, preliminary research revealed that participant concerns regarding internet security can potentially produce a higher non-response rate particularly on sensitive topics. More research is needed in order to provide substantial conclusions regarding what topics are considered sensitive and the concerns of internet security (Czaja & Blair, 2004).

Notification was sent to potential participants regarding the forthcoming email invitation and survey. The notification addressed the importance of the survey and the survey results (Baruch & Holtom, 2008; Cook, Heath, & Thompson, 2000). Response opportunities increased with second and third email invitations to those participants who were slow to respond.

Summary

In chapter 3 I have described the quantitative research methodology, the reasons for choosing this methodology, and the research design proposed for this study. Corresponding research questions and the data collection and analysis included testing the equality of means with measures of central tendency, as well as testing the statistical difference between means using two-way ANOVA. Construct validity conducted through a pilot study, was reviewed in this chapter. In chapter 4 are presented a review of the research methods, data analysis, research questions, null hypotheses, alternate hypotheses, and the descriptive statistics and inferential analysis for each research question. Chapter 5 presents the interpretation of the study data as it relates to the literature, my conclusions, reflection, implications for social change, and recommendations for both action and future research.

CHAPTER 4:

RESULTS

Introduction

This study addressed the problem that individual teachers' learning does not always permeate team and whole staff levels (DuFour, 2004; DuFour & Eaker, 1998; Thompson, Gregg, & Niska 2004; Fichtman-Dana & Yendol-Hoppey, 2008). The problem extends to teacher perceptions of their learning throughout the school organization and the degree to which their learning is a constant, systemic process to help them meet current and future challenges in and across schools (Watkins & Marsick, 1996; Phillips, 1999; DuFour et al., 2006; Pedder, 2007). Teacher learning is a key component to school reform and will continue to improve with purposeful and collaborative efforts focusing on student learning and improved instruction (DuFour et al., 2006; Hipp, Huffman, Pankake, & Olivier, 2008; Many, 2009). Differentiated strategies are required to build collaborative efforts because teacher learning differs between and among schools (DuFour et al., 2006; Pedder, 2007).

The primary purpose of this study was to collect and analyze data to (a) determine the degree to which teacher learning is disseminated throughout their school learning organization to improve student learning and instructional practices, as well as (b) to draw conclusions about differences and similarities in the dissemination of teacher learning across and between elementary, intermediate, and secondary schools as well as in rural, suburban, and urban schools. An online questionnaire was used to gather information of teachers' perceptions of the dissemination of learning and to compare and

contrast differences and similarities across and between schools. School levels and school locations were used as grouping variables and the dependent variable was the level of the dissemination of teacher learning. In chapter 1, I predicted that the dissemination of teacher learning would be greater at the individual and team levels of learning than at the organizational level and that elementary school organizations would be more effective at the dissemination of teacher learning than intermediate and senior high school levels (Pedder, 2007). I also predicted that the dissemination of teacher learning would be more effective in suburban areas compared to rural and urban areas due to variations in resources (Bowers, Metzger, & Militello, 2010). Chapter 4 includes a discussion of research tools, data analysis in relation to each of the research questions and hypotheses, tables and figures associated with the findings, consistencies and inconsistencies in the research results, and concluding remarks.

Research Questions

Research Question 1

What is the degree to which teachers believe the dissemination of teacher learning is taking place throughout their Minnesota public schools learning organization?

Null Hypothesis (H_O)

1.01 The dissemination of teacher learning is not taking place at a significant level in the teachers' learning organization.

Alternate Hypothesis (H_A)

1.01The dissemination of teacher learning is taking place at a significant level in the teachers' learning organization.

Research Question 2

What is the degree to which teachers believe Minnesota schools are using teacher learning to improve student achievement and instructional practices?

H_O 2.01 There is no significant relationship between the dissemination of teacher learning and improved student learning and instructional practices.

H_A 2.01 There is a significant relationship between the dissemination of teacher learning and improved student learning and instructional practices.

Research Question 3

Is the dissemination of teacher learning related to school characteristics (such as the amount of funding, responsiveness to challenges, and school performance), as well as teacher characteristics (such as years of experience, number of years at the same location, and advanced degrees)?

H_O3.01 There is no significant difference between the dissemination of teacher learning related to school characteristics.

H_A 3.01 There is a significant difference between the dissemination of teacher learning related to school characteristics.

H_O 3.02 There is no significant difference between the dissemination of teacher learning and teacher characteristics.

H_A 3.02 There is a significant difference between the dissemination of teacher learning and teacher characteristics.

Research Question 4

Is the dissemination of teacher learning less pervasive at certain schools or certain levels? The associations tested in hypotheses 1 through 3 will be tested for the elementary, intermediate, and secondary school samples, as well as rural, suburban, and urban school samples.

H_O 4. 01 There are no significant differences in the associations tested in hypotheses groups 1-4 across and between elementary, intermediate, and secondary schools.

H_A 4.01 There are significant differences in the associations tested in hypotheses groups 1-4 across and between elementary, intermediate, and secondary schools.

H_O 4. 02 There are no significant differences in the associations tested in hypotheses groups 1-4 across and between rural, suburban, and urban schools.

H_A 4.02 There are significant differences in the associations tested in hypotheses groups 1-4 across and between rural, suburban, and urban schools.

Research Method

The research design for this study consisted of the use of survey methodology to collect quantitative information to analyze similarities and differences in the dissemination of teacher learning between and among schools. Descriptive statistics and inferential analysis were used to answer the research questions related to teacher learning in Minnesota public schools. The research questions focused on the seven dimensions of learning in relation to the three levels of learning (individual, team, and organizational) as well as the use of teacher learning throughout the school organization to compare and contrast between and across schools (Marsick & Watkins, 2003). A database of public

schools in the state of Minnesota was used to generate a random selection of names and email addresses of 10,000 kindergarten through 12th grade public school teachers. Survey Monkey was used as a tool from which to send the email invitation and a link to the survey. The survey used was derived from the DLOQ, titled the DTLCQ, and was only changed in vocabulary to be useful with educators. The statistical measures of central tendency and the two-way ANOVA were used to collect statistical information related to the research questions and hypotheses. A total of 547 participants or 5% of the total sample size responded to the survey (Fowerler, 2008). A total of 454 participants completed 100% of the survey, 93 partially completed the survey, and 11 opted out. Between 487 and 500 participants answered each question from the individual, team, organizational, and performance levels of learning.

Data Collection and Analysis

The data were collected and coded via Survey Monkey, exported to an EXCEL spreadsheet and transferred to SPSS. SPSS was used for the statistical calculations and analysis of measures of central tendency, two-way ANOVA and post hoc tests. Data were organized according to questions associated with each of the levels of learning as follows: the level individual was coded as IND, the level team was coded as TEM, the level organization was coded as ORG, and performance of the organization was coded as PERF. Frequency tables are displayed and discussed prior to research questions to illustrate the extent to which the findings are generalizable to the entire population of public school teachers between school levels and locations in Minnesota.

Frequency Tables

The frequency tables for school levels and school locations are displayed in Table 2 and Table 3 indicating the total number of participants in each category designated for this questionnaire. The number of participants from elementary schools was 235, the number from intermediate schools was 96, the total from the senior high schools was 144 and the number of participants who teach at multiple levels was 25. Because the number for those who teach at multiple levels is relatively low in comparison, that is < 30, this number was not included in the overall data analysis. Participants were asked to select the level at which they teach. The total number of participants who answered this question is 497 (Table 2). The total number of public schools in Minnesota is 1,629 with 950 (58%) elementary schools, 188 (12%) intermediate schools, and 491 (30%) secondary schools (MN Dept of Education, 2010). The percentages of participants in each of the school levels correspond with the percentage of participants from each school level who answered the questionnaire. To generalize the answers to the questionnaire to the population of Minnesota public school teachers at different school levels, a confidence level of 95% and a confidence interval of 4.38, was used to calculate that between 43% and 51% of elementary teachers, between 15% and 23% of intermediate teachers, and between 25% and 33% of senior teachers in Minnesota would answer questions in an identical manner (Raosoft, 2010).

Table 2

Please select the answer that best descries your school level: Elementary, K-5; Intermediate 6-8; Senior High 9-12

Frequency	Elem K-5 = 1	Inter 6-8 = 2	Sr. H 9-12 = 3	Multiple = 4	No
School Level	235 (47%)	96 (19%)	144 (29%)	25	497

Participants were asked to select the answer that best described their school location: urban, suburban, or rural. The number of participants from urban schools was 177, from suburban schools there were 132, and the total number of respondents from rural schools was 188. The total number of participants who answered this question is 497 (Table 3). In order to generalize the answers to the questionnaire to public school teachers at different locations in Minnesota, a confidence level of 95% and a confidence interval of 4.38, was used to calculate that between 32% and 40% of urban school teachers, between 23% and 31% of suburban school teachers, and between 34% and 42% of rural school teachers in Minnesota would answer questions in an identical manner (Raosoft, 2010). The research questions, hypotheses, and findings are addressed in the following section.

Table 3

Please select the answer that best describes your school location: urban, suburban, or rural.

Frequency	Urban = 1	Suburban = 2	Rural=3	No
School Local	177 (36%)	132 (27%)	188 (38%)	497

Research Question 1: Findings

The purpose of Research Question 1 was to analyze the degree to which teachers believe the dissemination of teacher learning is taking place throughout their Minnesota public schools' learning organizations. The null hypothesis was the dissemination of teacher learning is not taking place at a significant level in the teachers' learning organization. The alternate hypothesis was the dissemination of teacher learning is taking place at a significant level in the teachers' learning organization. For Research Question 1 descriptive statistics were used to assess how the sample perceived the dissemination of teacher learning in their learning organization, across the three levels of learning- individual, team, and whole staff. The findings for Research Question 1 will be addressed using inferential analysis and descriptive statistics. Questions for the individual level of learning are coded as IND*,* questions associated with the team level of learning are coded as TEM, and questions corresponding to the organizational level are coded as ORG. The variables listed on the following tables correspond with the seven dimensions of the learning organization, which are continuous learning opportunities, inquiry and dialogue, and team learning which correspond to the individual and team levels of learning. Embedded systems for learning, empowerment, systems connection, and strategic leadership correspond with the organizational level of the learning (Watkins & Marsick, 1996, 1999).

Individual Level of Learning

Table 4

Individual Level of Learning: Scored as Almost Never

*Variable	No	Mean	Stand Dev	Median	Mode	95% Conf Interval		
						SE	Lower	Upper
IND7-resources for learning	497	2.30	1.44	3	2	.071	2.837	3.116
IND8-time to learn	497	3.12	1.43	3	2	.070	2.979	3.254
IND10-rewards given	495	2.96	1.47	3	2	.072	2.861	3.146
IND13-can ask "why?"	488	3.30	1.46	3	3	.072	3.171	3.456
IND14-share & ask opinions	495	3.43	1.26	3	3	.061	3.335	3.575

The inferential analysis for the individual level of learning includes 13 questions/answers rated on a scale from 1 to 6 – 1 being *Almost Never*, and 6 being *Almost Always*. The questions are represented in the variable column of the tables and in italics with corresponding coded in parenthesis when referred to in the text. The minimum values are 1 and the maximum values are 6 for all 13 questions; signifying for each answer, that some participants felt strongly either for *Almost Always* or *Almost Never* in regard to their individual learning. The total number of valid responses for each question range between 488 and 498. The confidence intervals show the range of answers to the survey questions. Any score from 1 to 3 was considered to be in the *Almost Never Range*, scores from 4 to 6 were considered to be in the *Almost Always Range,* and scores

that range around 3.5, the midpoint, were considered to be indifferent. Frequency tables representing the total number of responses for each numerical category on the scale from 1 to 6, are represented in Appendix H. Participants answered the following survey questions within the *Almost Never* range (Table 4).

People get resources for learning (IND7), and *people are rewarded for learning and improving* (IND10) had the majority of scores in the 1 to 4 *Almost Never* range indicating that over 400 participants believe these elements are occurring on an inconsistent basis in their learning community. Eighty of the participants scored IND7 in the *Almost Always* range, and 84 scored IND10 in the *Almost Always* range. IND7 and IND10 have means less than three, which are 2.30 and 2.96 respectively, medians of 3, and modes of 2. Standard deviations were 1.44 and 1.47.

People have time to support learning (IND8), and *people are encouraged to as "Why?"regardless of the situation* (IND13) had the majority of scores between 2 and 4 indicating that over 300 participants believe that these elements take place rarely. Ninety scored IND8 in the *Almost Always* range where as, 66 scored this question as *Almost Never*. *People state their views and asks others' thoughts and opinions* (IND14) had the majority of scores in the 3 and 4 or midrange of the scale indicating that over 275 participants believe that their learning organization incorporates these elements some of the time. One hundred sixteen participants scored IND14 in the *Almost Never* range and 110 scored this question in the *Almost Always* range.

All of the confidence intervals fall below the 3.5 midpoint, except for IND14 which has a lower bound of 3.335 and an upper of 3.575. The answers to this question

range from *Almost Never* to *Indifferent.* Answers for IND8, IND9, IND10, IND13, and IND14 reveal that participants agree that their learning communities *Almost Never* have time to discuss mistakes, time to learn, opportunities to improve, provide constructive feedback, listen, ask questions and respectfully share opinions, and have time to build trust. This finding is based upon the fact that the means range from 2.30 to 3.43, which fall in the *Almost Never* category; the means and medians are 2 or 3, and the standard deviations range from 1.26 to 1.47. Responses to subsequent questions fell in the *Almost Always* category.

Table 5

Individual Level of Learning: Scored as Almost Always

*Variable	No	Mean	SD	Med	Mode	95% Conf Interval		
						SE	Low	Upper
IND4-discuss mistakes	497	3.70	1.38	4	4	.068	3.529	3.795
IND5-identify skills	498	4.06	1.33	4	4	.065	3.876	4.130
IND6-help each other	496	4.52	1.32	5	6	.064	4.408	4.660
IND9-opportunity to improve	494	3.55	1.34	4	4	.066	3.392	3.653
IND11-candid feedback	495	3.54	1.34	4	4	.066	3.430	3.691
IND12-listen before speaking	492	3.85	1.28	4	4	.063	3.760	4.007
IND15-respect	490	4.43	1.25	5	5	.062	4.337	4.581
IND16-time to build trust	496	3.68	1.36	4	4	.067	3.573	3.837

The responses to questions related to *people openly discuss mistakes* (IND4), *people identify skills to improve learning* IND5), *people listen before speaking* (IND12),

and *people have time to build trust* (IND16) had the majority of scores between 3 and 5, indicating that 225 participants believe that their learning communities implement these elements some of the time to *Almost Always*. One hundred nine participants scored IND4 at the *Almost Never* range with 77 scoring a 2. Forty-eight scored IND4 at 6, or *Almost Always*. Sixty-five participants scored IND5 at the *Almost Never* range with 47 scoring a 2, and 75 gave it a score of 6 or *Almost Always*. Seventy-one scored IND12 at the *Almost Never* range and 57 marked it as 6 or *Almost Always*. Twenty-eight gave IND16 a score of a 1 or *Almost Never*, and 52 gave it a score of 6. *People have the opportunity to improve* (IND9), *people provide candid feedback* (IND11), had means of 3.55 and 3.54. The confidence interval for IND9 was between 3.392 and 3.653, and the confidence interval for IND11 was 3.430 to 3.691 putting these two questions in the midpoint or indifferent range. Forty-nine participants scored IND9 at a 6, and 34 at a 1. One hundred seventeen participants scored IND11 in the *Almost Never* range, with 86 scoring a 2, and 39 gave it a score of 6.

People help each other learn (IND6) and *people treat each other with respect* (IND15) had the majority of scores in the 4 to 6 range indicating that over 350 participants believe these elements are *Almost Always* a part of the learning communities. One hundred ten scored IND6 in the *Almost Never* range with 68 scoring a 3, 31 scoring a 2, and 11 scoring a 1. One hundred sixteen scored IND15 in the *Almost Never* range, with 84 scoring a 3, 26 scoring a 2, and 6 scoring a 1.

Answers for IND4, IND5, IND6, IND12, IND15, and IND16 reveal that participants believe that their learning communities *Almost Always* identify skills for

improvement and help each other learn. This evidence is based upon the fact that the medians are 3.54 (over the midpoint between 3 and 6) and 4.52, the medians and the modes were between 4 and 6, and standard deviations are between 1.25 and 1.38. IND9 and IND11 fell at the midpoint range meaning that participants were indifferent or did not feel strongly one way or another.

Team Level of Learning

Table 6

Responses to Team Level of Learning Questions: Measures of Central Tendency

*Variable	No	Mean	Stand Dev	Median	Mode	95% Conf Interval		
						SE	Low	Upper
TEM17-freedom to improve	485	3.90	1.37	4	4	.117	3.679	4.140
TEM18-treat as equals	485	4.36	1.36	5	6	.118	4.134	4.597
TEM19-focus on common goal	484	4.10	1.26	4	4	.108	3.876	4.301
TEM20-revises thinking	482	4.03	1.23	4	4	.105	3.736	4.149
TEM21-rewarded	479	2.73	1.36	3	2	.119	2.534	3.001
TEM22-confident of district's actions	482	2.48	1.28	2	2	.110	2.287	2.719

The inferential analysis for the team level of learning included six questions and a scale from 1 to 6, one being *Almost Never*, and 6 being *Almost Always*. Totals of valid responses for each question range from 479 to 485. The confidence intervals show the

range of answers to the survey questions. Any score from 1 to 3 were considered to be in the *Almost Never Range*, scores from 4 to 6 were considered to be in the *Almost Always Range,* and scores that range around 3.5, the midpoint, are considered to be indifferent. Frequency tables representing the total number of responses for each numerical category on the scale from 1 to 6 are represented in Appendix H.

The responses to *teams are rewarded for their achievements* (TEM21), and *teams are confident that the district will act upon their recommendations* (TEM22) were scored in the *Almost Never* Range indicating that over 325 participants do not believe their learning communities implement these components on a regular basis. One hundred forty-one scored TEM21 in the *Almost Always* range, with 86 scoring a 4, 42 scoring a 5, and 13 scoring a 6. Ninety-nine participants scored TEM22 in the *Almost Always* range, with 59 scoring a 4, 29 scoring a 5, and 11 scoring a 6. Answers to TEM21, and TEM22 reveal that participants agree that their learning communities are *Almost Never* rewarded for improvement, and are rarely confident of the district's actions. This evidence is based upon the fact that the means are 2.73, and 2.48, the medians are 3, and 2, and the modes are 2, and 2 respectively, standard deviations are 1.36 and 1.28. The confidence intervals ranged from 2.534 to 3.001 for TEM21, and 2.287 and 2.719 for TEM22.

The responses to *teams have the freedom to improve instruction and achievement* (TEM17), *teams focus on common goals* (TEM19), and *team revises thinking based upon discussions and information* (TEM20) were scored between 3 and 5 or in the moderate to *Almost Always* range indicating that over 350 participants believe that their learning communities implement these elements most of the time. Seventy-seven scored TEM17

in the *Almost Never* range, 32 scoring a 1, and 45 scoring a 2. Fifty-eight scored TEM17 at a 6. Fifty-four scored TEM19 at the *Almost Never* range with 42 scoring a 2 and 12 scoring a 2; 66 scored TEM19 at a 3. Fifty-nine participants scored TEM20 in the *Almost Never* range with 14 scoring a 1, and 45 scoring a 2. Fifty-four participants scored TEM20 at a 6 or in the *Almost Always* range. Answers for TEM17, TEM19, and TEM20 reveal that participants agree that their learning communities allow freedom to improve, focus on a common goal, and can revise their thinking to a significant degree. The means are 3.90, 4.36, and 4.03, medians and modes are between 4 and 6, and standard deviations are 1.37 and 1.36, and 1.36 respectively. The confidence interval for TEM17 ranged from 3.679 to 4.140, for TEM19 it ranged from 3.876 to 4.301, and for TEM20 it ranged from 3.736 to 4.149.

Teams treat each other as equals (TEM18) had the majority of scores from 4 to 6, in the *Almost Always* range, indicating that 353 participants believe their learning communities implement this component most of the time. Eighty-two scored this question with 3, 39 scored a 2, and 11 scored a 1. TEM18 reveals that participants believe that those in the learning community are treated as equals to a moderate degree with a mean of 4.36, a median of 5, a mode of 6, and a standard deviation is 1.36. The confidence interval for TEM 18 ranged from 4.134 to 4.597.

Organizational Level of Learning

Table 7

Organizational Level of Learning: Responses in the Almost Never Range

*Variable	No	Mean	Stan Dev	Median	Mode	95% Conf Interval		
						SE	Low	Upper
ORG23-two-way communication	477	2.69	1.46	2	1	.138	2.370	2.914
ORG24-information given easily	474	3.30	1.30	3	3	.123	3.007	3.490
ORG25-database of skills	473	2.69	1.46	2	1	.133	2.046	2.568
ORG26-systems to measure performance	472	3.29	1.42	3	3	.136	3.074	3.610
ORG27-lessons learned for all	471	2.79	1.36	3	2	.131	2.429	2.943
ORG28-measures time and resources	470	2.63	1.45	2	2	.130	2.385	2.896
ORG29-recognizes initiative	469	3.12	1.45	3	3	.138	2.728	3.269
ORG30-choice of assignments	474	2.89	1.39	3	3	.133	2.633	3.156
ORG31-contribute to vision	471	3.34	1.45	3	4	.138	2.970	3.512
ORG32-control of resources	471	3.00	1.36	3	3	.126	2.679	3.173
ORG33-supports risks-takers	471	2.86	1.29	3	3	.123	2.532	3.014
ORG34-align visions	469	3.46	1.37	3	3	.133	3.186	3.710
ORG35-helps balance family/work	473	2.81	1.44	3	2	.139	2.547	3.095
ORG36- global perspective	470	3.33	1.43	3	3	.133	3.705	3.181
ORG38-considers decisions and morale	464	2.63	1.47	2	1	.141	2.232	2.787
ORG39-works with outside community	469	3.12	1.34	3	3	.127	2.843	3.343

(*table continues)*

ORG40-organizational problem solving	463	3.21	1.32	3	3	.128	2.851	3.354
ORG42-share success and failures	464	2.98	1.49	3	2	.142	2.629	3.187
ORG43-empower others	468	3.30	1.49	3	4	.142	2.967	3.524
ORG44-mentor and coach	466	3.22	1.50	3	4	.144	2.894	3.458
ORG46- ensure actions and values consistent	468	3.47	1.38	3	3	.132	3.160	3.680

The inferential analysis for the organizational level of learning included 23 questions and a scale from 1 to 6, one being *Almost Never*, and 6 being *Almost Always*. Totals of valid responses range from 463 to 477. *Community uses two-way communication on a regular basis* (ORG23), *community maintains a database of employee skills* (ORG25), *community makes lessons learned available to all* (ORG27), *community measures results of time and resources spent on training* (ORG28), *community recognizes people for taking initiative* (ORG29), *community gives people choices in their work assignments* (ORG30), *community gives people control over resources* (ORG32), *community supports employees who take risks* (ORG33), *community helps employees balance work and family* (ORG35), and *community considers impact of decisions on morale* (ORG38), *community works with outside community* (ORG39), and *community leaders share success and failures* (ORG42) had the majority of scores between 1 and 3 or in the *Almost Never* range indicating that over 300 participants believe their learning communities do not implement these elements on a consistent basis. One hundred thirty-nine participants scored ORG23 in the *Almost Always* range

with 75 scoring a 4, 45 scoring a 5, and 19 scoring a 6. Ninety-five participants scored ORG25 in the *Almost Always* range with 48 scoring a 4, 33 scoring a 5, and 14 scoring a 6. One hundred thirty-six participants scored ORG27 in the *Almost Always* range, with 74 scoring a 4, 47 scoring a 5, and 15 scoring a 6. One hundred twenty scored ORG28 in the *Almost Always* category with 66 scoring a 4, 40 scoring a 5, and 14 scoring a 6. Sixty-seven participants scored ORG29 at a 5, 25 scored a 6, and 76 scored a 1. Forty-one participants scored ORG30 at a 5, and 20 scored a 6. Sixty-one of the participants scored ORG32 at a 5, 16 scored a 6, and 71 scored a 1. Forty-five scored ORG 33 at a 5, 10 scored a 6, and 79 scored a 1. One hundred forty-eight participants scored ORG35 at the *Almost Always* range with 72 scoring a 4, 61 scoring a 5, and 15 scoring a 6. One hundred twenty-four participants scored ORG38 in the *Almost Always* range with 58 scoring a 4, 47 scoring a 5, and 19 scoring a 6. Sixty-four scored ORG39 at a 5, 16 scored a 6, and 62 scored a 1. Fifty-three participants scored ORG 42 at a 5, 28 scored a 6.

Answers to ORG23, ORG25, ORG27, ORG28, ORG29, ORG30, ORG32, ORG33, ORG35, ORG38, ORG39, and ORG42 reveal that participants believe their organizational learning communities rarely to *Almost Never* have two-way communication, provide a database of skills, provide lessons learned for all, measure time and resources, recognizes initiatives, provides a choice of job assignments, has control of resources, supports risk-takers, helps employees balance family and work, considers decisions and morale simultaneously, works with the outside community and shares successes and failures. These findings are based upon the fact that means range

from 2.69 to 3.12, medians and modes range from 1 to 3 and standard deviations range from 1.29 to 1.49.

Community enables people to get needed information easily (ORG24), *community creates systems to measure gaps between current and expected performance* (ORG26), *community invites people to contribute to school/district's vision* (ORG31), *community builds alignment of visions across grades and curricular groups* (ORG34), *community encourages global perspectives* (ORG36), *community encourages across organization problem solving* (ORG40), *community leaders empower others* (ORG43), *community leaders mentor and coach* (ORG44), and *community leaders ensure actions and values consistent* (ORG46) had the majority of scores between 2 and 4 indicating that over 275 participants believe that their learning communities implement these components *Almost Never* to a moderate degree. Sixty-one participants scored ORG24 at a 5, 26 scored a 6, and 40 scored a 1. Seventy-five participants scored ORG26 at a 5, 28 scored a 6, and 60 scored a 1. Seventy-three participants scored ORG31 a 5, 34 scored a 6, and 61 scored a 1. Seventy participants scored ORG34 at a 2, 45 scored a 1, and 30 scored a 6. Seventy-four participants scored ORG36 at a 5, 33 scored a 6, and 54 scored a 1. Fifty-seven scored ORG40 at a 5, 22 scored a 6, and 46 scored a 1. Seventy-four participants scored ORG43 at a 5, 36 scored a 6, and 64 scored a 1. Sixty-nine participants scored ORG44 at a 5, 33 scored a 6, and 74 scored a 1. Thirty-six scored ORG46 at a 6, and 42 scored a 1. Answers to ORG24, ORG26, ORG31, ORG34, ORG36, ORG40, ORG43, ORG44, and ORG46 reveal that participants believe their organization rarely provides information easily, has systems to measure performance, contributes to the district's vision,

encourages global perspective, encourages students' decisions, encourages organizational problem solving, supports learning opportunities, empowers others, provides mentors and coaches, seeks learning opportunities, and ensures that actions and values are consistent. These findings are based upon the fact that means range from 3.30 to 3.47, medians and modes range from 3 to 4, and standard deviations range from 1.30 to 1.50. The majority of the confidence intervals fell below the 3.5 midpoint but ORG26 had a lower bound interval of 3.074 and an upper bound of 3.610, ORG31 ranged from 2.970 to 3.512, ORG34 ranged from 3.186 to 3.710, ORG36 ranged from 3.181 to 3.705, ORG43 ranged from 2.967 to 3.524, and ORG46 ranged from 3.160 to 3.680. This evidence indicated that participants felt their learning organizations *Almost Never* implement these components or were indifferent, meaning they did not feel strongly one way or the other.

Table 8

Organizational Level of Learning: Responses in the Almost Always Range

*Variable	No	Mean	Stan Dev	Median	Mode	95% Conf Interval		
						SE	Low	Upper
ORG37-encourages students' decisions	475	4.06	1.41	4	5	.133	3.714	4.239
ORG41-support learning opportunities	469	3.71	1.46	4	4	.139	3.386	3.933
ORG45-seek opportunities to learn	470	3.68	1.41	4	4	.136	3.439	3.972

Community encourages students' needs as part of decision making (ORG37), *community leaders support learning opportunities* (ORG41), and *community leaders look for opportunities to learn* (ORG45) had the majority of scores ranging from 3 to 5 indicating that over 300 participants believe their learning communities implement these

components moderately to *Almost Always*. The majority of remaining scores is either 1 or 2. Seventy-two participants scored ORG41 at a 2, 35 scored a 1, and 61 scored a 6. Sixty-three scored ORG45 at a 2, 38 scored a 1, and 46 scored a 6. ORG37 had the majority of remaining scores at 6 with a total of 79, 58 scored a 2, and 20 scored a 1. Answers to ORG37, ORG41, and ORG45 reveal that their learning organizations *Almost Always* encourage student decisions, support continuous learning opportunities, and seek opportunities to learn. These findings are based upon the fact that means range from 3.68 to 4.06, medians and modes range from 4 to 5, and standard deviations range from 1.41 to 1.46. The confidence interval for ORG37 fell between 3.714 to 4.239; indicating that participants *Almost Always* agree that their learning organizations implement this component. The confidence interval for ORG41 fell between 3.386 and 3.933, and the confidence interval for ORG45 fell between 3.439 and 3.972 indicating that participants did not feel strongly one way or the other.

Research Question 1: Conclusions

The null hypothesis is accepted for the variables *people get resources for learning* (IND7), *people have time to support learning* (IND8), *people are rewarded for learning and improving* (IND10), *people are encouraged to as "Why?"regardless of the situation* (IND13), and *people state their views and asks others' thoughts and opinions* (IND14), because over 50% of participants believe that the dissemination of teacher learning is not taking place to a significant degree.

The null hypothesis is rejected for the variables *people openly discuss mistakes* (IND4), *people identify skills to improve learning* (IND5), *people help each other learn*

(IND6), *people consider problems as opportunities to improve* (IND9), *people provide candid feedback* (IND11), *people listen before speaking* (IND12), *people treat each other with respect* (IND15), and *people have time to build trust* (IND16) because over 50% of the participants believe the dissemination of teacher learning is taking place to a significant degree. Therefore, the alternative hypothesis is accepted for these variables.

The null hypothesis is accepted for the variables *teams are rewarded for their achievements* (TEM21) and *teams are confident that the district will act upon their recommendations* (TEM22) because participants believe that the dissemination of teacher learning is not taking place to a significant degree. The null hypothesis is rejected for the variables *teams have the freedom to improve instruction and achievement* (TEM17)*, teams treat each other as equals* (TEM18), *teams focus on common goals* (TEM19), and *team revises thinking based upon discussions and information* (TEM20) because participants believe the dissemination of teacher learning is taking place at a significant degree. Therefore, the alternative hypothesis is accepted for these variables.

The null hypothesis is accepted for the variables *community uses two-way communication on a regular basis* (ORG23), *community enables people to get needed information easily* (ORG24), *community maintains a database of employee skills* (ORG25), *community creates systems to measure gaps between current and expected performance* (ORG26), *community makes lessons learned available to all* (ORG27), *community measures results of time and resources spent on training* (ORG28), *community recognizes people for taking initiative* (ORG29), *community gives people choices in their work assignments* (ORG30), *community invites people to contribute to*

school/district's vision (ORG31), *community gives people control over resources* (ORG32), *community supports employees who take risks* (ORG33), *community builds alignment of visions across grades and curricular groups* (ORG34), *community helps employees balance work and family* (ORG35), *community encourages global perspectives* (ORG36), *community considers impact of decisions on morale* (ORG38), *community works with outside community* (ORG39), *community encourages across organization problem solving* (ORG40), and *community leaders share success and failures* (ORG42), *community leaders empower others* (ORG43), and *community leaders mentor and coach* (ORG44), *community leaders ensure actions and values consistent* (ORG46) had because participants believe that the dissemination of teacher learning is not taking place to a significant degree.

The null hypothesis is rejected for the variables *community encourages students' needs as part of decision making* (ORG37), *community leaders support learning opportunities* (ORG41), and *community leaders look for opportunities to learn* (ORG45) because participants believe that the dissemination of teacher learning is taking place to a significant degree in their learning communities. Therefore, the alternative hypothesis is accepted.

Implementation and augmentation of the dimensions of the learning organization significantly affect the performance variables, which are only sustained through a well-established system to share and capture knowledge (Senge, 1990; Watkins & Marsick, 2003). According to the survey participants, only portions of the dimensions of the learning organization are currently taking place in this sample of public schools in

Minnesota (Watkins & Marsick, 2003; Song, Joo, & Chermack 2009). This finding is directly related to the data collected in the current study regarding the performance of the learning organization. Data related to the performance of the learning organization will be reviewed in the following section.

Research Question 2: Findings

The purpose of Research Question 2 was to analyze the relationship between the dissemination of teacher learning and improving student achievement and instructional practices. The null hypothesis stated that there is no significant relationship between the dissemination of teacher learning and improved student learning and instructional practices. The alternate hypothesis was that there is a significant relationship between the dissemination of teacher learning and improved student learning and instructional practices. The inferential analysis for the performance level of the learning organization included 14 questions and a scale from 1 to 6, one being *Not at All,* and 6 being *To a Great Extent*. Totals of valid responses ranged from 452 to 484.The confidence intervals show the range of answers to the survey questions. Any score from 1 to 3 were considered to be in the *Not at All*, scores from 4 to 6 were considered to be in the *Not at All* range*,* and scores that range around 3.5, the midpoint, are considered to be indifferent. Frequency tables representing the total number of responses for each numerical category on the scale from 1 to 6 are represented in Appendix H. For Research Question 2 descriptive statistics were used to assess and report how the sample perceives the dissemination of teacher learning as a strategic tool to improve performance related to

student achievement and instructional practices. Participants answered the following survey questions within the *Not at All* range (Table 9).

Performance of Learning Organizations

Table 9

Performance of Learning Organizations: Responses in the Almost Never Range

*Variable	No	Mean	SD	Median	Mode	95% Confidence Interval		
						SE	Low	Upper
PERF47-finances used more effectively	464	3.11	1.44	3	3	.073	2.983	3.268
PERF48-student achieve greater	460	3.48	1.22	4	4	.064	3.336	3.586
PERF49-financial resources greater	459	1.77	1.17	1	1	.061	1.662	1.902
PERF50-addressing student needs improved	458	2.96	1.30	3	3	.068	2.829	3.096
PERF51-response time less	459	2.91	1.30	3	3	.067	2.817	3.082
PERF52-funds for instruction	458	1.87	1.15	1	1	.060	1.769	2.003
PERF53-math scores increased	452	3.34	1.21	3	3	.064	3.200	3.451
PERF54-reading scores increased	452	3.47	1.18	3	3	.062	3.53	3.597
PERF55-school improvement greater	457	3.25	1.32	3	3	.069	3.126	3.396
PERF56-leadership more supportive	457	2.96	1.42	3	3	.074	2.848	3.139
PERF57-more volunteers trained	457	2.37	1.38	2	1	.071	2.181	2.461

(*table continues*)

PERF58-increased volunteers	458	3.02	1.35	3	3	.070	2.902	3.179
PERF59-outreach increased	460	2.41	1.40	2	1	.073	2.261	2.549
PERF60-school/community work increased	484	3.08	1.31	3	3	.067	2.959	3.222

Responses to *financial resources greater than last year* (PERF49), *funds for improving instruction greater than last year* (PERF52), *more volunteers trained this year* (PERF57), and *participation in outreach increased* (PERF59) had the majority of scores between 1 and 3, or in the *Not at All* category indicating that over 300 participants believe that their learning communities are not implementing enough learning components to affect these performance levels. Twenty-five scored PERF49 at a 4, 15 scored it at a 5, and 5 gave the score of 6. Twenty-eight scored PERF52 at a 4, 14 scored a 5, and 4 scored a 6. Fifty-four scored PERF57 at a 4, 26 scored a 5, and 15 scored a 6. Fifty-three scored PERF59 at a 4, 34 scored a 5, and 14 scored a 6.

Responses to *addressing student needs better than last year* (PERF50), *response time for narrowing achievement gap less this year* (PERF51), *leadership more supportive this year* (PERF56), *leadership more supportive this year* (PERF58), *school and community work to increase achievement* (PERF60) had the majority of scores between 1 and 4 indicating that over 380 participants believe that their learning communities implement these components *Not at All* to a moderate degree. Forty-three scored PERF50 at a 5, and 12 scored a 6. Forty participants scored PERF51 at a 5, and 13 scored a 6.

Fifty-two scored PERF56 at a 5 and 19 scored a 6. Forty-two scored PERF58 at a 5 and 21 scored a 6. Fifty-five scored PERF60 at a 5 and 17 at a 6.

Financial resources used more effectively (PERF47), and *implementation of school improvement greater than last year* (PERF55) had the majority of scores between 2 and 4, and also had notable amounts at 1 and 5. For PERF 47, 301 participants scored it between 2 and 4, and for PERF55, 363 scored it between 2 and 4, indicating that their learning communities implement these components to a moderate degree. Seventy-four scored PERF47 at a 1 and 62 scored it at a 5, whereas 27 scored it a 6. Fifty-seven scored PERF55 at a 1 and 57 scored it at a 5, whereas 20 scored it at a 6.

Student achievement greater than last year (PERF48), *math scores increased over last year* (PERF53), and *reading scores increased over last year* (PERF54) had the majority of scores ranging from 2 and 5. The scores of 3 and 4 were scored highest with 276, 272, and 282 respectively and each score of 2 and 5 had total scores between 60 and 67 indicating that these aspects of performance took place to a moderate degree. Thirty participants scored PERF48 at a 1, and 21 scored a 6. Thirty-seven scored PERF53 at a 1 and 14 scored a 6. Twenty-six scored PERF54 at a 1, and 19 scored a 6.

Answers for all performance level questions indicate that participants believe their learning organization is utilizing the dissemination of teacher learning to improve student learning and instructional practices rarely to *Not at All*. This finding is based upon the fact that the means range from 1.77 to 3.48, which are less than the 3.5 midrange of the 6-point scale, the medians and modes range from 1 to 4, and the standard deviations range from 1.15 to 1.44. The highest mean, 3.48, corresponds to *people believe financial*

resources are used more affectively this year (PERF47). It has a median and mode of 4, and a standard deviation of 1.22. The confidence intervals for the majority of the performance questions fall below the 3.5 midpoint or in the *Not at All* range. The confidence interval for PERF48 falls between 3.336 and 3.586, and the confidence interval for PERF54 falls between 3.353 and 3.597 indicating that participants did not feel strongly one way or another.

Research Question 2: Conclusions

The null hypothesis was there is no significant relationship between the dissemination of teacher learning and improved student learning and instructional practices. The alternate hypothesis was there is a significant relationship between the dissemination of teacher learning and improved student learning and instructional practices. Frequency and measures of central tendency tabulations reveal that the dissemination of teacher learning is not used to improve student learning and instructional practices.

Research Question 3: Findings

The purpose of research question three is to determine if the dissemination of teacher learning is related to school characteristics (such as the amount of funding, responsiveness to challenges, and school performance), as well as to teacher characteristics (such as years of experience, number of years at the same location, and advanced degrees). The first null hypothesis is there is no significant difference between the dissemination of teacher learning related to school characteristics. The first alternate hypothesis is there is a significant difference between the dissemination of teacher

learning related to school characteristics. The second null hypothesis is there is no significant difference between the dissemination of teacher learning and teacher characteristics. The second alternate hypothesis is there is a significant difference between the dissemination of teacher learning and teacher characteristics. For Research Question 3 descriptive statistics were used to assess how the sample perceives the dissemination of teacher learning in relation to the stated school characteristics (such as the amount of funding, responsiveness to challenges, volunteers, and school performance), and teacher characteristics (such as years of experience, number of years at the same location, and advanced degrees) across the three levels of learning, and measures of performance. Participants were also given the opportunity to choose and prioritize 3 of 5 distinguishing characteristics for their school. The distinguishing factors were free and reduced lunch, student diversity, parent involvement, staff ability, and student ability. The frequency tables below show the total number of participants who responded to each category specifying teacher and school characteristics, all of which are included in the correlation analysis. The correlation test, Pearson Correlation Coefficient, was used to measure the strength of the linear relationship between variables. The correlation coefficients for Pearson's is ≤ 1; correlations that equal 1 or -1 are symmetric or a perfect relationship. The entire correlation table can be located in Appendix I.

Table 10

Current Job Title

Frequency	Classroom Teacher = 1	Specialist = 2 (Media, ELL, Art, PE, Music)	Special Education = 3	Social Worker/Counselor = 4	Dean/Administrator = 5	Total
Job Title	324	65	51	11	7	458

A total of 324 classroom teachers responded to the survey (Table 10). A total of 65 specialists, including media, teachers of English language learners, art, physical education, and music responded to the survey. There were 51 special education teachers, 11 social workers or counselors, and 5 deans or administrators. The total number of valid responses was 458. Table 10 also represents a hierarchy of participants who directly affect teacher learning. Classroom teachers are listed as first in this hierarchy, specialists second, because special education teachers and social workers work with a specific number of students, they are third and fourth, and deans/administrators are fifth. This information is relevant to Table 18. There were 119 participants who have between 1 and 10 years of teaching experience, 159 with between 11 and 20 years of experience, and 113 between 21 and 30 years of experience (Table 11). This was a fairly even distribution of years of experience under 30 years. There were 58 with between 31 and 40 years of experience, and 1 between 41 and 50 years of experience. The total number of valid responses was 450.

Table 11

Total Years of Experience

Frequency	1-10 years = 1	11-20 years = 2	21-30 years = 3	31-40 years = 4	41-50 years = 5	Total
Years of Experience	119	159	113	58	1	450

A total of 225 participants have been at their same school site between 2 and 10 years, 131 have been at the same location between 11 and 20 years, 46 have been at the same location between 21 and 30 years, and 20 have been at their same location between 31 and 40 years (Table12).

Table 12

Years at Current Location

Frequency	1-10 years = 1	11-20 years = 2	21-30 years = 3	31-40 years = 4	41-50 years = 5	Total
Years Current Loc	255	131	46	20	0	452

The total number of valid responses was 452. Those locations with between 1 and 25 total staff members was 83, between 26 and 50 staff members was 177, between 51 and 75 staff members was 92, between 76 and 100 staff members was 45, and with a total of 101 or more was 38 (Table 13).

Table 13

Total Number of Staff

Frequency	1-25 = 1	26-50 = 2	51-75 = 3	76-100 = 4	101 and > = 5	Total
Total No. of staff	83	177	92	45	38	435

One hundred and three participants revealed that between 1 and 15 staff members at their location have advanced degrees, 102 indicated that between 16 and 30 staff members have advanced degrees, 47 noted between 31 and 45 hold advanced degrees, 18 responded that between 46 and 55 advanced degrees, 14 checked between 56 and 55 advanced degrees, and 21 stated that between 66 and 75 staff members have advanced degrees (Table 14). The total number of valid responses was 305.

Table 14

Total Number of Advanced Degrees

Frequency	1-15 = 1	16-30 = 2	31-45 = 3	46-55 = 4	56-55 = 5	66-75 = 6	Total
Total No. of staff	103	102	47	18	14	21	305

There were 275 participants who revealed that their sites have between 1 and 50 volunteers, 9 revealed that their sites had between 51 and 100 volunteers, 2 have between 101 and 150 volunteers, 2 have between 151 and 200 volunteers, and 3 have over 200. The total number of valid responses was 291.

Table 15

Total Number of Volunteers

Frequency	1-50 = 1	51-100 = 2	101-150 = 3	151-200 = 4	Over 200 = 5	Total
Total No. of staff	275	9	2	2	3	291

The number of schools with 500 or fewer students is 208, with between 500 and 1000 students is 143, 47 schools have between 1000 and 1500 students, 32 have between 1500 and 2000 students, 13 have between 2000 and 2500, and 6 have over 2500 students. The total number of valid responses was 447.

Table 16

Total Number of Students

Frequency	1-500 = 1	500-1000 = 2	1000-1500 = 3	1500-2000 = 4	2000-2500 = 5	>2500 = 6	Total
Total No. of staff	208	143	47	32	13	4	447

The distinguishing factors listed for school and staff characteristics are free and reduced lunch, student diversity, parent involvement, staff ability and student ability. The total number of valid responses ranged from 283 to 272. Participants were asked to rate these factors on a scale from 1 to 5, choosing specifically their top three. Overall staff ability had the highest number of responses for 1 (121), 2 (109), and 3 (115), with a total

of 345 participants ranked the skills as their staff as being one of the top distinguishing factors for their school. Free and reduced lunch was the factor chosen by the most participants as number one at 178. Student diversity and staff ability were both labeled as the second most important at 109. Staff ability was rated highest as third, with 115, and student ability also highest as third, was 127.

Table 17

Significant Distinguishing Factors on a Scale from 1-5

Distinguishing Factor	1 to 5 Scale – Participants Chose Top 3					
	1	2	3	4	5	Total
Free and Reduced Lunch	178	82	69	22	15	366
Student Diversity	73	109	54	25	49	310
Parent Involvement	35	54	85	48	61	283
Staff Ability	121	109	115	18	9	372
Student Ability	58	95	127	36	13	329

All of the distinguishing factors, the total number of teacher characteristics and school characteristics were considered when computing the Pearson correlation coefficient. The positive relationships are listed in Table 18.

Table 18

Correlation Coefficient: Positive Relationships of Teacher Learning to Teacher and School Characteristics

Characteristics	Variables	Pearson	Sig. <.05	N
Advanced Degree	PERF52 (funds to improve instruction)	.142*	.017	281
Experience	ORG38 (considers decisions and morale)	.136**	.005	418
	PERF53 (math scores increased)	.120*	.015	413
Free and Reduced Lunch	IND12 (listen before speaking)	.120*	.023	361
Staff Ability	PERF58 (increased volunteers)	.115*	.033	341

(table continues)

Total Staff	PERF51 (response time less)	.125*	.012	401
	PERF52 (funds to improve instruction)	.114*	.023	402
Volunteers	IND13 (can ask "why?")	.119*	.046	284
Job Title Hierarchy 1-classroom teachers 2-specialists 3-special education 4-social workers 5-deans/administrators	IND14 (share & ask opinions)	.126**	.007	455
	TEM21 (rewarded)	.126**	.007	451
	TEM22 (confident of district's actions)	.129**	.006	455
	ORG24 (information given easily)	.113*	.016	454
	ORG26 (systems to measure performance)	.137**	.003	452
	ORG27 (lessons learned for all)	.122**	.010	450
	ORG28 (measures time and resources)	.118*	.012	452
	ORG29 (recognizes initiative)	.102*	.031	451
	ORG30 (choice of assignments)	.093*	.047	454
	ORG31 (contribute to vision)	.112*	.017	451
	ORG33 (supports risks-takers)	.130**	.006	451
	ORG34 (align visions)	.125**	.008	452
	ORG35 (helps balance family/work)	.163**	.000	454
	ORG36 (global perspective)	.135**	.004	453
	ORG37 (encourages students' decisions)	.102*	.030	457
	ORG38 (considers decisions and morale)	.150**	.002	445
	ORG39 (works with outside community)	.151**	.001	451
	ORG40 (organizational problem solving)	.173**	.000	447
	ORG43 (empower others)	.138**	.003	450
	ORG44 (mentor and coach)	.141**	.003	448
	ORG45 (seek opportunities to learn)	.156**	.001	453
	ORG46 (ensure actions and values consistent)	.156**	.001	452
	PERF52 (funds to improve instruction)	.098*	.037	450
	PERF56 (leadership more supportive)	.123*	.012	412
	PERF58 (increased volunteers)	.114*	.016	449
	PERF60 (school/community work increased)	.119*	.011	456

Table 19 lists the distinguishing factors that represent the negative relationships of teacher learning to teacher and school characteristics.

Table 19

Correlation Coefficient: Negative Relationships of Teacher Learning to Teacher and School Characteristics

Characteristics	Variables	Pearson	Sig. <.05	N
Student Diversity	IND6 (help each other)	-.124	.030	306
Student Ability	ORG23 (two-way communication) + Student Ability	-.127*	.024	313
Parent Involvement	ORG28 (measures time and resources)	-.130*	.035	264
	PERF54 (reading scores increased)	-.170**	.007	251
Advanced Degree	ORG30 (choice of assignments)	-.116*	.047	291

Research Question 3: Conclusion

Out of the numerous correlations computed for this analysis, there were fewer than 40 positive correlations, and 4 inverse correlations with the most significant correlation at .173. Job Title was the characteristic that correlated with the most variables. However, the dissemination of teacher learning is not related to teacher and school characteristics within these data because the correlation calculations are not close to -1 or +1. This finding could be a result of the inconsistencies found with the dissemination of teacher learning in Research Questions 1 and 2.

Research Question 4

The purpose of Research Question 4 was to analyze if the dissemination of teacher learning is less pervasive at certain schools or certain levels. The first null hypothesis is there are no significant differences in the associations tested in hypotheses groups 1 - 4 across and between elementary, intermediate, and secondary schools. The first alternate hypothesis is there are significant differences in the associations tested in hypotheses groups 1-4 across and between elementary, intermediate, and secondary

schools. The second null hypothesis is there are no significant differences in the associations tested in hypotheses groups 1-4 across and between rural, suburban, and urban schools. The second alternate hypothesis is there are significant differences in the associations tested in hypotheses groups 1-4 across and between rural, suburban, and urban schools. The associations tested in hypotheses 1 through 3 were tested for the elementary, intermediate, and secondary school samples, as well as rural, suburban, and urban school samples. Descriptive statistics were used to assess how the sample perceived the dissemination of teacher learning across the three levels of learning, as well as the similarities or differences across groups including elementary, intermediate, and secondary, and locations: urban, suburban, and rural. The General Linear Model (GLM) was used to test the significance of all variables combined into groups, that is, all individual, all team, and all organization. The Bonferroni post hoc was conducted to determine significant difference. The two-way ANOVA was used to measure the statistical equalities or inequalities of means between and across school groups. If $p < .05$ the null hypothesis will be rejected for that hypothesis. In the event that the null hypothesis was rejected, the Tukey's and Scheffe's post hoc tests were performed to determine which groups differ from the others. The Tukey range test was used for school level because of the unequal sample size. Scheffe's post hoc test was used for school location because the sample sizes are more equal than not. The sample sizes are clarified with frequency charts in the first part of this chapter.

The GLM was completed for all individual combined variables (ALLIND), all team combined variables (ALLTEM), and all organization combined variables

(ALLORG) along with the Bonferroni post hoc test. Two-way ANOVA tests for inequality of means at both school levels and school locations were completed for each of the levels of learning and for the overall performance of the organization. The one-way ANOVA test for inequality of means was completed for the analysis of school level * school location. The Tukey post hoc test was completed for school level and for school level * school location because of unequal sample sizes, to determine where the inequality of means had occurred. For school level * school location, numbers were assigned to each of the categories: 4 = elementary + urban, 5 = elementary + suburban, 6 = elementary + urban, 7 = intermediate + urban, 8 = intermediate + suburban, 9 = intermediate + rural, 10 = senior high + urban, 11 = senior high + suburban, and 12 = senior high + rural. The Scheffe post hoc test was completed for school location because of the equality of the sample size. Table 20 presents the coded numeric notations for the Bonferroni post hoc tests.

Table 20

Numeric Notations for Bonferonni Post Hoc Test

Numeric Codes for Bonferonni		
4 = urban elementary	5 = urban intermediate	6 = urban senior high
7 = suburban elementary	8 = suburban intermediate	9 = suburban senior high
10 = rural elementary	11 = rural intermediate	12= rural senior high

Table 21 represents the GLM for all individual variables combined (ALLIND). The significance level for school level is .653 and the significant level for school location is .159; both of which are > .05 therefore do not reveal differences. The significant level of

school level * school location is < .05 at .006 revealing a difference between variables.

The Bonferroni post hoc in Table 22 does not reveal where the specific differences occur.

Table 21

General Linear Model for ALLIND Tests of Between-Subjects Effects

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	3141.904[a]	8	392.738	2.652	.008
Intercept	829574.979	1	829574.979	5601.883	.000
Schoollevel	126.526	2	63.263	.427	.653
Schoollocal	547.095	2	273.548	1.847	.159
schoollevel * schoollocal	2160.251	4	540.063	3.647	.006
Error	63085.742	426	148.089		
Total	1030153.000	435			
Corrected Total	66227.646	434			

a. R Squared = .047 (Adjusted R Squared = .030)

Table 22

*Bonferroni Post Hoc for ALLIND School Level * School Location*

(I) SCHloclev	(J) SCHloclev	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
4.00	5.00	-5.6768	2.21919	.391	-12.8184	1.4648
	6.00	.1118	1.84666	1.000	-5.8310	6.0546
	7.00	-6.5076	2.65406	.526	-15.0487	2.0335
	8.00	1.2035	2.54863	1.000	-6.9983	9.4053
	9.00	-.4425	2.58181	1.000	-8.7511	7.8661
	10.00	2.2702	2.25501	1.000	-4.9867	9.5271
	11.00	-4.6632	2.29377	1.000	-12.0448	2.7185
	12.00	-.2090	2.15507	1.000	-7.1443	6.7263
5.00	4.00	5.6768	2.21919	.391	-1.4648	12.8184
	6.00	5.7886	2.28410	.418	-1.5619	13.1392
	7.00	-.8308	2.97506	1.000	-10.4049	8.7433
	8.00	6.8803	2.88140	.626	-2.3924	16.1530
	9.00	5.2343	2.91079	1.000	-4.1330	14.6016
	10.00	7.9470	2.62527	.094	-.5015	16.3954
	11.00	1.0136	2.65863	1.000	-7.5422	9.5695
	12.00	5.4678	2.53993	1.000	-2.7060	13.6416
6.00	4.00	-.1118	1.84666	1.000	-6.0546	5.8310
	5.00	-5.7886	2.28410	.418	-13.1392	1.5619
	7.00	-6.6194	2.70857	.538	-15.3360	2.0971
	8.00	1.0917	2.60535	1.000	-7.2927	9.4760
	9.00	-.5543	2.63781	1.000	-9.0431	7.9345
	10.00	2.1583	2.31892	1.000	-5.3042	9.6209
	11.00	-4.7750	2.35663	1.000	-12.3589	2.8089
	12.00	-.3208	2.22185	1.000	-7.4710	6.8294

(*table continues*)

7.00	4.00	6.5076	2.65406	.526	-2.0335	15.0487
	5.00	.8308	2.97506	1.000	-8.7433	10.4049
	6.00	6.6194	2.70857	.538	-2.0971	15.3360
	8.00	7.7111	3.22827	.624	-2.6779	18.1001
	9.00	6.0651	3.25453	1.000	-4.4084	16.5386
	10.00	8.7778	3.00188	.131	-.8827	18.4382
	11.00	1.8444	3.03110	1.000	-7.9100	11.5989
	12.00	6.2986	2.92754	1.000	-3.1226	15.7198
8.00	4.00	-1.2035	2.54863	1.000	-9.4053	6.9983
	5.00	-6.8803	2.88140	.626	-16.1530	2.3924
	6.00	-1.0917	2.60535	1.000	-9.4760	7.2927
	7.00	-7.7111	3.22827	.624	-18.1001	2.6779
	9.00	-1.6460	3.16914	1.000	-11.8447	8.5527
	10.00	1.0667	2.90908	1.000	-8.2951	10.4285
	11.00	-5.8667	2.93923	1.000	-15.3255	3.5922
	12.00	-1.4125	2.83231	1.000	-10.5272	7.7022
9.00	4.00	.4425	2.58181	1.000	-7.8661	8.7511
	5.00	-5.2343	2.91079	1.000	-14.6016	4.1330
	6.00	.5543	2.63781	1.000	-7.9345	9.0431
	7.00	-6.0651	3.25453	1.000	-16.5386	4.4084
	8.00	1.6460	3.16914	1.000	-8.5527	11.8447
	10.00	2.7126	2.93819	1.000	-6.7428	12.1681
	11.00	-4.2207	2.96805	1.000	-13.7722	5.3309
	12.00	.2335	2.86221	1.000	-8.9775	9.4444
10.00	4.00	-2.2702	2.25501	1.000	-9.5271	4.9867
	5.00	-7.9470	2.62527	.094	-16.3954	.5015
	6.00	-2.1583	2.31892	1.000	-9.6209	5.3042
	7.00	-8.7778	3.00188	.131	-18.4382	.8827
	8.00	-1.0667	2.90908	1.000	-10.4285	8.2951
	9.00	-2.7126	2.93819	1.000	-12.1681	6.7428
	11.00	-6.9333	2.68861	.369	-15.5856	1.7189
	12.00	-2.4792	2.57129	1.000	-10.7539	5.7956
11.00	4.00	4.6632	2.29377	1.000	-2.7185	12.0448
	5.00	-1.0136	2.65863	1.000	-9.5695	7.5422
	6.00	4.7750	2.35663	1.000	-2.8089	12.3589
	7.00	-1.8444	3.03110	1.000	-11.5989	7.9100
	8.00	5.8667	2.93923	1.000	-3.5922	15.3255
	9.00	4.2207	2.96805	1.000	-5.3309	13.7722
	10.00	6.9333	2.68861	.369	-1.7189	15.5856
	12.00	4.4542	2.60535	1.000	-3.9302	12.8385
12.00	4.00	.2090	2.15507	1.000	-6.7263	7.1443
	5.00	-5.4678	2.53993	1.000	-13.6416	2.7060
	6.00	.3208	2.22185	1.000	-6.8294	7.4710
	7.00	-6.2986	2.92754	1.000	-15.7198	3.1226
	8.00	1.4125	2.83231	1.000	-7.7022	10.5272
	9.00	-.2335	2.86221	1.000	-9.4444	8.9775
	10.00	2.4792	2.57129	1.000	-5.7956	10.7539
	11.00	-4.4542	2.60535	1.000	-12.8385	3.9302

Table 23

General Linear Model for ALLTEM Tests of Between-Subjects Effects

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	941.006[a]	8	117.626	3.406	.001
Intercept	182039.062	1	182039.062	5271.143	.000
Schoollevel	83.383	2	41.691	1.207	.300
Schoollocal	221.365	2	110.683	3.205	.042
schoollevel * schoollocal	503.250	4	125.812	3.643	.006
Error	15126.341	438	34.535		
Total	225000.000	447			
Corrected Total	66227.646	434			

a. R Squared = .059 (Adjusted R Squared = .041)

Table 23 shows the results of the GLM for ALLTEM revealing significance levels for school location (.042) and school level * school location (.006). Scheffe's post hoc showed significant differences between urban and suburban (.007), and between suburban and rural (.042). The Bonferroni post hoc test revealed differences between urban intermediate (5) and rural elementary (10) with a significance level of .002. Differences were also noted between suburban elementary (7) and rural elementary (10) with a significance level of .031, and between rural elementary (10) and rural intermediate (11) with a significance level of .018.

Table 24

Multiple Comparisons Dependent Variable: ALLTEM School Location

Scheffe						95% Confidence Interval	
	(I) schoollocal	(J) schoollocal	Mean Difference (I-J)	Std. Error	Sig.	Lower Bound	
	1.00	2.00	-2.2152*	.70246	.007	-3.9405	-.4898
		3.00	-.4263	.65107	.807	-2.0254	1.1728
	2.00	1.00	2.2152*	.70246	.007	.4898	3.9405
		3.00	1.7889*	.70800	.042	.0500	3.5278
	3.00	1.00	.4263	.65107	.807	-1.1728	2.0254
		2.00	-1.7889*	.70800	.042	-3.5278	-.0500

Table 25

*Bonferroni Post Hoc for ALLTEM School Level * School Location*

(I) SCHloclev	(J) SCHloclev	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
4.00	5.00	-3.2419	1.04155	.071	-6.5932	.1094
	6.00	-.7586	.89250	1.000	-3.6303	2.1131
	7.00	-2.9211	1.23177	.653	-6.8844	1.0423
	8.00	-.2877	1.23177	1.000	-4.2510	3.6756
	9.00	-.3823	1.21657	1.000	-4.2968	3.5321
	10.00	1.8028	1.08986	1.000	-1.7040	5.3095
	11.00	-2.6629	1.08103	.509	-6.1412	.8154
	12.00	-.2627	1.04155	1.000	-3.6140	3.0886
5.00	4.00	3.2419	1.04155	.071	-.1094	6.5932
	6.00	2.4833	1.07383	.764	-.9718	5.9385
	7.00	.3208	1.36887	1.000	-4.0836	4.7253
	8.00	2.9542	1.36887	1.000	-1.4503	7.3586
	9.00	2.8595	1.35521	1.000	-1.5010	7.2201
	10.00	5.0446*	1.24272	.002	1.0461	9.0432
	11.00	.5790	1.23499	1.000	-3.3947	4.5527
	12.00	2.9792	1.20058	.485	-.8838	6.8421
6.00	4.00	.7586	.89250	1.000	-2.1131	3.6303
	5.00	-2.4833	1.07383	.764	-5.9385	.9718
	7.00	-2.1625	1.25918	1.000	-6.2140	1.8890
	8.00	.4708	1.25918	1.000	-3.5807	4.5224
	9.00	.3762	1.24432	1.000	-3.6275	4.3799
	10.00	2.5613	1.12074	.820	-1.0448	6.1674
	11.00	-1.9044	1.11217	1.000	-5.4829	1.6741
	12.00	.4958	1.07383	1.000	-2.9593	3.9510
7.00	4.00	2.9211	1.23177	.653	-1.0423	6.8844
	5.00	-.3208	1.36887	1.000	-4.7253	4.0836
	6.00	2.1625	1.25918	1.000	-1.8890	6.2140
	8.00	2.6333	1.51862	1.000	-2.2530	7.5196
	9.00	2.5387	1.50633	1.000	-2.3080	7.3855
	10.00	4.7238*	1.40597	.031	.2000	9.2477
	11.00	.2581	1.39914	1.000	-4.2437	4.7600
	12.00	2.6583	1.36887	1.000	-1.7461	7.0628
8.00	4.00	.2877	1.23177	1.000	-3.6756	4.2510
	5.00	-2.9542	1.36887	1.000	-7.3586	1.4503
	6.00	-.4708	1.25918	1.000	-4.5224	3.5807
	7.00	-2.6333	1.51862	1.000	-7.5196	2.2530
	9.00	-.0946	1.50633	1.000	-4.9414	4.7521
	10.00	2.0905	1.40597	1.000	-2.4334	6.6143
	11.00	-2.3752	1.39914	1.000	-6.8771	2.1267
	12.00	.0250	1.36887	1.000	-4.3795	4.4295
9.00	4.00	.3823	1.21657	1.000	-3.5321	4.2968
	5.00	-2.8595	1.35521	1.000	-7.2201	1.5010
	6.00	-.3762	1.24432	1.000	-4.3799	3.6275
	7.00	-2.5387	1.50633	1.000	-7.3855	2.3080
	8.00	.0946	1.50633	1.000	-4.7521	4.9414
	10.00	2.1851	1.39268	1.000	-2.2960	6.6662
	11.00	-2.2806	1.38579	1.000	-6.7395	2.1783
	12.00	.1196	1.35521	1.000	-4.2409	4.4802

(*table continues*)

10.00	4.00	-1.8028	1.08986	1.000	-5.3095	1.7040
	5.00	-5.0446*	1.24272	.002	-9.0432	-1.0461
	6.00	-2.5613	1.12074	.820	-6.1674	1.0448
	7.00	-4.7238*	1.40597	.031	-9.2477	-.2000
	8.00	-2.0905	1.40597	1.000	-6.6143	2.4334
	9.00	-2.1851	1.39268	1.000	-6.6662	2.2960
	11.00	-4.4657*	1.27599	.018	-8.5713	-.3601
	12.00	-2.0655	1.24272	1.000	-6.0640	1.9331
11.00	4.00	2.6629	1.08103	.509	-.8154	6.1412
	5.00	-.5790	1.23499	1.000	-4.5527	3.3947
	6.00	1.9044	1.11217	1.000	-1.6741	5.4829
	7.00	-.2581	1.39914	1.000	-4.7600	4.2437
	8.00	2.3752	1.39914	1.000	-2.1267	6.8771
	9.00	2.2806	1.38579	1.000	-2.1783	6.7395
	10.00	4.4657*	1.27599	.018	.3601	8.5713
	12.00	2.4002	1.23499	1.000	-1.5735	6.3739
12.00	4.00	.2627	1.04155	1.000	-3.0886	3.6140
	5.00	-2.9792	1.20058	.485	-6.8421	.8838
	6.00	-.4958	1.07383	1.000	-3.9510	2.9593
	7.00	-2.6583	1.36887	1.000	-7.0628	1.7461
	8.00	-.0250	1.36887	1.000	-4.4295	4.3795
	9.00	-.1196	1.35521	1.000	-4.4802	4.2409
	10.00	2.0655	1.24272	1.000	-1.9331	6.0640
	11.00	-2.4002	1.23499	1.000	-6.3739	1.5735

Table 26

General Linear Model for ALLORG Tests of Between-Subjects Effects

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	6834.233[a]	8	854.279	1.411	.190
Intercept	1817472.669	1	1817472.669	3001.149	.000
Schoollevel	148.562	2	74.281	.123	.885
Schoollocal	1731.719	2	865.860	1.430	.241
schoollevel * schoollocal	4166.099	4	1041.525	1.720	.145
Error	223463.558	369	605.592		
Total	2365407.000	378			
Corrected Total	230297.791	377			

a. R Squared = .030 (Adjusted R Squared = .009)

Table 26 depicts the GLM for ALLORG with no significant differences for school levels, school locations, or school levels * school locations.

Table 27

Two-Way Anova Summary Chart

Variable	Mean	School Level: E, I, H				Schl Locatl U, S, R				School Level * School Location	
		E ≠ I	E ≠ H	I ≠ H	No Diff	U ≠ S	U ≠ R	S ≠ R	No Diff	Difference E*U/E*S/E*R/I*U/I*S/I*R/H*U/ H*S/H*R	No Diff
Individual Level Questions											
IND4	3.70				√				√	√	
IND5	4.06	√							√	√	
IND6	4.52				√	√		√		√	
IND7	2.30				√	√		√			√
IND8	3.12				√				√	√	
IND9	3.55				√				√	√	
IND10	2.96				√	√		√			√
IND11	3.54				√				√		√
IND12	3.85				√				√		√
IND13	3.30				√				√		√
IND14	3.43				√				√	√	
IND15	4.43				√				√		√
IND16	3.68				√				√		√
Team Level Questions											
TEM17	3.90				√	√				√	
TEM18	4.36				√				√		√
TEM19	4.10				√				√	√	
TEM20	4.03				√				√	√	
TEM21	2.73				√				√		√
TEM22	2.48				√				√	√	
Organization Level Questions											
ORG23	2.69				√				√	√	√
ORG24	3.30				√				√		√
ORG25	2.69				√				√		√
ORG26	3.29		√						√		√
ORG27	2.79				√				√	√	
ORG28	2.63				√	√		√			√
ORG29	3.12				√	√		√			√
ORG30	2.89				√	√		√			√
ORG31	3.34				√				√		√
ORG32	3.00				√	√		√			√
ORG33	2.86				√	√		√			√
ORG34	3.46		√						√		√
ORG35	2.81				√				√		√
ORG36	3.33				√		√	√			√
ORG37	4.06				√			√			√
ORG38	2.63				√				√		√
ORG39	3.12				√		√				√
ORG40	3.21				√				√		√
ORG41	3.71				√				√		√
ORG42	2.89				√				√	√	
ORG43	3.30				√				√		√
ORG44	3.22				√	√		√			√
ORG45	3.68				√				√		√
ORG46	3.47				√				√		√

Table 27 represents the summary of the two-way ANOVA tests conducted for each variable from the individual, team, and organization survey questions. The following write up includes only those tests that revealed levels of significance for the ANOVA and post hoc tests. Complete two-way ANOVA and post hoc tests are located in Appendix J.

IND5 revealed a difference between elementary and intermediate school levels. Tukey's revealed a significance level of .040 with a mean difference between elementary and intermediate of ±.3861. The post hoc for IND5 school level * school location revealed a .029 level of significance and differences between elementary * suburban and intermediate * suburban, and a difference between elementary * suburban and intermediate * rural.For IND6 Tukey's post hoc revealed a significant difference of .032 between suburban and rural school locations. For IND7, Scheffe's post hoc tests for school location revealed a significant difference between urban and suburban with a significance of .002 and a mean difference of ±.5940. Suburban is different from rural with a significance level of .034 (Scheffe's), and a mean difference of ±.4385. Scheffe's post hoc for IND10 revealed a difference between surburban and rural with significant level of .006 and a mean difference of ±.5559. There is a difference between urban and suburban locations with significance level .007, and a mean difference of ±.5400.
For IND8 the ANOVA revealed an interaction of school level and school location, $F(4, 460) = 4.381$, $p = .002$. Tukey's post hoc revealed a significant difference of .003 between high school * urban and high school * suburban. For IND14 the ANOVA revealed an interaction of school level and school location, $F(4, 458) = 4.216$, $p = .002$.

Tukey's significance level was .026 between elementary * urban and intermediate * urban, .050 between intermediate * urban and elementary * rural, (E*U) and .035 between intermediate * urban and intermediate * suburban.

TEM17 shows a difference between school location and school level * school location. Scheffe's post hoc test for school location reveal a difference between urban (1) and suburban with a significance level of .003, and a mean difference of ±.5510. Tukey's post hoc showed a significance level of .019 as a difference between elementary * suburban and high school * urban, and a .008 significance level between high school * urban and high school * suburban. The ANOVA for TEM19 revealed an interaction of school level and school location, $F(4, 447) = 4.261$, $p = .002$. Tukey's post hoc showed a significant difference of .030 between elementary * suburban and high school * urban, and a significant difference of .007 between high school * urban and intermediate * urban. For TEM 20 the ANOVA revealed an interaction of school level and school location, $F(4, 445) = 4.845$, $p = .001$. Tukey's showed a significance level of .029 between elementary * suburban and elementary * rural, a significance level of .000 between elementary * suburban and high school * urban, and a .007 significance level between intermediate * urban and high school * urban. For TEM22 the ANOVA revealed an interaction of school level and school location, $F(4, 445) = 2.928$, $p = .021$. Tukey's post hoc showed a significance level of .019 between elementary * urban and elementary * suburban, and a -.001 significance level between elementary * urban and elementary * rural.

For ORG26 the *p* value for main effect of school level for *organizations have systems to measure performance* (ORG26) = .034; the ANOVA *F* test failed to reveal a main effect of school level, $F(2, 444) = 3.410$, $MS_e = 6.752$, $p = .034$, $\propto = .05$. Tukey's post hoc revealed a significance level of .050 between elementary and high school. The *p* value for main effect of school location for *measures time and resources* (ORG28) = .003; $F(2, 442) = 6.070$, $MS_e = 11.144$. Scheffe's post hoc revealed a significant difference of .022 between urban and suburban, and a .001 difference between suburban and rural. The *p* value for main effect of school location for *measures time and resources* (ORG29) = .001; $F(2, 442) = 7.368$, $MS_e = 14.717$. Scheffe's post hoc revealed a significant difference of .003 between urban and suburban, and a .000 difference between suburban and rural. The *p* value for main effect of school location for *measures time and resources* (ORG30) = .001; $F(2, 446) = 7.334$, $MS_e = 13.978$. Scheffe's post hoc revealed a significant difference of .028 between urban and suburban, and a .000 difference between suburban and rural. The *p* value for main effect of school location for *control of resources* (ORG32) = .001; $F(2, 443) = 6.908$, $MS_e = 11.991$. Scheffe's post hoc revealed a significant difference of .000 between urban and suburban, and a .036 difference between suburban and rural. The *p* value for main effect of school location for *supports risk-takers* (ORG33) = .042; $F(2, 443) = 3.199$, $MS_e = 5.157$. Scheffe's post hoc revealed a significant difference of .054 between urban and suburban, and a .044 difference between suburban and rural. The *p* value for main effect of school location for *global perspectives* (ORG36) = .000; $F(2, 442) = 10.215$, $MS_e = 19.639$. Scheffe's post hoc revealed a significant difference of .004 between urban and suburban, and a .000

difference between suburban and rural. The *p* value for main effect of school location for *encourages students' decisions* (ORG37) = .024; $F(2, 447) = 3.756$, $MS_e = 7.266$. Scheffe's post hoc revealed a significant difference of .010 between suburban and rural. The *p* value for main effect of school location for *mentor and coach* (ORG44) = .030; $F(2, 440) = 3.534$, $MS_e = 7.747$. Scheffe's post hoc revealed a significant difference of .047 between urban and suburban, and a .011 difference between suburban and rural.

For answers to PERF49, PERF50, PERF51, PERF52, PERF53, PERF54, PERF56, PERF58, and PERF60 there is no significant relationship between the dissemination of teacher learning and improved student learning and instructional practices between and across school levels and school locations.

Table 28

Performance of Learning Organizations: Two-Way ANOVA School Level and School Location

*Variable	No	ANOVA Sig. for School		
		Level	Local	Level*Local
PERF47-finances used more effectively	464	.647	.000	.548
PERF48-student achievement greater	460	.025	.170	.329
PERF57-more volunteers	457	.040	.014	.990
PERF59-outreach increased	460	.296	.027	.973

For PERF47 there is a significant relationship for school location because the significance value is .000. There is no significant relationship for school level because the significance value is .647. For PERF48 there is a significant relationship for school level because the significance value is .025. For PERF57 there is a significant relationship for

both school level and school location because the significant values are .040 and .014. For PERF59 there is a significant relationship for school location because the significance value is .027. There is no significant relationship for school level because the significance value is .296. Both Tukey and Scheffe post hoc tests were run for the significant values. The mean difference is significant at the .05 level. For school level, elementary is 1, intermediate is 3, and senior high is 3. For school location, urban is 1, suburban is 2, and rural is 3.

Table 29

Post Hoc Test School Location PERF 47

Variable PERF47- finances used more effectively			Mean Difference	Std. Error	Sig.
	School Local				
Scheffe	1.00	2.00	-.7647	.16942	.000
	N-157	3.00	-.7027	.15794	.000
	2.00	1.00	.7647	.16942	.000
	N-159	3.00	.0620	.16895	.935
	3.00	1.00	. 7027	.15794	.000
	N-122	2.00	-.0620	.16895	.935

Scheffe post hoc tests show that PERF47 has a significant difference between urban as compared to both suburban and rural locations, and a significant difference between suburban and urban but not suburban and rural.

Table 30

Post Hoc Test School Location PERF 48

Variable PERF48- student achievement greater			Mean Difference	Std. Error	Sig.
	School Local				
Scheffe	1.00 N-133	2.00	.1174	.15670	.755
		3.00	.3273	.13426	.052
	2.00 N-84	1.00	-.1174	.15670	.755
		3.00	.2099	.17006	.468
	3.00 N-218	1.00	-.3273	.13426	.052
		2.00	-.2099	.17006	.468

The Scheffe post hoc tests does not show a significant difference between urban and suburban schools or between suburban and rural schools for PERF48, it does show a relationship between these two that is .052, just above the .05 mean level of significance.

Table 31

Post Hoc Test School Level PERF 57

Variable PERF57-more volunteers trained			Mean Difference	Std. Error	Sig.
	School Level				
Tukey	1.00 N-216	2.00	.3089	.17493	.183
		3.00	.3262	.15030	.078
	2.00 N-84	1.00	-.3089	.17493	.183
		3.00	.0173	.18988	.995
	3.00 N-132	1.00	-.3262	.15030	.078
		2.00	-.0173	.18988	.995

The Tukey post hoc test does not show a significant difference between school levels for PERF57, even though the ANOVA tested a significant level of .04. The significant levels between elementary and senior high are lower and closer to .05 but are still greater than this significant level.

Table 32

Post Hoc Test School Location PERF 57

Variable PERF57-more volunteers trained			Mean Difference	Std. Error	Sig.
	School Local				
Scheffe	1.00 N-155	2.00	.0267	.16504	.987
		3.00	.4200	.15429	.025
	2.00 N-121	1.00	-.0267	.16504	.987
		3.00	.3933	.16480	.059
	3.00 N-156	1.00	-.4200	.15429	.025
		2.00	-.3933	.16480	.059

The Scheffe post hoc test does show a significant difference between urban and rural, and between suburban and rural school locations for PERF57. Post hoc tests do not show a significant difference between urban and suburban.

The Scheffe post hoc test shows a difference between urban and rural, and between suburban and rural school locations for PERF59. However, the difference is not less than the mean significant level of .05. Post hoc tests do not show a significant difference between urban and suburban.

Table 33

Post Hoc Test School Location PERF 59

Variable PERF59-outreach increased			Mean Difference	Std. Error	Sig.
	School Local				
Scheffe	1.00 N-157	2.00	-.0225	.17008	.991
		3.00	.3729	.15908	.065
	2.00 N-156	1.00	.0225	.17008	.991
		3.00	.3954	.16984	.068
	3.00 N-122	1.00	-.3729	.15908	.065
		2.00	-.3954	.16984	.068

In addition, the two-way ANOVA did not show significant relationships in variables PERF49, PERF50, PERF51, PERF52, PERF53, PERF54, PERF56, PERF58,

and PERF60, and the null hypothesis is accepted for these variables. Significant mean differences were revealed with the answers to *people believe student achievement is greater this year* (PERF47), *student achievement greater than last year* (PERF48), *more volunteers trained this year* (PERF57), and *participation in outreach increased* (PERF59), with more of a difference between school locations in comparison to school levels. The null hypothesis is rejected for these variables in terms of school location only.

Research Question 4: Conclusions

The GLM for ALLIND revealed a difference for school level * school location but the Bonferroni post hoc test did not indicate where differences occur. The GLM for ALLTEM revealed significance levels for school location and school level * school location. Post hoc tests revealed differences between urban and suburban, suburban and rural, between urban intermediate and rural elementary, suburban elementary and rural elementary and between rural elementary and rural intermediate.

The patterns established using the two-way ANOVA indicated that more often than not, there are no significant differences between school levels. Differences occur most often between the elementary and high school level. There is one difference between elementary and intermediate with the variable IND5. The majority of differences with school locations took place between urban and suburban, and suburban and rural; the suburban response stood out most often. This differences associated with school level * school location revealed that some differences occur but these varied and often the post hoc test did not reveal significant inequalities of means. When differences do not occur, this means that school levels and/or locations are implementing that variable of the

learning organization to the same degree. This does not always mean that it is positive or always negative. A review of the means table from Research Question 1 shows that IND4, IND5, IND6, IND9, IND11, IND12, IND15, IND16, TEM17, TEM18, TEM19, TEM20, ORG37, ORG41, and ORG45 are all taking place to the same degree–*Almost Always* in and across school levels and locations. The rest of the variable mean tests reveal that they are taking place to the same degree–*Almost Never*–in and across school levels and school locations.

Summary

In chapter 4 were presented a review of the research methods, data analysis, research questions, null hypotheses, alternate hypotheses, and the descriptive statistics and inferential analysis for each research question. Null hypotheses for Research Questions 1, 2, 3, and 4, were rejected on an inconsistent basis revealing that parts of the dimensions of the learning organization and the dissemination of teacher learning is taking place to a positive degree. In the same vein however, results show that some elements of teacher learning are taking place to a negative degree. Implementation of the seven dimensions of the learning organization for the dissemination of teacher learning is inconsistent. In chapter 5 I present the interpretation of the study data in light of the literature related to the study, my conclusions, reflection, implications for social change, and recommendations for both action and future research.

CHAPTER 5:

DISCUSSION, RECOMMENDATIONS, AND CONCLUSION

The success of school reform efforts directly equates with the effectiveness of the dissemination of teacher learning throughout the school organization. The problem is that individual teachers' learning does not always permeate team and whole staff levels. The problem extends to understanding teachers' perceptions of their learning as a constant, systemic process to meet current and future challenges in and across schools (DuFour et al., 2006; Pedder, 2007; Phillips, 1999; Watkins & Marsick, 1996, 1999). In this study I utilized the learning theories of Watkins and Marsick (1993, 1996, 1999), Dewey (1929), and Senge (2000) as the conceptual framework to collect and analyze data to (a) determine the degree to which teacher learning is disseminated throughout their school learning organization to improve student learning and instructional practices, and (b) draw conclusions about differences and similarities in the dissemination of teacher learning across and between elementary, intermediate, and secondary schools as well as in rural, suburban, and urban schools. A survey methodology was used to collect quantitative information and analyze the similarities and differences in the three levels of learning: individual, team and group (combined with environmental), in and across school levels and locations. Current research on teacher learning and teacher learning communities is quite prevalent. However, research pertaining to the dissemination of teacher learning throughout the organization as well as in and across school levels and locations was limited and led to the development of four research questions. They are as follows:

Research Question 1

What is the degree to which teachers believe the dissemination of teacher learning is taking place throughout their Minnesota public schools learning organization?

Null Hypothesis (H_O)

1.01 The dissemination of teacher learning is not taking place at a significant level in the teachers' learning organization.

Alternate Hypothesis (H_A)

1.01The dissemination of teacher learning is taking place at a significant level in the teachers' learning organization.

Research Question 2

What is the degree to which teachers believe Minnesota schools are using teacher learning to improve student achievement and instructional practices?

H_O 2.01 There is no significant relationship between the dissemination of teacher learning and improved student learning and instructional practices.

H_A 2.01 There is a significant relationship between the dissemination of teacher learning and improved student learning and instructional practices.

Research Question 3

Is the dissemination of teacher learning related to school characteristics (such as the amount of funding, responsiveness to challenges, and school performance), as well as teacher characteristics (such as years of experience, number of years at the same location, and advanced degrees)?

H_O3.01 There is no significant difference between the dissemination of teacher learning related to school characteristics.

H_A 3.01 There is a significant difference between the dissemination of teacher learning related to school characteristics.

H_O 3.02 There is no significant difference between the dissemination of teacher learning and teacher characteristics.

H_A 3.02 There is a significant difference between the dissemination of teacher learning and teacher characteristics.

Research Question 4

Is the dissemination of teacher learning less pervasive at certain schools or certain levels? The associations tested in hypotheses 1 through 3 were tested for the elementary, intermediate, and secondary school samples, as well as rural, suburban, and urban school samples.

H_O 4. 01 There are no significant differences in the associations tested in hypotheses groups 1-4 across and between elementary, intermediate, and secondary schools.

H_A 4.01 There are significant differences in the associations tested in hypotheses groups 1-4 across and between elementary, intermediate, and secondary schools.

H_O 4. 02 There are no significant differences in the associations tested in hypotheses groups 1-4 across and between rural, suburban, and urban schools.

H_A 4.02 There are significant differences in the associations tested in hypotheses groups 1-4 across and between rural, suburban, and urban schools.

In this chapter are presented the findings associated with the research questions, recommendations for future action and future research, implications of the data for positive social change and the conclusions of the study.

Interpretation of Findings

The three levels of learning are associated with seven dimensions of the learning organization as discussed in chapters 1 and 2. These levels are related to the questions from the DTLCQ and are presented in Table 30. Continuous learning, if it is to occur, should be promoted throughout the learning organization (Watkins & Marsick, 1993, 1996, 1999). This is true for teacher learning as well, and it has been shown through previous research, that teacher learning directly equates with successful school reform (DuFour et al., 2006; Pedder, 2007; Phillips, 1999; Watkins & Marsick, 1996). Dewey's (1929) and Senge's (1994) learning theories relate to that of Watkins and Marsick because both promoted teacher learning as a means by which to examine problems areas and improve instruction and achievement.

In Table 34 are displayed each of the levels of learning, the seven dimensions of the learning organization, three of which are associated with the individual and with the team levels of learning, and four are associated with the organizational level of learning. If teacher learning is to disseminate effectively throughout the organization, all of these elements must be incorporated. Study findings have revealed inconsistencies in the implementation of these elements at all levels of the school learning community.

Table 34

Dimensions of the Learning Organization: Learning Levels and Survey Questions

Individual and Team Level of Learning				
Dimensions of Learning	Means Above 3.5 *Almost Always*		Means Below 3.5 *Almost Never*	
Continuous Learning	•help each other learn (IND6) •freedom to improve(TEM17)		•rewards given (IND10) •resource for learning(IND7)	•time to learn (IND8)
Inquiry and Dialogue	*discuss mistakes (IND4) •candid feedback (IND11) •listen before speaking (IND12) •respect (IND15) •spend time building trust (IND16)		•ask "Why?" (IND13) •state view and ask others (IND14)	
Team Learning	•identify skills (IND5) •opportunity to improve (IND9) •treat as equals (TEM18)	•common goals (TEM19) •revise thinking (TEM20)	•teams rewarded (TEM21) •confident of districts actions (TEM22)	

Organizational Level of Learning				
Dimensions of Learning	Means Above 3.5 *Almost Always*		Means Below 3.5 *Almost Never*	
Embedded System			•two-way communication (ORG23) •information given easily (ORG24) •database of skills (ORG25)	•create measurement system (ORG26) •lessons learned available (ORG27) •measure results of training (ORG28)
Empowerment			•recognized for initiative (ORG29) •choice of assignments (ORG30) •contribute to vision (ORG31)	•control over resources (ORG32) •support risk-taking (ORG33) •empower others (ORG43)
System Connection	•encourage student decisions (ORG37)		•align visions (ORG34) •global perspective (ORG36) •work with outside/resources (ORG39) •organizational problem solving (ORG40)	
Strategic Leadership	•support learning opportunities (ORG41) •opportunities to learn (ORG45)		•helps balance family/work (ORG35) •considers decisions and morale (ORG38) •provide mentoring/coaching (ORG44) •ensure consistent actions (ORG46)	

Dimensions of the Learning Organization

Study participants, whether from elementary, intermediate, or senior high levels or from urban, suburban, or rural schools agreed upon the components of the dimensions of learning that are already in place and those which are not (Table 30). Data pertaining to the first dimension, continuous learning revealed that communities do help each other learn and have the freedom to improve. For this same dimension, participants responded that their communities do not reward improvement and learning, and do not provide resources and time for learning. The results for dimension 2, inquiry and dialogue, revealed that participants believed that discussing mistakes, providing feedback, listening, respect, and trust between team members were strengths of their learning communities. Being able to ask "why?" without repercussions, and stating individual views and asking others' opinions were areas that need improvement.

The results for dimension 3, team learning, revealed that participants perceived that identification of skills, opportunities for improvement, being treated as equals, establishing common goals and the abilities to revise thinking were strengths of their learning communities. However, teams are rewarded for improvement and are confident of the districts' actions needed improvement.

Dimension 4, embedded systems for learning, is not taking place to a significant degree at all. Participants concurred that their learning communities needed to improve systems for two-way communication, provide information, build a database of skills, create measurement techniques for assessment and training, and learn from mistakes. In the view of the participants, Dimension 5, empowerment, is also not taking place to a

significant degree in the learning communities. Participants agreed their learning communities needed to improve their recognition for those who take the initiative, offer choices for assignments, contribute to overall visions, control resources, support risk-taking, and empower others.

Encouraging students' decisions is part of dimension 6, system connections, and participants believed that this element is taking place to a significant degree in their learning communities. However other components of this dimension, namely, aligning visions, promoting global perspectives, working with outside resources, and implementing organizational problem solving needed to be improved. For the final component, strategic leadership, participants concurred that their learning organizations provide and support learning opportunities. Conversely, participants did not think that their organizations helped to balance family and work, considered decisions and morale, provided mentoring, and ensured consistent actions to a significant degree.

Participants agreed that their learning communities have strengths in five out of seven dimensions of the learning organization and that their learning communities could work to improve elements of all seven dimensions of the learning organization. The dissemination of teacher learning is taking place, for the most part, at the individual and team levels. Therefore, teachers are working toward collaborative efforts to improve their learning community. However, learning is not taking place at the organizational level, which is preventing full implementation of the dissemination of teacher learning. Through their research on the learning organization, Watkins and Marsick (1993, 1996, 1999) discovered that the full implementation of all seven dimensions of the learning

organization leads to positive growth of both knowledge and financial performance. In their view, partial implementation of the seven action imperatives leads to adverse effects in the knowledge and financial performance of the learning organization.

Performance

The performance variables of an organization can only be developed, sustained, and improved through the establishment of a system to share and capture knowledge (Senge, 1990; Watkins & Marsick, 2003). Knowledge performance of the school organization is considered a capital exchange and correlates with improved instructional practice and increased student performance (Watkins & Marsick, 2003). If all components of the seven action imperatives and the three levels of learning are not fully supported, it is prohibitive to the overall performance of the organization.

The findings of this study revealed that as a result of inconsistencies in the seven action imperatives and the three levels of learning, performance variables are deficient. Measures of central tendency revealed means below the midpoint range of 3.5 for each of the performance variables. Participants agreed that their learning communities are not providing the necessary components and support to improve upon instructional practices and student achievement.

Teacher and School Characteristics

Participants were asked to identify specific teacher and school characteristics to determine the relationship between the dissemination of teacher learning and specific demographics of the teachers and their schools. School characteristics included funding, responsiveness to challenges, volunteers, and school performance. Teacher characteristics

included years of experience, the number of years at the same location, and the number of advanced degrees. They were also asked to rank three of five distinguishing characteristics for their school including free and reduced lunch, student diversity, parent involvement, staff ability and student ability. Pearson Correlation Coefficient was used to measure the degree of the linear relationship between the variables. Results of the correlation analysis showed fewer than 40 positive correlations, and four inverse correlations. The characteristic that correlated with the most variables was Job Title. No significant relationship was found between the dissemination of teacher learning and teacher and school characteristics. This finding could be a direct consequence of the inconsistent outcomes shown between the seven action imperatives and the three levels of learning.

School Levels and School Locations

The two-way ANOVA was used to measure statistical equalities or inequalities between mean values of the three school levels: elementary, intermediate, and secondary, and between the three school locations: urban, suburban, and rural. When the results produced a difference between means, the Tukey post hoc test was used for school level because of the unequal sample sizes, and Scheffe's post hoc test was used for school location because the sample sizes are closer to being equal. The analysis from the two-way ANOVA revealed that for the most part, there were no significant differences between school levels. Differences between means occurred most often between the elementary and high school levels. Variable IND5 revealed a difference between elementary and intermediate teachers' views. The majority of inequalities of means

occurred between urban and suburban schools, and suburban and rural schools, indicating that in terms of the questions associated with this research survey, participants from suburban schools viewed their learning communities as more productive than did the participants from urban or rural locations. Some differences occurred between school level/school locations but these varied and post hoc tests did not reveal significant inequalities. The two-way ANOVA also revealed no significant differences indicating that school levels and/or locations are implementing those variables to the same degree: either *Almost Always* or *Almost Never.* In other words, the items listed as IND4, IND5, IND6, IND9, IND11, IND12, IND15, IND16, TEM17, TEM18, TEM19, TEM20, ORG37, ORG41, and ORG45 are all taking place to the same degree, *Almost Always,* in and across school levels and locations. The remaining mean tests revealed that all other variables from the individual, team, organizational, and performance levels are taking place *Almost Never* in and across school levels and school locations. In conclusion, the data revealed that the dimensions of the learning organization are occurring inconsistently in and across school levels and school locations, and that learning is not taking place consistently or to a significant degree at all levels of the learning organization. Several participants sent comments regarding the survey (Appendix K).

Recommendations for Action

First Recommended Action: Additional Surveys

The study results support the need for improvement in the dissemination of teacher learning throughout the school learning organization. The data confirm two points. First, initiating education change will require the realization that teacher learning is a strategic

tool that can be utilized within a systemic process to improve student learning and instructional practices (Dewey, 1929; DuFour & Eaker, 1998; DuFour, 2004; DuFour et al., 2006). Secondly, the findings indicate that educational change will require contributions and support from all members of the community including all teachers, administrators, students, and parents. Involving all members of the learning organization will assist in building productive systems for capturing, sharing, and utilizing knowledge to respond to organizational challenges (Collinson et al., 2009; Watkins & Marsick, 1996). A survey such as the one used in this research can be utilized in each school district to determine the learning structure can be improved so that teachers can be empowered to make the necessary decisions to improve student achievement and instructional practices. School leadership and government officials can use the DTLCQ as a tool to help improve the dissemination of teacher learning throughout the learning organization. Teachers should be encouraged and willing to become leaders who can make decisions regarding school reform. They must take an active rather than passive role in education.

Second Recommended Action: Analysis of Local School

School learning communities should analyze their own systems to determine which of the seven action imperatives are strong, and which need to be improved. They should begin by researching learning communities, and focusing on strengthening the action imperatives associated with the individual and team levels of learning in order to connect to the entire organization (Hoekstra, Brekelmans, Beijaard, & Korthagen, 2009; Meirink, Meijer, Verloop, & Bergen, 2009; Senge, 1994; Watkins & Marsick, 1996). It is

through individuals that the learning community can begin to identify problem areas and work toward improvement. Individuals and teams can begin to improve through the promotion of inquiry and dialogue (DuFour et al., 2006; Servage, 2008; Spradley, 2008; Wood, 2007) while school leadership can implement a process of qualitative research through open-ended questioning and interviews to gain insight from teachers regarding their ideas on how to improve the dissemination of their learning.

Third Recommended Action: Recognize and Trust Teachers' Abilities

Once the school learning communities have started work on improving the first three dimensions of the learning organization, I recommend that they begin on the final four dimensions associated with the organizational level of learning. The teachers surveyed in this study stated that this level is in need of the most improvement. Thus, the fourth recommended action is that school leadership take more responsibility for initiating and implementing the dissemination of teacher learning through recognition of and confidence in their teachers' abilities to improve instruction and student achievement. This realization is the beginning of empowering people toward a collective vision allowing for widespread leadership and ownership in the learning process (Doolittle et al., 2008; Watkins & Marsick, 1993, 1996). The action school leadership can take is a full implementation of the four pillars of professional learning communities as described and reported by DuFour et al. (2006). These pillars are mission, vision, values and goals. Mission provides a purpose, vision helps to articulate the needed action, values equate with collective commitment, and goals provide focus. Time, effort, and patience will be

required of all members in order to implement and sustain all components of the learning community.

Fourth Recommended Action: Clear, Continuous Communication

In this study, teachers stated that learning is not taking place and the organizational level. They also indicated that two-way communication and strategic leadership to support learning are nonexistent. According to the literature clear and continuous communication is required from an organization's leadership to sustain and continuously improve schools in terms of the future purposes and goals, and the progress and actions needed to increase student achievement and instructional practices through the dissemination of teacher learning (DuFour, et al. 2006; Graham, 2007; Lieberman, & Pointer, 2009; Peretti, 2009). The organization and the outside environment, including government officials, must begin to support the teachers and their learning as tools to improve the schools. Teachers know their craft and are artists in the work of education. They must learn to also become empowered scientists with the support of school leadership and by working together positive school reform can be implemented. Educators and government officials must be willing to dedicate themselves to the time and effort required to improve their schools by better utilizing their most valuable assets who are the teachers and the students.

Recommendations for Future Study

Future studies might pursue the following topics. First, the data could be collected in a sequential way from each teacher and administrator in the state. Second, findings should be collected and reported to the entire learning organization in order to promote

the dissemination of teacher learning from the individual, team, to the organization. Third, because the findings of this research study indicated that learning is not taking place at the organizational level, future studies might focus on how to assist in understanding what is preventing this from taking place and how to improve learning so that all members of the community are working together for positive change. Fourth, continuous research could be conducted in Minnesota, to implement support and subsequent training and review so the organization can cultivate complete learning communities. Fifth, similar data from each teacher and administrator in states across the United States could be collected and analyzed. Sixth, a survey, similar to the one used in this study, could be administered to the outside school community and to policy makers in state capitols. The findings should be reported so that continuous research can be used for the cultivation of learning communities throughout the educational community. Seventh, a qualitative research investigation could be conducted to determine educators' and administrators' perspectives on the implementation of learning communities and shared leadership. Eighth, I recommend that researchers continue their studies on teacher leadership and empowerment to inform educators, administrators, and government officials who make policy decisions for educational reform.

Contributions to Positive Social Change

The contribution to positive social change as a consequence of this study is the discovery of a need for a complete paradigm shift for all teachers, school leadership, and government officials. This would include the implementation of learning communities including the entire organization and the idea of shared leadership among all members of

said communities. The results of this study indicated that teacher learning is taking place to some extent at both the individual and team levels of learning across school levels and school locations. However, the results also indicated that learning is not taking place at the organizational level. This finding is new and so fills a research gap. A contribution toward positive social change from my study is the realization from the views of teachers in all sections of Minnesota that the dissemination of teacher learning should be improved at all three levels, individual, team, and organizational, but specifically at the organizational level.

Researcher's Reflection

As the researcher on this project, I chose to complete both an overall analysis of the combined variables of the individual, team, and organizational levels as well as indpendent analysis of each for specific reasons. It is important to see the whole picture and to know that the results supported the individual findings with significance at both individual and team levels, but not at the organizational level. The indpendent analysis of each variable is a statistical risk but as an educator, I needed to see where the deficiencies lie. So often, classroom teachers are the targets when schools fail and instead my research is showing that teachers are doing what they should be doing and that it is a community and organizational effort on the part of everyone who has some type of stake in education.

As a classroom teacher myself, what I learned from the data collected through this research study proved both surprising and encouraging. It was surprising because I had predicted that elementary school levels would indicate that learning was taking place

more often than at the intermediate and senior high levels. This prediction did not turn out to be true. Teachers from all levels indicated that their learning is being disseminated to some extent at the individual and team levels, but minimally at the organizational level. I had also predicted that suburban locations would indicate a higher level of the dissemination of learning in comparison to rural and urban schools. This finding was true to some extent revealing that suburban locations have more support and financial resources. However, significant differences between the types of schools by location were not prevalent.

The encouraging result of this study is that the data reveal teachers are doing their job to the best of their abilities. They are working as individuals and teams to improve instruction and student achievement. As of yet, they reported that they do not have the support of the organization. This discovery was found to be true for all school levels—elementary, intermediate, and secondary, as well as all school locations—urban, suburban, and rural. As a researcher, this discovery leads to the indication that collective society as a whole is responsible for positive school reform. I make this conclusion because the organizational level includes the entire school community and the environment surrounding that community. This would involve parents, students, taxpayers and policy makers. These findings are only the beginning to opening a door to positive school reform. If public schools are to become fully functioning learning communities and implement successful reform efforts, all members of the learning community must collaborate and cultivate productive learning for our future, the students.

Summary

The research findings of this study included collecting and analyzing data to (a) determine the degree to which teacher learning is disseminated throughout the school learning organization to improve student learning and instructional practices, and (b) draw conclusions about differences and similarities in the dissemination of teacher learning across and between elementary, intermediate, and secondary schools as well as in rural, suburban, and urban schools. It was determined that the dissemination of teacher learning is taking place inconsistently at the individual, team, and organizational level in and across school levels and locations. Comparisons across and between school levels and locations revealed more of a difference between elementary and senior high levels, and more differences between urban and suburban, and suburban and rural. The findings indicate that educators and administrators need to support ways to incorporate all seven dimensions of the learning organization into school communities in order to implement positive school reform and improve education for all.

REFERENCES

Aakhus, T. (2008). The effects of staff development programs on Rio Salado College Employees (Doctoral Dissertation), 1990-2006. *ProQuest Information and Learning Company.* (UMI No. 3320278).

Andrews, D., & Lewis, M. (2004). Building sustainable futures: Emerging understandings of the significant contribution of the professional learning community. *Improving Schools, 7*(2), 129-150. doi: 10.1177/1365480204047345.

Aubusson, P., Steele, F., Dinham, S., & Brady, L. (2007). Action learning in teacher learning community formation: Informative or transformative? *Teacher development, 11*(2), 133-148. doi: 10.1080/13664530701414746.

Babbie, E. R. (1990). *Survey research methods.* Colorado: Wadsworth Publishers.

Banathy, B. H. (1973). *Developing a systems view of education: The systems-model approach.* Belmont, CA: Lear Siegler, Inc./Fearon Publishers.

Banathy, B. H. (1991). *Systems design of education: A journey to create the future.* Englewood Cliffs, NJ: Educational Technology Publications.

Baruch, Y., & Holtom, B. C. (2008). Survey response rate levels and trends in organizational research. *Human Relations, 61*. doi: 10.1177/0018726708094863.

Berry, B., Hoke, M., & Hirsch, E. (2004). The search for highly qualified teachers. *Phi Delta Kappan, 85*(0), 684-689.

Borko, H. (2004). Professional development and teacher learning: Mapping the terrain. *Educational Researcher, 33*(3). doi: 10.3102/0013189X033008003.

Bowen, G. L., Ware, W. B., Rose, R. A., & Powers, J. D. (2007). Assessing the functioning of schools as learning organizations. *Children & Schools, 19*(4), 199-208.

Bowers, A. J., Metzger, S. A., Militello, M. (2010). Knowing the odds: Parameters that predict passing or failing school district bonds. *Educational Policy*, *24*(2), 398-420. Doi: 10.1177/0895904808330169.

Calabro, B. (2004). Factors that contribute to a constructive learning community. *ProQuest Information and Learning Company* (Doctoral Dissertation). (UMI No. 3161218).

Cantrell, S. C., Burns, L. D., & Callaway, P. (2009). Middle- and high-school content area teachers' perceptions about literacy teaching and learning. *Literacy Research and Instruction, 48*, 76-94. doi: 10.1080/19388070802434899.

Cassata-Widera, C., Kato-Jones, Y., Mahler Dcukles, J., Conezio, K., & French, L. (2008). Learning the language of science. *The International Journal of Learning, 15*(8), 141-152. Retrieved from http://web.ebscohost.com.ezp.waldenulibrary.org/ehost/.

Cherubini, L. (2008). Teacher candidates' perceptions of schools as professional communities of inquiry: A mixed-methods investigation. *The Professional Educator, 32*(1), 1-20.

Chrispeels, J. H., Burke, P. H., Johnson, P., & Daly, A. J. (2008). Aligning mental models of district and school leadership teams for reform coherence. *Education and Urban Society, 40*(6). doi: 10.1177/0013124508319582.

Cook, C., Heath, F., & Thompson, R. L. (2000). A meta-analysis of response rates in web- or internet-based surveys. *Educational and Psychological Measurement,* 60. doi: 10/1177/00131640021970934.

Creswell, J W. (2008). *Educational research: Planning, conduction, and evaluating quantitative and qualitative research.* Upper Saddle River, NJ: Pearson Merrill Prentice Hall.

Crosby, J. (2007). A beginning professional learning community: Understanding teachers' perceptions. *ProQuest Information and Learning Company* (Doctoral Dissertation). (UMI No. 3254443).

Czaja, R. & Blair, J. (2004) *Designing surveys: A guide to decisions and procedures.* Thousand Oaks, CA: Sage Publications, Inc.

Danielson, C. (2007). *Enhancing professional practice: A framework for teaching* (2nd ed.). Alexandria, VA: Association for Supervision and Curriculum Development.

Dewey, J. (1916). *Democracy and education.* New York: Macmillan Company.

Dewey, J. (1938/1997). *Experience and education*. New York: Macmillan.

Dewey, J. (1938). *Logic: The theory of inquiry.* New York: H.Holt and Company.

Dewey, J. (1897). My pedagogic creed. *The School Journal.* LIV(3), 77-80. Retrieved from http://www.archive.org/details/sourcesofascienc009452mbp, October 10, 2008.

Dewey, J. (1929). *The sources of a science of education.* New York: Horace Liveright.

Doolittle, G., Sudeck, M., & Rattigan, P. (2008). Creating professional learning communities: The work of professional development schools. *Theory Into Practice, 47*, 303-310. doi: 10.1080/00405840802329276.

Dolezal, S. (2008). Professional learning communities: Preservice education programs. *Walden University,* (Doctoral Dissertation). (UMI Number: 3330378).

DuFour, R. (2004). What is a "professional learning community"? *Educational Leadership.* 1-5.

DuFour, R., DuFour, R, Eaker, R., & Many, T. W. (2006). *Learning by doing: A handbook for professional learning communities at work.* Bloomington, IN: The Solution Tree.

DuFour, R., & Eaker, R. (1998). *Professional learning communities at work: Best practices for enhancing student achievement.* Alexandria, VA: Association for Supervision and Curriculum Development.

Duschl, R. (2008). Science education in three-part harmony: Balancing conceptual, epistemic, and social learning goals. *Review of Research in Education, 32*, 268-291. doi: 10.3102/0091732X07309371.

Earl, L. M., Katz, S., &Fullan, M. (2006). *Leading schools in a data-rich world: Harnessing data for school improvement.* Thousand Oaks, CA: Corwin Press.

Eysenbach, G. &Wyatt, J. (2002). Using the internet for surveys and health research. *Journal of Medical Internet Research, 4*(2). doi:10.2196/jmir.4.2.e13.

Felner, R. D., Seitsinger, A. M., Brand, S., Burns, A., & Bolton, N. (2007). Creating small learning communities: Lessons from the project on high-performing learning communities about "what works" in creating productive, developmentally, enhancing learning contexts. *Educational Psychologist, 42*(4), 209-221.

Fichtman-Dana, N. & Yendol-Hoppey, D. (2008). *The reflective educator's guide to professional development: Coaching inquiry-oriented learning communities.* Thousand Oaks, CA: Corwin Press.

Fullan, M. (2001). *Leading in a culture of change.* San Francisco: Jossey-Bass.

Giles, C., & Hargreaves, A. (2006). The sustainability of innovative schools as learning organizations and professional learning communities during standardized reform. *Educational Administration Quarterly, 42*, 124-156. doi: 10.1177/0013161X05278189.

Graham, P. (2007). Improving teacher effectiveness through structured collaboration: A case study of a professional learning community. *Middle Level Education Online*, *31*(21), 1-32.

Hara, K. (1995). Quantitative and qualitative research approaches in education. *Education, 115*(3), 351-355.

Hargreaves, A. (2003). *Teaching in the knowledge society.* New York: Teachers College Press.

Hildebrand, D. L. (2008). *John Dewey.org.* Retrieved January 28, 2009 from http://johndewey.org/Welcome.html.

Hindin, A., Morocco, C. C., Arwan, E., & Aguilar, C. M. 2007). More than just a group: Teacher collaboration and learning in the workplace. *Teachers and Teaching: Theory and Practice.* 13(4), 349-376. doi: 10.1080/13540600701391911.

Hipp, K. K., Huffman, J. B., Pankake, A. M., & Olivier, D. F. (2008). Sustaining professional learning communities: Case studies. *Journal of Educational Change, 9*(2), 173-195. doi: 10.1007/s10833-007-9060-8.

Hoekstra, A., Brekelmans, M., Beijaard, D., & Korthagen, F. (2009). Experienced teachers' informal learning: Learning activities and change in behavior and cognition. *Teaching and Teacher Education, 25*, 663-673. doi:10.1016/j.tate.2008.12.007.

Huffman, J. (2003). The role of shared values and vision in creating professional learning communities. *NASSP Bulletin, 87*(21), 21-34. doi: 10.1177/019263650308763703.

Hughes, T. A., & Kritsonis, W. A. (2006). A national perspective: An exploration of professional learning communities and the impact on school improvement efforts. *Doctoral Forum: National Journal for Publishing and Mentoring Doctoral Student Research, 1*(1). 1-12.

Kassissieh, J. & Barton, R. (2009). The top priority: Teacher learning. *Principal Leadership, 9*(7), 22-26. (ERIC Educational Document Reproduction Services No. EJ831413).

Klein, E. J. (2008). Learning, unlearning and relearning: Lessons from one schools' approach to creating and sustaining learning communities. *Teacher Education Quarterly.* 79-97.

Klein, E. J. (2007). Rethinking professional development: Building a culture of teacher learning. *The New Educator, 3*, 179-197. doi: 10,1080/15476880701484048.

Krohn, J. (2008). *Core Knowledge Area Module III: Principles of Organizational and Social Systems.* Unpublished manuscript, Walden University at Minneapolis, Minnesota.

Kubiak, C. (2009). Working the interface: Brokerage and learning networks. *Educational Management Administration & Leadership, 37*(2), 239-256. doi: 10.1177/1741143208100300.

Lieberman, A., & Pointer, D.H. (2009). The role of "accomplished teachers" in professional learning communities: Uncovering practice and enabling leadership. *Teachers and Teaching: Theories in Practice, 15*(4), 459-470. (ERIC Document Reproduction Service No. EJ866434).

Leithwood, K., Begley, P. T., & Cousins, J. B. (1992). *Developing expert leadership for future schools.* Bristol, PA: The Falmer Press.

Leithwood, K., & Jantzi, D. (2008). Linking leadership to student learning: The contributions of leader efficacy. *Educational Administration Quarterly, 44*(4). 496-528. doi: 10.1177/0013161X08321501.

Levine, T. H., & Marcus, A. S., (2007). Closing the achievement gap through teacher collaboration: Facilitation multiple trajectories of teacher learning. *Journal of Advanced Academics, 19*(1), 116-138.

Local Schools Directory. (2010). *Minnesota Schools.* Retrieved January 1, 2010 from http://www.localschooldirectory.com/state-schools/MN

Marsick, V. J., & Watkins, K. E. (2003). Demonstrating the value of an organization's learning culture: the dimensions of the learning organization questionnaire. *Advances in Developing Human Resources, 5*(132). doi: 10.1177/1523422303005002002.

McHargue, S. K. (2000). Dimensions of the learning organization as determinants of organizational performance in nonprofit organizations. *Dissertation Abstracts International, 61*(06), 2147. (UMI No. 9975108).

Meirink, J. A., Meijer, P. C., Verloop, N., & Bergen, T. C. M., (2009). Understanding teacher learning in secondary education: The relations of teacher activities to changed beliefs about teaching and learning. *Teaching and Teacher Education, 25*, 89-100. doi:10.1016/j.tate.2008.07.003.

Minnesota Department of Education Webpage (2008). *Q Comp.* Retrieved January 28, 2009 from www.education.state.mn.us.

Minnesota State Legislature (2008). *School year 2008-2009 Minnesota school districts.* Retrieved January 28, 2010 from www.leg.state.mn.us.

Moss, P. A., Phillips, D. C., Erickson, F. D., Floden, R. E., Lather, P. A., & Schneider, B. L. (2009). Learning from our differences: A dialogue across perspectives on quality in education research. *Educational Researcher, 38*(7), p. 501-517. doi: 10.3102/0013189X09348351.

National Center for Education Statistics. (2007). *Staff and teachers in public elementary and secondary school systems.* Digest of Education Statistics: 2007. U. S. Department of Education Institute of Education Sciences.

Nardi, P. M. (2006). *Doing survey research: A guide to quantitative methods.* (2nd ed). New York: Pearson Education, Inc.

Nie, N. H., Hull, C. H., & Bent, D. H. (1968). *SPSS: Statistical package for the social sciences.* Retrieved February 22, 2009 from http://www.spss.com/corpinfo/history.htm.

No Child Left Behind (NCLB) Act of 2001, Pub. L. No. 107-110, § 115, Stat. 1425 (2002). Retrieved November 9, 2008, from http://www.ed.gov/nclb/html.

Norland, E. V. T. (1990). Controlling error in evaluation instruments. *Journal of Extension,* 28(2). Retrieved February 20, 2010 from http://www.joe.org

Olson, C. D. (2004). The relationship between high-achieving schools and professional learning community characteristics and the role of the educational leader. *ProQuest Information and Learning Company* (Doctoral Dissertation). (UMI No. 3297664).

Parry, G. (2007). Improving teacher effectiveness through structured collaboration: A case study of a professional learning community. *Research in Middle Level Education Online, 31*(1), 1-32.

Pedder, D. (2007). Profiling teachers' professional learning practices and values: Differences between and within schools. *The Curriculum Journal, 18*(3), 231-252. doi: 10.1080/09585170701589801.

Pedder, D., & MacBeath, J. (2008). Organisational learning approaches to school leadership and management: Teachers' values and perceptions of practice. *School Effectiveness and School Improvement, 19*(2), 207-224. doi: 10.1080/09243450802047899.

Peretti, M. Q. (2009). Teachers' perceptions of professional learning communities: Measuring the impact of administrative participation. *ProQuest Information and Learning Company* (Doctoral Dissertation). (UMI No. 3366819).

Piercy, G. (2007). The dimensions of the learning organization as performance indicators in the church. *ProQuest Information and Learning Company* (Doctoral Dissertation). (UMI No. 3243504).

Phillips, J. J. (1999). *HRD trends worldwide: Share solutions to compete in a global economy.* Houston, Texas: Gulf Professional Publishing.

Printy, S. M. (2008). Leadership for teacher learning: A community of practice perspective. *Educational Administration Quarterly. 44*(2), 187-226. doi:10.1177/0013161X07312958.

Quality Compensation for Teachers (Q Comp) Act of 2005. Minn. Stat. 122A.60.

Radhakrishna, R. B. (2007). Tips for developin and testing questionnaires/instruments. *Journal of Extension,* 45(1). Retrieved February 20, 2010 from www.joe.org

Raosoft, Inc., (2009). *Sample size calculator.* Retrieved February 16, 2009 from http://www.raosoft.com/samplesize.html.

Rea, L. M., & Parker, R. A. (2005). *Designing and conduction survey research: A comprehensive design.* (3rd ed.). San Francisco, CA: Jossey-Bass.

Schechter, C. (2008). Organizational learning mechanisms: The meaning, measure, and implications for school improvement. *Educational Administration Quarterly, 44*(2), 155-186. doi:10.1177/0013161X07312189.

Seals. G. (2004). Conceptualizing teaching as science: John Dewey in dialogue with the National Research Council. *Educational Theory, 54*(1), 1-27. Retrieved from http://scholar.google.com

Senge, P. M. (1990). *The fifth discipline: The art & practice of the learning organization.* New York: Currency and Doubleday.

Senge, P. M. (2006). *The fifth discipline: The art & practice of the learning organization.* New York: Currency and Doubleday.

Senge, P. M., Cambron McCabe, N. H., Lucas, T., Kleiner, A., Dutton, J., & Smith, B. (2000). *Schools that learn: A fifth discipline fieldbook for educators, parents, and everyone who cares about education.* New York: Doubleday.

Servage, L. (2008). Critical and transformative practices in professional learning communities. *Teacher Education Quarterly, 35*(1), 63-77.

Shavelson, R. J., & Towne, L. (2002). *Scientific research in education.* Washington, D.C.: National Research Council.

Spitz, G., Niles, F. L., & Adler, T. J. (2007). *Web-based survey techniques: A synthesis of transit practice.* Washington, D.C.: National Research Council.

Spradley, M. (2008). Dialogue within professional learning communities and its impact on the professional growth of teachers in the elementary school setting. *Walden University,* (Doctoral Dissertation). (UMI Number: 3342444).

Stoll, L., Bolam, R., McMahon, A., Wallace, M., & Thomas, S. (2005). Professional learning communities: A review of literature. *Journal of Educational Change.* 221-258. doi: 10.1007/s10833-006-0001-8.

SurveyMonkey.com (2009). *Survey monkey*. Retrieved January 18, 2009 from http://www.surveymonkey.com/Default.aspx.

Tagaris, A. (2007). Efficacy of a professional learning community. *ProQuest Information and Learning Company* (Doctoral Dissertation). (UMI No. 3283554).

The First Amendment. (1791). *Freedom of religion, press, expression.* The United States Constitution. Retrieved January 18, 2009 from http://www.usconstitution.net/const.html.

Thompson, S. C., Gregg, L., & Niska, J. M., (2004). Professional learning communities, leadership, and student learning. *Research in Middle Level Education Online, 28*(1), 35-54.

Tourangeau, R. (2004). Survey research and societal change. *Annual Review of Psychology*, *55*, 775-801. doi: 10.1146/annurev.psych.55.090902.142040.

United States Department of Education (2008). *No child left behind: Highly qualified teachers.* Retrieved November 9, 2008, from http://www.ed.gov/nclb/methods/teachers/teachers-fag.html

University of Minnesota. (2009). *Access Minnesota.* Retrieved January 18, 2009 from http://www.extension.umn.edu/Accessmn/final3.html#BK12

Von Bertalanffy, L. (1969). *General system theory.* New York: George Braziller.

Von Bertalanffy, L. (1962). *Modern theories of development: An introduction to theoretical biology.* New York: Harper Torchbooks.

Watkins, K. E., & Marsick, V. J. (1993). *Sculpting the learning organization: Lessons in the art and science of systemic change.* San Francisco: Jossey-Bass.

Watkins, K. E., & Marsick, V. J. (Eds.). (1996). *Creating the learning organization.* Alexandria, VA: American Society for Training and Development.

Watkins, K. E., & Marsick, V. J. (1997). *Dimensions of the learning organization questionnaire [survey].* Warwick, RI: Partners for the Learning Organization.

Watkins, K. E., & Marsick, V. J. (2001). Informal and incidental learning. *New directions for adult and continuing education.* San Francisco, CA: Jossey-Base.

Webb, R. (2005). Leading teaching and learning in the primary school: From 'educative leadership' to 'pedagocial leadership'. *Educational Management Administration Leadership, 33*(1). 69-91. doi: 10.1177/1741143205048175.

Wells, C. M., & Feun, L. (2008). What has changed? A study of three years of professional learning community work. *Planning and Changing, 39*(1), 42-66. Retrieved from http://web.ebscohost.com.ezp.waldenulibrary.org/ehost/

Wilson, E. & Demetriou, H. (2007). New teacher learning: Substantive knowledge and contextual factors. *Clurriculum Journal, 18*(3), 213-229. doi:10.1080/09585170701589710.

Wood, D. R. (2007). Professional learning communities: Teachers, knowledge, and knowing. *Theory Into Practice, 46*(4), 281-290. doi: 10.1080/00405840701593865.

Yang, B. (2003). Identifying valid and reliable measures for dimensions of a learning culture. *Advances in Developing Human Resources, 5*(2), 152-162. doi: 10.1177/1523422303005002003.

Yang, B., Watkins, K. E., & Marsick, V. J. (2004). The construct of the learning organization: Dimensions, measurement, and validation. *Human Resource Development Quarterly, 15*(1), 31-55.

APPENDIX A:

DLOQ/DTLCQ PERMISSION LETTER

Date : Mon, Dec 01, 2008 01:49 PM CST
From : Karen Watkins <kwatkins@uga.edu>
To : Jacqueline Krohn <jacqueline.krohn@waldenu.edu>, Victoria Marsick <marsick@tc.columbia.edu>
Reply To : Karen Watkins <kwatkins@uga.edu>
Subject : Re: Request Permission DLOQ
Attachment : DLOQSelf-Scoring.rtf
We would be delighted to grant you permission to use the DLOQ in your research. Please do send me any modifications that you make to the instrument for review. Attached is a self-scoring version for your use.

Best Regards,

Karen E. Watkins
Associate Dean for Research and External Affairs
College of Education
The University of Georgia
G10 Aderhold Hall
Athens, GA 30602
W 706-542-4355
F 706-542-8125
http://www.coe.uga.edu/adresearch/

From: Jacqueline Krohn <jacqueline.krohn@waldenu.edu>
Reply-To: Jacqueline Krohn <jacqueline.krohn@waldenu.edu>
Date: Sat, 29 Nov 2008 19:13:34 -0500 (EST)
To: Karen Watkins <kwatkins@uga.edu>
Subject: Request Permission DLOQ

Dr. Watkins,

I am Jackie Krohn, a third grade teacher in Minnesota and a Walden PhD candidate as well. I am currently studying professional learning communities in Minnesota K-12 schools for my dissertation. As part of my study, I would like to survey teachers across the state with the use of PLCs based upon your model of the learning organization which includes learning from individual, team, community, and global levels.

I would also like to request permission to use a version of the Dimensions of the Learning Organization Questionnaire developed by Dr. Marsick and yourself. It would be

necessary for me to make a few modifications to the questionnaire specifically in terminology so that it would be applicable to the school setting. If it is necessary to pay a fee for the use of the DLOQ, please inform me of the cost and I will oblige. In addition, if it is necessary to review modifications I make, please let me know and I will send them to you.

As a classroom teacher who has been part of a PLC for two years now, I would find it most interesting and beneficial to receive results of the questionnaire.

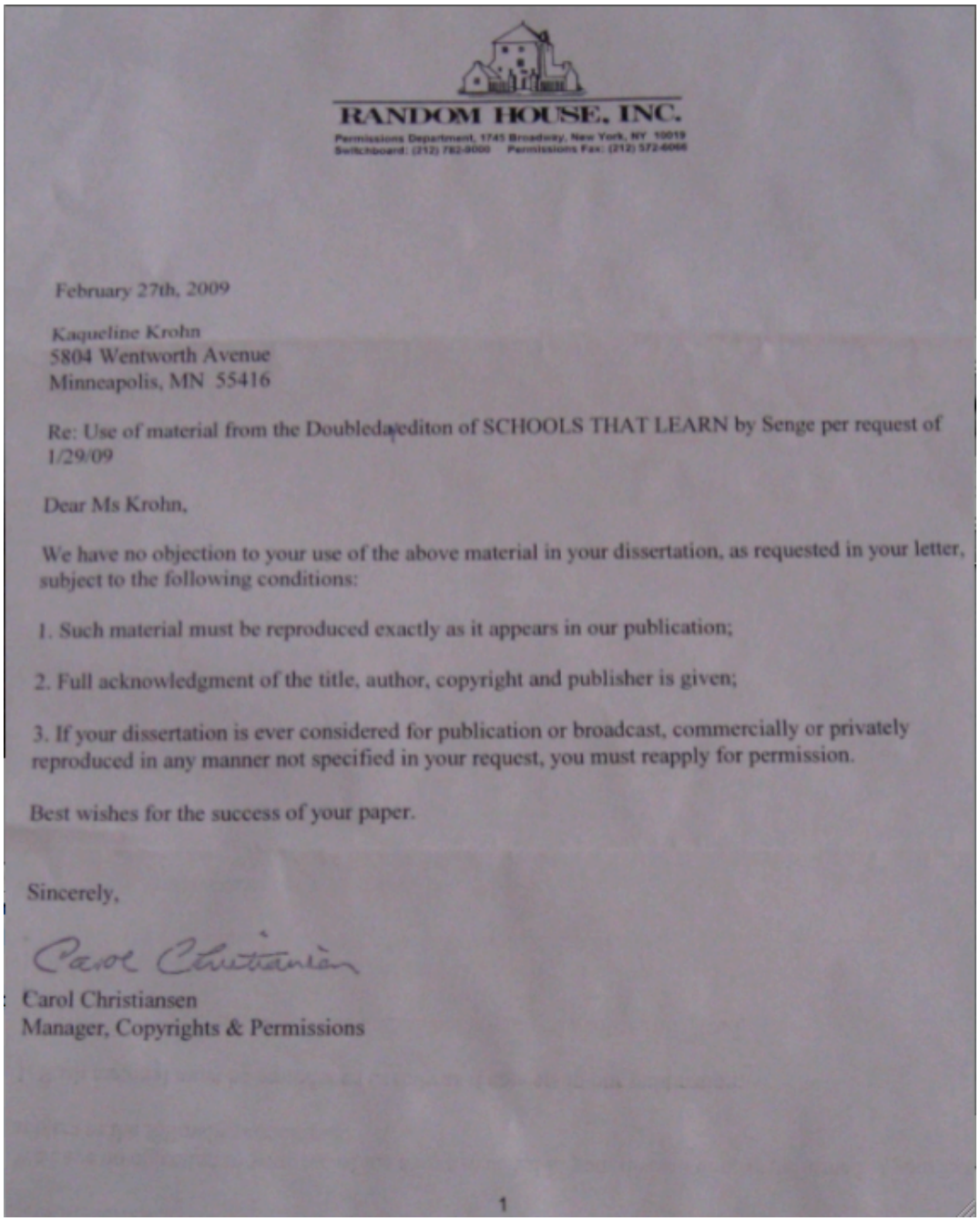
Thank you for your time and consideration in this matter.

Respectfully,

Jackie Krohn

APPENDIX B:

SENGE PERMISSION



RANDOM HOUSE, INC.

Permissions Department, 1745 Broadway, New York, NY 10019
Switchboard: (212) 782-9000 Permissions Fax: (212) 572-6066

February 27th, 2009

Kaqueline Krohn
5804 Wentworth Avenue
Minneapolis, MN 55416

Re: Use of material from the Doubleda editon of SCHOOLS THAT LEARN by Senge per request of 1/29/09

Dear Ms Krohn,

We have no objection to your use of the above material in your dissertation, as requested in your letter, subject to the following conditions:

1. Such material must be reproduced exactly as it appears in our publication;

2. Full acknowledgment of the title, author, copyright and publisher is given;

3. If your dissertation is ever considered for publication or broadcast, commercially or privately reproduced in any manner not specified in your request, you must reapply for permission.

Best wishes for the success of your paper.

Sincerely,

Carol Christiansen

Carol Christiansen
Manager, Copyrights & Permissions

1

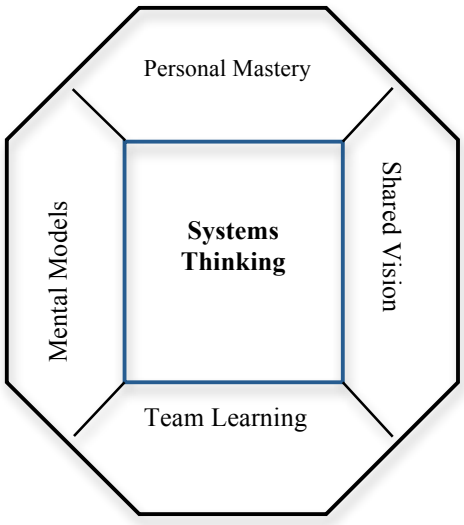


Figure 1. Five disciplines of the learning organization. From *Schools that Learn* by Senge et al., 2004, p. 223. Reprinted with permission from Random House/Doubleday.

APPENDIX C:

LEARNING BY DOING FIGURE AND PERMISSION LETTER

Subject: Permission to use Learning by Doing

From: Dulene Cipriano

28-01-2009 03:42 PM

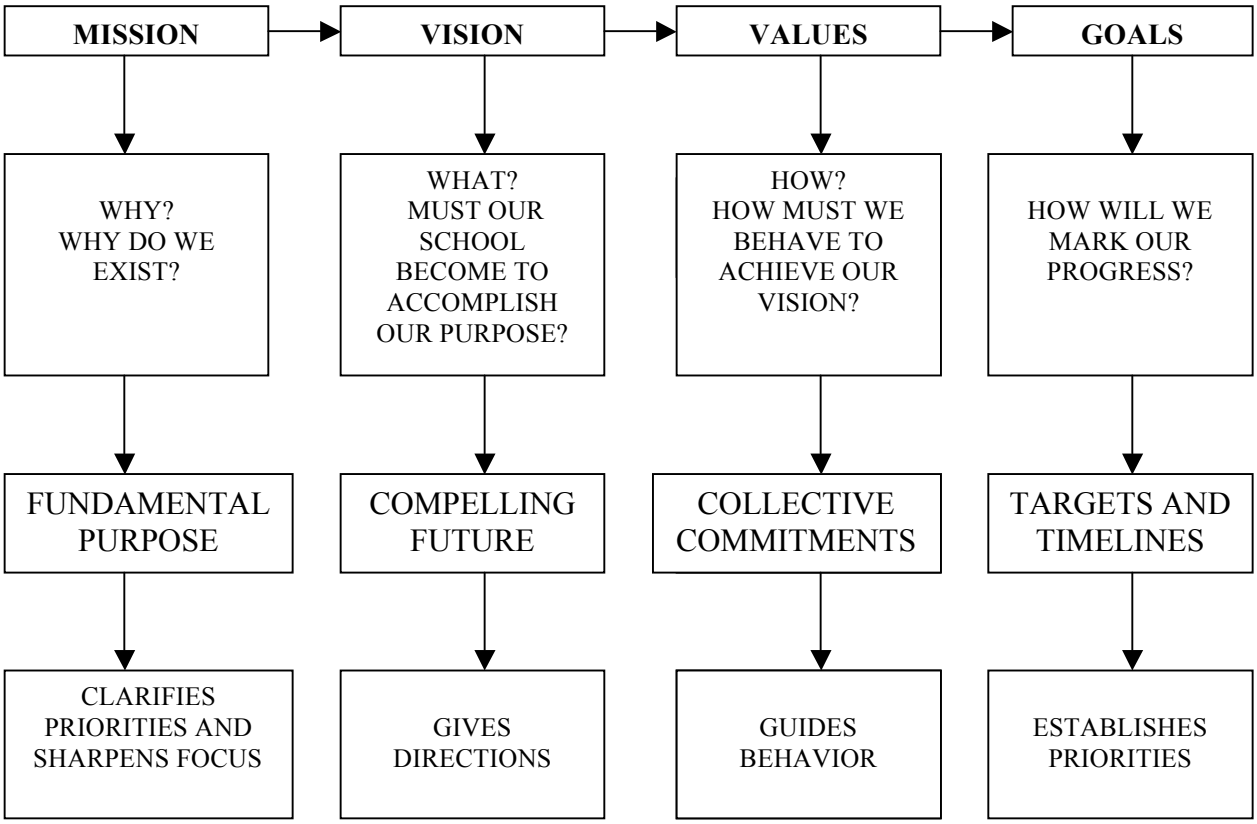


FIGURE 3. Four pillars of Professional Learning Communities. From *Learning by doing: A handbook for professional learning communities at work.* (DuFour, et al. 2006).

Dear Ms. Krohn,

We received a similar request this week to use material for a dissertation that would be posted on the ProQuest website. My supervisor has approved the request, so here is the official letter:

Dear Ms. Krohn,

Thank you for your interest in using Solution Tree publications for use in your dissertation, specifically the four-column diagram on page 24 of Learning by Doing. We have reviewed your request and are pleased to grant you permission to use this for your academic work, as long as the following guidelines are respected:

1. It is used in accordance with your request dated January 24, 2009, specifically:

o For your graduate school dissertation for Walden University only
o The print material is dispersed only to relevant individuals in connection with the assessment of your dissertation during 2009/10 (5 copies total)

2. Reference information should be at the bottom of each page where the diagram appears. The text should be:

Used with permission. From Learning by Doing: A Handbook for Professional Learning Communities at Work by Richard DuFour, Rebecca DuFour, Robert Eaker, and Thomas Many. Copyright 2006 by Solution Tree Press, 555 North Morton St., Bloomington, IN 47404, 800-733-6786, www.solution-tree.com.

3. It will be posted electronically only on ProQuest, and this must continue to be a password-protected environment.

If you have any further questions or needs, please feel free to contact us.

Dulene Cipriano
Solution Tree Press
555 North Morton St.
Bloomington, IN 47404
800.733.6786 (ext. 251)
812.336.7700 (ext. 251)
812.337.3178 (fax)
dulene.cipriano@solution-tree.com
www.solution-tree.com.

APPENDIX D:

DIMENSIONS OF TEACHER LEARNING COMMUNITIES QUESTIONNAIRE (SCHOOL VERSION)

Your answers are strictly confidential. In no way will your name be revealed in this report.

Part I: Professional Learning Communities

1. Please choose one answer.
Please select the answer that best describes your school environment.
__No, we do not operate as PLCs.
__Yes, we do operate as PLCs.

Part II: Dimensions of the Teacher Learning Community

In this section, you are asked to think about how your school/school district professional learning communities, within the boundaries of the state of Minnesota, supports and uses learning at an individual, team (meaning grade level, cross curricular, and/or staff development), and organization (school and/or school district) level.

Directions: Please indicate the degree to which you believe that each statement is true of your school/school district professional learning communities within the state of Minnesota. If the statement exhibits a practice that rarely occurs mark it a one [1]. If the statement is almost always true of your school/school district, mark it as a six [6]. Please answer every question. Thank you.

Mark only one response number for each question.

For example: If you perceive that the statement, "In my learning community, people openly discuss mistakes in order to learn from them" is often true, you might score this as a four [4] by selecting the circle connected to that answer on Survey Monkey.

To what degree is each statement accurate?

Individual Level

2. In my learning community, people openly discuss mistakes in order to learn from them.

Almost Never Almost Always

1 2 3 4 5 6

3. In my learning community, people identify skills they need for future instructional tasks.

Almost Never Almost Always

1 2 3 4 5 6

4. In my learning community, people help each other learn.

Almost Never Almost Always

1 2 3 4 5 6

5. In my learning community, people can get money and other resources to support their learning.

Almost Never Almost Always

1 2 3 4 5 6

6. In my learning community, people are given time to support learning.

Almost Never Almost Always

1 2 3 4 5 6

7. In my learning community, people view problems in their school as an opportunity to learn about and improve student achievement.

Almost Never Almost Always

1 2 3 4 5 6

8. In my learning community, people are rewarded for learning and improving instructional practice.

Almost Never Almost Always

1 2 3 4 5 6

9. In my learning community, people give open and honest feedback to each other.

Almost Never Almost Always

1 2 3 4 5 6

10. In my learning community, people listen to others' views before speaking.

Almost Never Almost Always

1 2 3 4 5 6

11. In my learning community, people are encouraged to ask "why" regardless of position.

Almost Never Almost Always

1 2 3 4 5 6

12. In my learning community, whenever people state their view, they also ask what others think.

Almost Never Almost Always

1 2 3 4 5 6

13. In my learning community, people treat each other with respect.

Almost Never Almost Always

1 2 3 4 5 6

14. In my learning community, people spend time building trust with each other.

Almost Never Almost Always

1 2 3 4 5 6

Team or Group Level

15. In my learning community, teams/groups have the freedom to adapt their goals as needed for improved instructional practice and increased student learning.

Almost Never Almost Always

1 2 3 4 5 6

16. In my learning community, teams/groups treat members as equals, regardless of tenure, culture, or other differences.

Almost Never Almost Always

1 2 3 4 5 6

17. In my learning community, teams/groups focus both on the group's task and on how well the group is working toward the common goal of increasing student achievement.

Almost Never Almost Always

1 2 3 4 5 6

18. In my learning community, teams/groups revise their thinking as a result of group discussions or information collected.

Almost Never Almost Always

1 2 3 4 5 6

19. In my learning community, teams/groups are rewarded for their achievements as a team/group.

Almost Never Almost Always

1 2 3 4 5 6

20. In my learning community, teams/groups are confident that the district organization will act on their recommendations.

Almost Never Almost Always

1 2 3 4 5 6

Organization Level

21. My learning community uses two-way communication on a regular basis, such as suggestion systems, electronic bulletin boards, or town hall/open meetings.

Almost Never Almost Always

1 2 3 4 5 6

22. My learning community enables people to get needed information at any time quickly and easily.

Almost Never Almost Always

1 2 3 4 5 6

23. My learning community maintains an up-to-date database of employee skills for cross-reference and informational purposes.

Almost Never Almost Always

1 2 3 4 5 6

24. My learning community creates systems to measure gaps between current and expected performance.

Almost Never Almost Always

1 2 3 4 5 6

25. My learning community makes its lessons learned available to all employees.

Almost Never Almost Always

1 2 3 4 5 6

26. My learning community measures the results of the time and resources spent on training.

Almost Never Almost Always

1 2 3 4 5 6

27. My learning community recognizes people for taking initiative.

Almost Never Almost Always

1 2 3 4 5 6

28. My learning community gives people choices in their work assignments.

Almost Never Almost Always

1 2 3 4 5 6

29. My learning community invites people to contribute to the school's/district's vision.

Almost Never Almost Always

1 2 3 4 5 6

30. My learning community gives people control over the resources they need to accomplish their work.

Almost Never Almost Always

1 2 3 4 5 6

31. My learning community supports employees who take calculated risks.

Almost Never Almost Always

1 2 3 4 5 6

32. My learning community builds alignment of visions across different grade levels and curricular groups.

Almost Never Almost Always

1 2 3 4 5 6

33. My learning community helps employees balance work and family.

Almost Never Almost Always

1 2 3 4 5 6

34. My learning community encourages people to think from a global perspective.

Almost Never Almost Always

1 2 3 4 5 6

35. My learning community encourages everyone to bring the students' needs into the decision making process.

Almost Never Almost Always

1 2 3 4 5 6

36. My learning community considers the impact of decisions on employee morale.

Almost Never Almost Always

1 2 3 4 5 6

37. My learning community works together with the outside community to meet mutual needs.

Almost Never Almost Always

1 2 3 4 5 6

38. My learning community encourages people to get answers from across the organization when solving problems.

Almost Never Almost Always

1 2 3 4 5 6

39. In my learning community, leaders generally support requests for learning opportunities and training.

Almost Never Almost Always

1 2 3 4 5 6

40. In my learning community, leaders share up to date information with employees about successes/failures of other school districts.

Almost Never Almost Always

1 2 3 4 5 6

41. In my learning community, leaders empower others to help carry out the school's/school district's vision.

Almost Never Almost Always

1 2 3 4 5 6

42. In my learning community, leaders mentor and coach those they lead.

Almost Never Almost Always

1 2 3 4 5 6

43. In my learning community, leaders continually look for opportunities to learn.

Almost Never Almost Always

1 2 3 4 5 6

44. In my learning community, leaders ensure that the organization's actions are consistent with its values.

Almost Never Almost Always

1 2 3 4 5 6

Part III: Changes in School/School District Performance

In this section, you are asked to rate your school/school district on changes that occurred in the past year. You are asked to reflect on the relative performance of the school/school

district. You will be asked to rate the extent to which each statement is accurate about the school's/school district's current performance when compared to the previous year. There are no right or wrong answers. We are interested in your perception of current performance. For example, if the statement is very true of your school/school district, mark a [5] on the survey sheet provided.

Directions: Please indicate to what extent each of the statements is true of your school/school district. Please answer every question.

Mark only one response number for each statement.

---

45. Based upon my perception, school/school district financial resources have been used more effectively this year than last year.

Not at all To a great extent

1 2 3 4 5 6

46. Based upon my perception, average productivity in terms of student achievement is greater than last year.

Not at all To a great extent

1 2 3 4 5 6

47. Based upon my perception, financial resources are greater than last year.

Not at all To a great extent

1 2 3 4 5 6

48. Based upon my perception, response time for addressing student needs is better than last year.

Not at all To a great extent

1 2 3 4 5 6

49. Based upon my perception, the time it takes to begin programs to narrow the achievement gap is less than last year.

Not at all To a great extent

1 2 3 4 5 6

50. Based upon my perception, funds for improving classroom instruction are greater than last year.

Not at all To a great extent

1 2 3 4 5 6

51. Based upon my perception, student math scores have increased over last year.

Not at all To a great extent

1 2 3 4 5 6

52. Based upon my perception, student reading scores have increased over last year.

Not at all To a great extent

1 2 3 4 5 6

53. Based upon my perception, the number of suggestions implemented for school improvement is greater than last year.

Not at all To a great extent

1 2 3 4 5 6

54. Based upon my perception, school leadership is more supportive this year than last year.

Not at all To a great extent

1 2 3 4 5 6

55. Based upon my perception, the school/school district is recruiting and training more volunteers to assist in narrowing the achievement gap with certain students.

Not at all To a great extent

1 2 3 4 5 6

56. Based upon my perception, volunteer involvement has increased over last year.

Not at all To a great extent

1 2 3 4 5 6

57. Based upon my perception, the school/school district participates in outreach programs to address the social needs of students within their community

Not at all To a great extent

1 2 3 4 5 6

58. Based upon my perception, the school/school district works together with the surrounding community to increase student achievement.

Not at all To a great extent

1 2 3 4 5 6

Part IV: Additional Information

Please answer the following questions by using the blanks provided or by checking the circle next to the best answer.

59. What is your current job title:
_____

60. How many years have you worked in education?_____

61. How many years have you worked at your current location?
_____

62. Including yourself, how many staff members are employed at your school?_____

63. How many of those staff members have advanced degrees?
_____

64. Approximately, how many volunteers work at your school?
_____

65. How many students attend your school?
_____

66. What are the grade levels in your school?
_____

67. What are the five top distinguishing factors that describe your student population? (i.e. free and reduced lunch percentage, diversity, rural /city/suburban population, parental support as far as volunteering in the classroom or attendance at parent/teacher conferences, etc.)

1) _____
2) _____
3) _____
4) _____
5) _____

APPENDIX E:

DTLCQ CONTENT VALIDATION QUESTIONNAIRE

Instructions: The survey in which you have participated was designed to evaluate the learning that is taking place at the individual, team, and whole staff levels in public education. Now that you have completed the survey, please answer the following questions regarding the questionnaire itself. Please use the short-answer space provided to answer the questions. Thank you.

1. Were the survey instructions written in a comprehensible format? Why or why not?

2. Were the questions concise and straightforward? Why or why not?

3. Were any of the questions or instructions ambiguous? Which ones? Why or why not?

4. From your viewpoint, is the length of the survey satisfactory or unsatisfactory? Why or why not?

5. As stated previously, the survey was altered to fit the needs of education. Did you find the wording acceptable or would you alter it further? Which words/questions/instructions would you change? Why or why not?

6. The font and color choices of the survey were chosen specifically for this survey. The layout is based upon the original survey. How would you rate the overall format – satisfactory or unsatisfactory? Why or why not?

7. If you had received this survey based upon random selection within Minnesota, would you complete it? Why or why not?

APPENDIX F:

SURVEY COVER LETTER AND CONSENT FORM

TEACHER LEARNING COMMUNITIES RESEARCH

Dear colleague in education,

My name is Jackie Krohn; I am a Ph D student at Walden University and a third grade teacher in St. Louis Park, Minnesota. Your name has been randomly selected to participate in a research project to discover how teachers learn and the overall effectiveness of that learning. The benefits of this study will be to develop an understanding of teacher learning, practices that strengthen instruction, and the information flow within the school community. At the end of this letter, you will find a link to Survey Monkey, which will direct you to the 20-minute survey.

There is no risk to you or your school. You will be treated respectfully and I will not share any information that identifies you personally with anyone outside of my core research group including Walden faculty. There is no place for your name or school district anywhere on the survey so anonymity is guaranteed. There is no compensation for participation in this survey and research study. If you choose to participate, choose the corresponding answer on the first question of the survey.

As a classroom teacher myself, I know your time is valuable. However, it is my hope that you will take time to complete the survey while you are thinking about it. If it cannot be done right now, please save the email invitation and complete the survey within seven (7) days to be included in the research. Your participation is voluntary and there is no penalty for choosing not to participate. Whether you choose to participate or not, please let me know if you would like a copy of the research findings. My email address is krohn.jackie@slpschools.org or jacqueline.krohn@waldenu.edu.

If you have any questions or concerns about completing the questionnaire or about being in this study, you may contact me at 612-408-3722 or 952-928-6610. If you want to talk privately about your rights as a participant, you can call Dr. Leilani Endicott. She is the Walden University representative who can discuss this with you. Her phone number is 1-800-925-3368, extension 1210. [Walden University's approval number for this study 04-01-10-0299759 IRB and it expires on March 31, 2011]Thank you in advance for your assistance with this study.

Sincerely,

Jacqueline M. Krohn
PhD Student, Walden University

Educator, St. Louis Park, Minnesota

TWO SURVEY LINKS ARE PROVIDED:
Link to the survey:
[SurveyLink]
Link to opt out:
[RemoveLink]

APPENDIX G:

DTLCQ VARIABLE LIST

Survey Question	Description	Variable Name
Individual Level Questions		
4	People openly discuss mistakes	IND4
5	People identify skills	IND5
6	People help each other learn	IND6
7	People get resources to support learning	IND7
8	People have time to support learning	IND8
9	Problems offer opportunity to improve achievement	IND9
10	People rewarded for learning and improving	IND10
11	People give open and honest feedback	IND11
12	People listen to others' views before speaking	IND12
13	People encouraged to ask 'Why?' regardless	IND13
14	People state view and ask others' thoughts	IND14
15	People treat each other with respect	IND15
16	People spend time building trust	IND16
Team Level Questions		
17	Teams have freedom to improve achievement and instruction	TEM17
18	Teams treat each other as equals	TEM18
19	Team focuses on group's common goal	TEM19
20	Team revises thinking based on discussions and information	TEM20
21	Teams are rewarded for achievements	TEM21
22	Teams confident that district will act on recommendations	TEM22
Organization Level Questions		
23	Community uses two-way communication on regular basis	ORG23
24	Community enables people to get needed information easily	ORG24
25	Community maintains database of employee skills	ORG25
26	Community creates systems to measure gaps between current and expected performance.	ORG26
27	Community makes lessons learned available to all employees.	ORG27
28	Community measures results of time and resources spent on training	ORG28
29	Community recognizes people for taking initiative	ORG29
30	Community gives people choices in their work assignments	ORG30
31	Community invites people to contribute to school/district's vision	ORG31
32	Community gives people control over resources	ORG32

33	Community supports employees who take risks	ORG33
34	Community builds alignment of visions across grades and curricular groups	ORG34
35	Community helps employees balance work and family	ORG35
36	Community encourages global perspectives	ORG36
37	Community encourages students' needs as part of decision making	ORG37
38	Community considers impact of decisions on morale	ORG38
39	Community works with outside community	ORG39
40	Community encourages across organization problem solving	ORG40
41	Community leaders support learning opportunities	ORG41
42	Community leaders share success and failures	ORG42
43	Community leaders empower others	ORG43
44	Community leaders mentor and coach	ORG44
45	Community leaders look for opportunities to learn	ORG45
46	Community leaders ensure actions and values consistent	ORG46
School Performance		
47	Financial resources used more effectively	PERF47
48	Student achievement greater than last year	PERF48
49	Financial resources greater than last year	PERF49
50	Addressing student needs better than last year	PERF50
51	Response time for narrowing achievement gap less this year	PERF51
52	Funds for improving instruction greater than last year	PERF52
53	Math scores increased over last year	PERF53
54	Reading scores increased over last year	PERF54
55	Implementation of school improvement greater than last year	PERF55
56	Leadership more supportive this year	PERF56
57	More volunteers trained this year	PERF57
58	Volunteer involvement increased	PERF58
59	Participation in outreach increased	PERF59
60	School and community work to increase achievement	PERF60
Staff/School Characteristics		
59	Current job title-social worker, teacher, special education, reading specialist, Dean of Students, Media Specialist	CHAR59 successively
60	Years of education experience	CHAR60
61	Years at current location	CHAR61
62	Number of staff employed	CHAR62
63	Number of staff with advanced degrees	CHAR63
64	How many volunteers at school	CHAR64
65	Total number of students	CHAR65

66	Grade levels at your school – elementary K-6, Intermediate 7-8, Senior High 9-12	CHAR66 successively
67	Distinguishing factor 1 – free and reduced lunch	CHAR67
68	Distinguishing factor 2 – diversity of population	CHAR68
69	Distinguishing factor 3 – rural/city/suburban population	CHAR69
70	Distinguishing factor 4 – parental support	CHAR70
71	Distinguishing factor 5 – staff	CHAR71
72	Distinguishing factor 6 – student ability	CHAR72
73	Distinguishing factor 6 – other	CHAR73

APPENDIX H:

FREQUENCY TABLE FOR SURVEY RESPONSES

*Variable	1	2	3	4	5	6	No
IND4-discuss mistakes	32	77	103	135	102	48	497
IND5-identify skills	18	47	100	129	129	75	498
IND6-help each other	11	31	68	110	132	144	496
IND7-resources for learning	90	124	104	99	55	25	497
IND8-time to learn	66	128	108	105	56	34	497
IND9-opportunity to improve	34	70	137	144	60	49	494
IND10-rewards given	97	115	103	96	58	26	495
IND11-candid feedback	31	86	124	131	84	39	495
IND12-listen before speaking	13	58	128	139	97	57	492
IND13-can ask “why?”	58	98	124	93	77	38	488
IND14-share & ask opinions	27	89	150	129	73	27	495
IND15-respect	6	26	84	124	133	117	490
IND16-time to build trust	28	72	119	136	89	52	496
TEM17-freedom to improve	32	45	96	137	117	58	485
TEM18-treat as equals	11	39	82	108	120	125	485
TEM19-focus on common goal	12	42	95	138	131	66	484
TEM20-revises thinking	14	45	85	159	125	54	482
TEM21-rewarded	106	124	108	86	42	13	479
TEM22-confident of district’s actions	122	157	104	59	29	11	482
ORG23-two-way communication	130	110	98	75	45	19	477
ORG24-information given easily	40	90	145	112	61	26	474
ORG25-database of skills	171	123	84	48	33	14	473
ORG26-systems to measure performance	60	86	113	110	75	28	472
ORG27-lessons learned for all	93	124	118	74	47	15	471
ORG28-measures time and resources	115	130	105	66	40	14	470
ORG29-recognizes initiative	76	99	109	93	67	25	469
ORG30-choice of assignments	96	99	120	98	41	20	474
ORG31-contribute to vision	61	81	107	115	73	34	471
ORG32-control of resources	71	110	129	84	61	16	471
ORG33-supports risks-takers	79	115	133	89	45	10	471
ORG34-align visions	45	70	122	117	85	30	469
ORG35-helps balance family/work	106	117	102	72	61	15	473
ORG36- global perspective	54	90	115	104	74	33	470
ORG37-encourages students’ decisions	20	58	84	102	132	79	475
ORG38-considers decisions and morale	133	113	94	58	47	19	464
ORG39-works with outside community	62	95	134	98	64	16	469

ORG40- organizational problem solving	46	104	120	114	57	22	463
ORG41-support learning opportunities	35	72	98	115	88	61	469
ORG42-share success and failures	92	106	92	93	53	28	464
ORG43-empower others	64	94	99	101	74	36	468
ORG44-mentor and coach	74	93	90	107	69	33	466
ORG45-seek opportunities to learn	38	63	104	115	104	46	470
ORG46- ensure actions and values consistent	42	73	127	111	79	36	468
PERF47-finances used more effectively	74	89	128	84	62	27	464
PERF48-student achieve greater	30	66	127	149	67	21	460
PERF49-financial resources greater	277	80	57	25	15	5	459
PERF50-addressing student needs improved	74	96	130	103	43	12	458
PERF51-response time less	75	106	131	94	40	13	459
PERF52-funds greater to improve instruction	245	97	70	28	14	4	458
PERF53-math scores increased	37	64	153	119	65	14	452
PERF54-reading scores increased	26	60	143	139	65	19	452
PERF55-school improvement greater	57	68	131	124	57	20	457
PERF56-leadership more supportive	94	77	128	87	52	19	457
PERF57-more volunteers trained	159	122	81	54	26	15	457
PERF58-increased volunteers	66	109	117	103	42	21	458
PERF59-outreach increased	156	121	82	53	34	14	460
PERF60-school/community work increased	61	111	130	110	55	17	484

APPENDIX I:

CORRELATION SUMMARY TABLE

Correlation Coefficient: Teacher Learning in Relation to Teacher Characteristics and School Characteristics

Notes: JT = Job Title, Ex = Years of Experience, CL = Years at Current Location, TS = Total number of Staff, AD = Advanced Degrees, V = number of volunteers, SP = Student Population, FL = Free and Reduced Lunch, SD = Student Diversity, PI = Parent Involvement, SFA = Staff Ability, STA = Student Ability

Pearson	JT	Ex	CL	TS	AD	V	SP	FL	SD	PI	SFA	STA
IND4	.030	-.025	-.050	.011	.011	.045	.020	.008	-0.14	-0.73	-.075	-.029
Sig. <.05	.520	.601	.292	.813	.845	.445	.668	.878	.802	.219	.151	.603
N	456	447	449	432	304	289	444	363	308	282	370	328
IND5	.073	.009	.007	.023	.064	.081	.021	.054	-.059	-.048	-.054	.040
Sig. <.05	.117	.849	.888	.629	.262	.167	.666	.302	.301	.422	.300	.472
N	457	448	450	433	305	290	445	364	309	282	371	328
IND6	.069	-.023	-.032	-.088	-.084	.014	-.045	.035	-.124*	-.047	.002	.069
Sig. <.05	.143	.635	.504	.069	.145	.817	.340	.511	.030	.429	.974	.210
N	455	446	448	431	302	288	443	362	306	281	370	329
IND7	.086	.041	.012	.019	-.058	-.052	.037	.000	-.064	-.027	-.030	-.072
Sig. <.05	.066	.384	.797	.690	.314	.380	.438	.996	.262	.652	.564	.191
N	456	447	449	432	304	289	444	364	308	280	370	327
IND8	.071	.053	-.049	-.049	-.101	-.091	-.008	.083	-.091	-.078	.004	-.076
Sig. <.05	.132	.264	.300	.310	.080	.123	.864	.116	.108	.194	.940	.168
N	456	448	450	433	304	290	445	364	309	282	371	328
IND9	.064	.003	.000	-.034	-.030	.003	-.011	.097	.016	-.060	-.054	-.028
Sig. <.05	.172	.955	.994	.476	.600	.961	.810	.065	.785	.315	.149	.619
N	454	445	447	430	303	288	442	364	308	279	368	326
IND10	.091	.051	-.025	-.046	-.031	-.061	.006	.083	-.066	-.054	.023	.007
Sig. <.05	.053	.285	.595	.337	.590	.299	.893	.112	.251	.368	.665	.898
N	455	447	449	432	304	290	444	364	308	280	370	327
IND11	.050	-.051	-.043	-.044	-.049	.062	-.027	.073	-.063	-.051	-.086	-.051
Sig. <.05	.284	.282	.360	.364	.392	.291	.575	.166	.267	.397	.098	.360
N	455	446	448	431	302	289	443	364	308	280	369	327
IND12	.040	-.019	-.036	-.078	-.053	.077	.000	.120*	-.006	-.073	-.060	.016
Sig. <.05	.399	.693	.454	.107	.364	.192	.995	.023	.917	.226	.248	.769
N	452	443	445	428	300	286	440	361	307	278	367	324
IND13	.087	-.024	-.040	-.029	-.006	.119*	-.007	.050	-.071	-.016	-.040	.033

Sig. <.05	.065	.615	.403	.552	.912	.046	.882	.345	.216	.794	.446	.557
N	448	439	441	424	298	284	436	358	303	276	364	322
IND14	.126**	.013	-.031	.006	-.003	.101	-.001	.057	-.045	.041	-.042	.035
Sig. <.05	.007	.779	.516	.897	.953	.088	.989	.276	.436	.497	.424	.523
N	455	446	448	431	302	289	443	364	308	280	369	327
IND15	.066	-.026	-.057	-.023	.016	.101	-.011	.076	-.068	-.040	-.067	.029
Sig. <.05	.164	.589	.231	.635	.785	.086	.824	.149	.236	.507	.202	.607
N	449	442	444	428	300	287	439	361	305	278	365	323
IND16	.084	.026	-.046	-.048	-.047	.083	-.029	.023	-.110	-.055	-.042	.055
Sig. <.05	.075	.578	.334	.319	.416	.159	.538	.663	.054	.355	.422	.322
N	455	447	449	432	302	290	444	365	309	281	369	327
TEM17	.011	-.013	-.061	-.042	-.045	-.061	-.059	.035	-.065	-.051	-.034	-.012
Sig. <.05	.808	.779	.202	.390	.438	.304	.223	.508	.261	.401	.524	.834
N	456	436	438	422	297	285	433	358	305	270	362	317
TEM18	.045	.013	-.012	-.035	.003	.027	-.027	.049	-.070	.008	-.085	.078
Sig. <.05	.334	.789	.805	.472	.958	.656	.576	.357	.224	.893	.105	.169
N	455	436	438	422	297	285	433	359	305	270	362	316
TEM19	.066	.021	-.023	-.050	-.020	-.031	-.064	.065	-.096	-.056	-.049	.068
Sig. <.05	.160	.658	.635	.303	.730	.597	.182	.224	.095	.356	.354	.230
N	456	435	437	421	296	284	432	357	304	269	361	316
TEM20	.051	.025	-.036	-.078	-.012	.013	-.064	.073	-.103	-.072	-.061	.058
Sig. <.05	.278	.610	.459	.110	.837	.831	.186	.169	.073	.240	.248	.307
N	454	434	436	420	295	284	431	356	304	269	360	315
TEM21	.126**	.053	-.064	.016	-.001	-.037	.010	.046	-.066	-.118	.029	-.081
Sig. <.05	.007	.274	.181	.742	.993	.536	.837	.389	.253	.053	.582	.154
N	451	432	434	418	295	282	429	355	301	268	360	314
TEM22	.129**	.023	-.070	-.041	.011	-.023	.012	.065	.001	-.013	-.040	-.082
Sig. <.05	.006	.637	.142	.407	.854	.695	.804	.222	.988	.833	.452	.145
N	455	434	436	420	296	283	431	356	303	268	360	315
ORG23	.070	.032	-.015	-.009	.013	.001	-.032	.041	-.022	-.099	-.015	-.127*
Sig. <.05	.136	.511	.761	.862	.819	.992	.504	.447	.702	.105	.774	.024
N	457	430	431	417	293	282	426	352	300	267	355	313
ORG24	.113*	-.005	-.044	.005	-.004	-.066	-.035	.070	-.017	-.106	.010	-.107
Sig. <.05	.016	.926	.369	.919	.952	.270	.476	.195	.771	.084	.855	.060
N	454	427	428	414	291	280	423	349	299	266	353	311
ORG25	.069	.048	-.038	-.005	-.083	.063	-.090	-.005	-.010	-.057	.063	-.045

Sig. <.05	.142	.322	.429	.917	.159	.297	.065	.929	.858	.353	.241	.427
N	453	427	428	414	291	279	423	349	297	264	353	311
ORG26	.137**	.024	-.016	-.062	-.079	.034	-.049	.040	-.007	-.024	-.001	.009
Sig. <.05	.003	.622	.748	.209	.178	.574	.317	.454	.908	.698	.991	.881
N	452	426	427	413	289	279	422	349	297	264	352	309
ORG27	.122**	-.018	-.059	.005	-.034	-.024	-.030	.023	-.038	-.054	-.051	.017
Sig. <.05	.010	.707	.223	.922	.560	.688	.543	.672	.517	.380	.341	.765
N	450	426	427	413	289	278	422	348	296	265	350	310
ORG28	.118*	.007	-.050	-.017	-.074	-.018	-.090	-.004	-.057	-.130*	-.014	.010
Sig. <.05	.012	.883	.307	.728	.213	.768	.064	.940	.333	.035	.796	.865
N	452	425	426	413	289	278	421	347	295	264	351	311
ORG29	.102*	.050	-.030	.021	.000	-.049	-.009	.041	-.102	-.084	-.027	.000
Sig. <.05	.031	.301	.537	.677	.997	.418	.850	.449	.080	.175	.618	.997
N	451	425	426	413	289	278	421	347	296	264	351	310
ORG30	.093*	.049	.013	-.025	-.116*	-.034	-.041	-.004	-.090	-.035	.032	.002
Sig. <.05	.047	.308	.795	.605	.047	.569	.396	.941	.122	.570	.547	.976
N	454	428	429	416	291	280	424	350	299	266	352	312
ORG31	.112*	.057	-.015	.007	-.050	.026	-.048	.002	-.077	-.057	.025	.016
Sig. <.05	.017	.237	.756	.881	.394	.667	.324	.971	.185	.353	.639	.783
N	451	425	426	413	289	278	421	347	296	265	350	308
ORG32	.089	.041	-.017	-.044	-.074	-.060	-.052	.024	-.015	-.027	-.048	-.073
Sig. <.05	.060	.404	.720	.377	.206	.321	.290	.660	.798	.661	.369	.199
N	452	426	427	413	290	279	422	349	298	265	352	311
ORG33	.130**	.014	-.031	-.021	-.069	.033	-.020	-.036	-.093	.025	-.019	-.011
Sig. <.05	.006	.769	.518	.669	.241	.578	.689	.496	.107	.687	.725	.844
N	451	426	427	413	291	281	422	350	298	266	351	310
ORG34	.125**	.029	-.025	-.039	-.035	-.098	-.024	.050	-.022	-.037	-.055	.040
Sig. <.05	.008	.553	.613	.428	.552	.104	.617	.353	.701	.545	.303	.488
N	452	424	425	411	289	277	420	347	296	263	351	310
ORG35	.163**	.073	-.020	-.001	-.037	-.049	.036	-.063	-.040	-.024	.066	.027
Sig. <.05	.000	.130	.673	.980	.530	.411	.454	.242	.497	.692	.216	.640
N	454	427	428	414	291	281	423	350	298	266	351	311
ORG36	.135**	.036	.028	-.023	-.088	-.047	-.032	.007	-.068	-.058	-.013	.104
Sig. <.05	.004	.463	.560	.641	.135	.436	.514	.894	.241	.351	.807	.068
N	453	425	426	412	291	279	421	349	297	264	351	311
ORG37	.102*	-.010	-.055	-.012	.019	-.090	-.033	.043	-.065	-.058	-.104	.069

Sig. <.05	.030	.831	.252	.809	.741	.132	.503	.417	.261	.348	.050	.223
N	457	428	429	415	291	280	424	351	299	267	352	312
ORG38	.150**	.136**	.055	-.001	-.035	-.001	-.016	.073	-.006	-.057	-.088	-.070
Sig. <.05	.002	.005	.263	.989	.551	.988	.739	.177	.921	.357	.105	.221
N	445	418	419	405	286	273	414	341	291	260	344	305
ORG39	.151**	.008	-.021	.000	-.112	-.018	-.048	.039	-.071	-.093	.028	.006
Sig. <.05	.001	.874	.660	.994	.057	.762	.326	.473	.225	.133	.598	.911
N	451	423	424	411	290	276	419	347	294	264	348	309
ORG40	.173**	-.010	-.047	.025	.002	-.060	-.005	.013	-.025	-.022	-.024	.042
Sig. <.05	.000	.838	.336	.618	.971	.322	.922	.808	.676	.731	.650	.465
N	447	417	418	405	285	274	413	342	291	257	346	304
ORG41	.088	-.019	-.085	-.011	-.058	-.032	-.024	-.028	-.049	-.079	.005	-.025
Sig. <.05	.062	.690	.082	.822	.324	.594	.627	.609	.401	.200	.932	.664
N	451	422	423	410	287	278	418	345	293	264	349	308
ORG42	.063	-.016	-.049	-.068	-.056	-.094	-.076	.046	-.002	-.052	-.004	-.049
Sig. <.05	.185	.743	.316	.173	.343	.120	.121	.392	.973	.399	.948	.392
N	446	420	421	408	286	275	416	343	293	261	346	308
ORG43	.138**	.035	-.056	.015	.010	-.060	.017	.081	-.034	-.065	-.055	.013
Sig. <.05	.003	.472	.246	.763	.872	.322	.724	.134	.558	.296	.303	.819
N	450	422	423	410	287	277	418	346	294	264	347	308
ORG44	.141**	.050	-.080	-.062	-.097	-.038	-.076	.044	-.112	-.026	-.011	.070
Sig. <.05	.003	.308	.101	.211	.101	.527	.123	.418	.055	.670	.831	.222
N	448	422	423	411	290	278	418	346	293	264	349	307
ORG45	.156**	.025	-.078	-.059	-.001	.000	-.051	.068	-.094	-.007	.007	.047
Sig. <.05	.001	.609	.106	.231	.986	.996	.295	.203	.108	.904	.896	.406
N	453	425	426	412	289	278	421	348	295	266	351	310
ORG46	.156**	.021	-.051	-.006	.044	-.026	-.015	.088	-.054	.017	-.072	.018
Sig. <.05	.001	.673	.298	.898	.460	.668	.755	.102	.354	.785	.181	.749
N	452	423	424	410	288	278	419	345	293	264	350	308
PERF47	.025	.051	-.033	.049	-.012	-.020	-.067	-.010	.010	-.001	.060	-.003
Sig. <.05	.602	.295	.495	.325	.838	.743	.173	.856	.865	.986	.267	.963
N	452	418	419	405	283	276	414	340	288	261	344	306
PERF49	.043	.021	.045	.012	.071	.011	-.034	-.030	.016	-.067	.079	.015
Sig. <.05	.363	.662	.360	.807	.236	.851	.492	.577	.789	.283	.146	.795
N	451	415	416	403	282	273	411	337	286	258	343	306
PERF50	-.014	.064	.041	.094	.072	-.025	.012	.061	.018	-.032	.037	-.056

Sig. <.05	.765	.194	.410	.060	.225	.686	.802	.269	.768	.605	.497	.329
N	451	413	414	401	282	272	409	335	285	257	341	304
PERF51	.064	.056	.012	.125*	.057	-.059	.021	.018	-.062	-.113	.006	-.014
Sig. <.05	.173	.258	.802	.012	.344	.336	.679	.745	.297	.072	.913	.811
N	449	413	414	401	280	271	409	335	284	257	341	305
PERF52	.098*	.043	-.012	.114*	.142*	.047	.011	-.029	-.019	-.024	.083	-.042
Sig. <.05	.037	.388	.801	.023	.017	.442	.825	.599	.755	.698	.127	.465
N	450	414	415	402	281	272	410	336	285	257	342	305
PERF53	.085	.120*	.031	.053	-.019	-.030	-.064	.070	-.079	-.015	.014	-.019
Sig. <.05	.073	.015	.529	.293	.754	.622	.196	.203	.184	.812	.801	.744
N	449	413	414	401	280	272	409	335	285	257	342	305
PERF54	.006	-.009	-.010	.041	.056	-.002	-.077	-.003	-.019	-.170**	-.027	-.034
Sig. <.05	.908	.859	.839	.413	.353	.973	.124	.960	.756	.007	.624	.557
N	444	407	408	395	276	268	403	331	281	251	337	300
PERF55	-.031	.014	.008	-.023	-.019	.017	-.027	.023	-.061	-.098	.030	-.008
Sig. <.05	.513	.771	.870	.648	.747	.780	.587	.675	.307	.118	.583	.887
N	448	414	415	402	282	272	410	336	285	257	343	306
PERF56	.090	.123*	.029	-.002	-.031	.021	-.036	.063	-.007	-.056	.016	.024
Sig. <.05	.058	.012	.562	.961	.609	.728	.467	.251	.909	.372	.765	.673
N	447	412	413	400	281	271	408	336	284	256	340	303
PERF57	.078	.054	.062	.065	-.055	-.055	-.071	-.028	-.046	-.052	.022	.038
Sig. <.05	.100	.274	.212	.192	.361	.368	.154	.606	.436	.404	.690	.509
N	447	413	414	401	279	272	409	335	286	257	341	303
PERF58	.114*	.058	-.013	-.010	-.069	.009	-.081	-.059	-.073	-.057	.115*	.018
Sig. <.05	.016	.240	.786	.838	.252	.886	.103	.281	.218	.362	.033	.751
N	449	413	414	401	280	271	409	336	285	257	341	305
PERF59	.057	.053	.040	.048	-.067	-.037	-.080	-.032	-.058	-.063	.031	-.010
Sig. <.05	.223	.281	.417	.332	.260	.537	.106	.554	.326	.312	.567	.859
N	451	415	416	403	282	273	411	337	286	258	343	306
PERF60	.119*	.026	-.034	.053	-.058	.025	-.073	-.019	-.099	-.016	.030	.062
Sig. <.05	.011	.590	.474	.272	.321	.670	.128	.722	.084	.790	.574	.270
N	456	438	439	424	297	287	434	355	302	275	361	322

APPENDIX J:

ANOVA AND POST HOC TABLES:

The Tukey post hoc test was completed for school level and for school level * school location because of unequal sample sizes, to determine where the inequality of means had occurred. For school level * school location, numbers were assigned to each of the categories – 4 = elementary + urban, 5 = elementary + suburban, 6 = elementary + urban, 7 = intermediate + urban, 8 = intermediate + suburban, 9 = intermediate + rural, 10 = senior high + urban, 11 = senior high + suburban, and 12 = senior high + rural. The Scheffe post hoc test was completed for school location because of the equality of the sample size.

IND4

Tests of Between-Subjects Effects

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	35.399[a]	8	4.425	2.389	.016
Intercept	5416.699	1	5416.699	2924.391	.000
Schoollevel	4.603	2	2.301	1.242	.290
Schoollocal	8.519	2	4.259	2.300	.101
schoollevel * schoollocal	20.438	4	5.110	2.759	.027
Error	852.034	460	1.852		
Total	7210.000	469			
Corrected Total	887.433	468			

a. R Squared = .040 (Adjusted R Squared = .023)

ANOVA School Level/Local IND4

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	34.781	8	4.348	2.346	.018
Within Groups	852.652	460	1.854		
Total	887.433	468			

Tukey	School loclevel				95% Confidence Interval	
		Mean Difference	Std. Error	Sig.	Lower Bound	Upper Bound
4.00	5.00	-.45558	.23781	.603	-1.1967	.2856
	6.00	.01551	.20196	1.000	-.6139	.6450
	7.00	-.35354	.27367	.933	-1.2064	.4994
	8.00	.29163	.28021	.982	-.5817	1.1649
	9.00	.25937	.28021	.991	-.6139	1.1327
	10.00	.35101	.24668	.889	-.4178	1.1198
	11.00	-.43864	.24117	.670	-1.1903	.3130
	12.00	.17588	.23467	.998	-.5555	.9072
5.00	4.00	.45558	.23781	.603	-.2856	1.1967
	6.00	.47109	.24473	.597	-.2917	1.2338
	7.00	.10204	.30659	1.000	-.8535	1.0576

	8.00	.74720	.31244	.291	-.2266	1.7210
	9.00	.71494	.31244	.351	-.2588	1.6887
	10.00	.80659	.28276	.103	-.0747	1.6879
	11.00	.01693	.27797	1.000	-.8494	.8833
	12.00	.63145	.27235	.333	-.2174	1.4803
6.00	4.00	-.01551	.20196	1.000	-.6450	.6139
	5.00	-.47109	.24473	.597	-1.2338	.2917
	7.00	-.36905	.27971	.925	-1.2408	.5027
	8.00	.27611	.28611	.989	-.6156	1.1678
	9.00	.24386	.28611	.995	-.6478	1.1356
	10.00	.33550	.25336	.924	-.4541	1.1251
	11.00	-.45415	.24800	.661	-1.2271	.3188
	12.00	.16036	.24168	.999	-.5929	.9136
7.00	4.00	.35354	.27367	.933	-.4994	1.2064
	5.00	-.10204	.30659	1.000	-1.0576	.8535
	6.00	.36905	.27971	.925	-.5027	1.2408
	8.00	.64516	.34053	.618	-.4162	1.7065
	9.00	.61290	.34053	.682	-.4484	1.6742
	10.00	.70455	.31352	.377	-.2726	1.6817
	11.00	-.08511	.30920	1.000	-1.0488	.8786
	12.00	.52941	.30416	.721	-.4185	1.4774
8.00	4.00	-.29163	.28021	.982	-1.1649	.5817
	5.00	-.74720	.31244	.291	-1.7210	.2266
	6.00	-.27611	.28611	.989	-1.1678	.6156
	7.00	-.64516	.34053	.618	-1.7065	.4162
	9.00	-.03226	.34581	1.000	-1.1100	1.0455
	10.00	.05938	.31925	1.000	-.9356	1.0544
	11.00	-.73027	.31501	.333	-1.7120	.2515
9.00	12.00	-.11575	.31006	1.000	-1.0821	.8506
	4.00	-.25937	.28021	.991	-1.1327	.6139
	5.00	-.71494	.31244	.351	-1.6887	.2588
	6.00	-.24386	.28611	.995	-1.1356	.6478
	7.00	-.61290	.34053	.682	-1.6742	.4484
	8.00	.03226	.34581	1.000	-1.0455	1.1100
	10.00	.09164	.31925	1.000	-.9033	1.0866
	11.00	-.69801	.31501	.397	-1.6798	.2838
10.00	12.00	-.08349	.31006	1.000	-1.0498	.8829
	4.00	-.35101	.24668	.889	-1.1198	.4178
	5.00	-.80659	.28276	.103	-1.6879	.0747
	6.00	-.33550	.25336	.924	-1.1251	.4541
	7.00	-.70455	.31352	.377	-1.6817	.2726
	8.00	-.05938	.31925	1.000	-1.0544	.9356
	9.00	-.09164	.31925	1.000	-1.0866	.9033
	11.00	-.78965	.28560	.129	-1.6797	.1004
11.00	12.00	-.17513	.28013	.999	-1.0482	.6979
	4.00	.43864	.24117	.670	-.3130	1.1903
	5.00	-.01693	.27797	1.000	-.8833	.8494
	6.00	.45415	.24800	.661	-.3188	1.2271
	7.00	.08511	.30920	1.000	-.8786	1.0488
	8.00	.73027	.31501	.333	-.2515	1.7120
	9.00	.69801	.31501	.397	-.2838	1.6798
	10.00	.78965	.28560	.129	-.1004	1.6797
12.00	12.00	.61452	.27529	.386	-.2434	1.4725
	4.00	-.17588	.23467	.998	-.9072	.5555
	5.00	-.63145	.27235	.333	-1.4803	.2174
	6.00	-.16036	.24168	.999	-.9136	.5929

	7.00	-.52941	.30416	.721	-1.4774	.4185
	8.00	.11575	.31006	1.000	-.8506	1.0821
	9.00	.08349	.31006	1.000	-.8829	1.0498
	10.00	.17513	.28013	.999	-.6979	1.0482

IND5

Tests of Between-Subjects Effects

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	41.062[a]	8	5.133	3.042	.002
Intercept	6486.206	1	6486.206	3843.824	.000
schoollevel	14.521	2	7.260	4.303	.014
schoollocal	7.105	2	3.553	2.105	.123
schoollevel * schoollocal	20.675	4	5.169	3.063	.016
Error	777.908	461	1.687		
Total	8516.000	470			
Corrected Total	818.970	469			

a. R Squared = .050 (Adjusted R Squared = .034)

Tukey School level

		Mean Difference	Std. Error	Sig.	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound
1.00	2.00	.3861*	.15833	.040	.0139	.7584
	3.00	.2000	.13792	.316	-.1243	.5243
2.00	1.00	-.3861*	.15833	.040	-.7584	-.0139
	3.00	-.1861	.17170	.525	-.5898	.2176
3.00	1.00	-.2000	.13792	.316	-.5243	.1243
	2.00	.1861	.17170	.525	-.2176	.5898

ANOVA School Level/Local IND5

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	40.194	8	5.024	2.974	.003
Within Groups	778.777	461	1.689		
Total	818.970	469			

Tukey School loclevel

		Mean Difference	Std. Error	Sig.	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound
4.00	5.00	-.43970	.22702	.588	-1.1472	.2678
	6.00	.01948	.19281	1.000	-.5814	.6204
	7.00	-.18182	.26126	.999	-.9961	.6324
	8.00	.54252	.26750	.524	-.2912	1.3762
	9.00	.54252	.26750	.524	-.2912	1.3762
	10.00	.38636	.23549	.782	-.3476	1.1203
	11.00	-.28409	.22860	.947	-.9965	.4284
	12.00	.18895	.22403	.995	-.5093	.8871
5.00	4.00	.43970	.22702	.588	-.2678	1.1472
	6.00	.45918	.23364	.568	-.2690	1.1873

	7.00	.25788	.29269	.994	-.6543	1.1701
	8.00	.98223*	.29828	.029	.0526	1.9118
	9.00	.98223*	.29828	.029	.0526	1.9118
	10.00	.82607	.26994	.059	-.0152	1.6674
	11.00	.15561	.26395	1.000	-.6670	.9782
	12.00	.62865	.26000	.277	-.1817	1.4390
6.00	4.00	-.01948	.19281	1.000	-.6204	.5814
	5.00	-.45918	.23364	.568	-1.1873	.2690
	7.00	-.20130	.26703	.998	-1.0335	.6309
	8.00	.52304	.27314	.604	-.3282	1.3743
	9.00	.52304	.27314	.604	-.3282	1.3743
	10.00	.36688	.24188	.847	-.3870	1.1207
	11.00	-.30357	.23517	.934	-1.0365	.4294
	12.00	.16947	.23073	.998	-.5496	.8886
7.00	4.00	.18182	.26126	.999	-.6324	.9961
	5.00	-.25788	.29269	.994	-1.1701	.6543
	6.00	.20130	.26703	.998	-.6309	1.0335
	8.00	.72434	.32509	.389	-.2888	1.7375
	9.00	.72434	.32509	.389	-.2888	1.7375
	10.00	.56818	.29931	.615	-.3646	1.5010
	11.00	-.10227	.29391	1.000	-1.0183	.8137
	12.00	.37077	.29037	.938	-.5342	1.2757
8.00	4.00	-.54252	.26750	.524	-1.3762	.2912
	5.00	-.98223*	.29828	.029	-1.9118	-.0526
	6.00	-.52304	.27314	.604	-1.3743	.3282
	7.00	-.72434	.32509	.389	-1.7375	.2888
	9.00	.00000	.33013	1.000	-1.0289	1.0289
	10.00	-.15616	.30478	1.000	-1.1060	.7937
	11.00	-.82661	.29948	.130	-1.7600	.1067
9.00	12.00	-.35357	.29600	.957	-1.2761	.5689
	4.00	-.54252	.26750	.524	-1.3762	.2912
	5.00	-.98223*	.29828	.029	-1.9118	-.0526
	6.00	-.52304	.27314	.604	-1.3743	.3282
	7.00	-.72434	.32509	.389	-1.7375	.2888
	8.00	.00000	.33013	1.000	-1.0289	1.0289
	10.00	-.15616	.30478	1.000	-1.1060	.7937
	11.00	-.82661	.29948	.130	-1.7600	.1067
10.00	12.00	-.35357	.29600	.957	-1.2761	.5689
	4.00	-.38636	.23549	.782	-1.1203	.3476
	5.00	-.82607	.26994	.059	-1.6674	.0152
	6.00	-.36688	.24188	.847	-1.1207	.3870
	7.00	-.56818	.29931	.615	-1.5010	.3646
	8.00	.15616	.30478	1.000	-.7937	1.1060
	9.00	.15616	.30478	1.000	-.7937	1.1060
	11.00	-.67045	.27127	.249	-1.5159	.1750
11.00	12.00	-.19742	.26743	.998	-1.0309	.6360
	4.00	.28409	.22860	.947	-.4284	.9965
	5.00	-.15561	.26395	1.000	-.9782	.6670
	6.00	.30357	.23517	.934	-.4294	1.0365
	7.00	.10227	.29391	1.000	-.8137	1.0183
	8.00	.82661	.29948	.130	-.1067	1.7600
	9.00	.82661	.29948	.130	-.1067	1.7600
	10.00	.67045	.27127	.249	-.1750	1.5159
12.00	12.00	.47304	.26138	.676	-.3416	1.2876
	4.00	-.18895	.22403	.995	-.8871	.5093
	5.00	-.62865	.26000	.277	-1.4390	.1817

	6.00	-.16947	.23073	.998	-.8886	.5496
	7.00	-.37077	.29037	.938	-1.2757	.5342
	8.00	.35357	.29600	.957	-.5689	1.2761
	9.00	.35357	.29600	.957	-.5689	1.2761
	10.00	.19742	.26743	.998	-.6360	1.0309

IND6

Tests of Between-Subjects Effects

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	39.202[a]	8	4.900	2.961	.003
Intercept	8277.224	1	8277.224	5001.023	.000
schoollevel	2.305	2	1.152	.696	.499
schoollocal	13.706	2	6.853	4.140	.017
schoollevel * schoollocal	21.421	4	5.355	3.236	.012
Error	759.694	459	1.655		
Total	10339.000	468			
Corrected Total	798.895	467			

a. R Squared = .049 (Adjusted R Squared = .032)

Sheffe — School local

					95% Confidence Interval	
		Mean Difference	Std. Error	Sig.	Lower Bound	Upper Bound
1.00	2.00	-.3790*	.14999	.032	-.7317	-.0263
	3.00	.0623	.13956	.896	-.2659	.3904
2.00	1.00	.3790*	.14999	.032	.0263	.7317
	3.00	.4412*	.15113	.010	.0859	.7966
3.00	1.00	-.0623	.13956	.896	-.3904	.2659
	2.00	-.4412*	.15113	.010	-.7966	-.0859

ANOVA School Level/Local IND6

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	39.033	8	4.879	2.947	.003
Within Groups	759.862	459	1.655		
Total	798.895	467			

Tukey — School loclevel

				95% Confidence Interval	
	Mean Difference	Std. Error	Sig.	Lower Bound	Upper Bound
4.00	5.00	-.58163	.22512	.196	-1.2832	.1200
	6.00	-.14286	.19131	.998	-.7391	.4534
	7.00	-.67411	.26197	.201	-1.4906	.1424
	8.00	-.12673	.26513	1.000	-.9531	.6996
	9.00	.19585	.26513	.998	-.6305	1.0222
	10.00	.22078	.23349	.990	-.5069	.9485
	11.00	-.53869	.22668	.299	-1.2452	.1678
	12.00	.04342	.22215	1.000	-.6490	.7358
5.00	4.00	.58163	.22512	.196	-.1200	1.2832

	6.00	.43878	.23129	.616	-.2821	1.1596
	7.00	-.09247	.29244	1.000	-1.0039	.8189
	8.00	.45490	.29528	.836	-.4654	1.3752
	9.00	.77749	.29528	.176	-.1428	1.6978
	10.00	.80241	.26723	.069	-.0304	1.6353
	11.00	.04294	.26129	1.000	-.7714	.8573
	12.00	.62505	.25738	.271	-.1771	1.4272
6.00	4.00	.14286	.19131	.998	-.4534	.7391
	5.00	-.43878	.23129	.616	-1.1596	.2821
	7.00	-.53125	.26729	.553	-1.3643	.3018
	8.00	.01613	.27039	1.000	-.8266	.8588
	9.00	.33871	.27039	.944	-.5040	1.1814
	10.00	.36364	.23944	.846	-.3826	1.1099
	11.00	-.39583	.23280	.746	-1.1214	.3297
	12.00	.18627	.22840	.996	-.5256	.8981
7.00	4.00	.67411	.26197	.201	-.1424	1.4906
	5.00	.09247	.29244	1.000	-.8189	1.0039
	6.00	.53125	.26729	.553	-.3018	1.3643
	8.00	.54738	.32425	.754	-.4632	1.5579
	9.00	.86996	.32425	.157	-.1406	1.8805
	10.00	.89489	.29893	.071	-.0368	1.8265
	11.00	.13542	.29364	1.000	-.7797	1.0506
	12.00	.71752	.29016	.248	-.1868	1.6219
8.00	4.00	.12673	.26513	1.000	-.6996	.9531
	5.00	-.45490	.29528	.836	-1.3752	.4654
	6.00	-.01613	.27039	1.000	-.8588	.8266
	7.00	-.54738	.32425	.754	-1.5579	.4632
	9.00	.32258	.32681	.987	-.6960	1.3411
	10.00	.34751	.30171	.966	-.5928	1.2878
	11.00	-.41196	.29646	.901	-1.3359	.5120
9.00	12.00	.17015	.29302	1.000	-.7431	1.0834
	4.00	-.19585	.26513	.998	-1.0222	.6305
	5.00	-.77749	.29528	.176	-1.6978	.1428
	6.00	-.33871	.27039	.944	-1.1814	.5040
	7.00	-.86996	.32425	.157	-1.8805	.1406
	8.00	-.32258	.32681	.987	-1.3411	.6960
	10.00	.02493	.30171	1.000	-.9154	.9652
	11.00	-.73454	.29646	.246	-1.6585	.1894
10.00	12.00	-.15244	.29302	1.000	-1.0657	.7608
	4.00	-.22078	.23349	.990	-.9485	.5069
	5.00	-.80241	.26723	.069	-1.6353	.0304
	6.00	-.36364	.23944	.846	-1.1099	.3826
	7.00	-.89489	.29893	.071	-1.8265	.0368
	8.00	-.34751	.30171	.966	-1.2878	.5928
	9.00	-.02493	.30171	1.000	-.9652	.9154
	11.00	-.75947	.26854	.110	-1.5964	.0775
11.00	12.00	-.17736	.26474	.999	-1.0025	.6477
	4.00	.53869	.22668	.299	-.1678	1.2452
	5.00	-.04294	.26129	1.000	-.8573	.7714
	6.00	.39583	.23280	.746	-.3297	1.1214
	7.00	-.13542	.29364	1.000	-1.0506	.7797
	8.00	.41196	.29646	.901	-.5120	1.3359
	9.00	.73454	.29646	.246	-.1894	1.6585
	10.00	.75947	.26854	.110	-.0775	1.5964
12.00	12.00	.58211	.25875	.375	-.2243	1.3885
	4.00	-.04342	.22215	1.000	-.7358	.6490

5.00	-.62505	.25738	.271	-1.4272	.1771
6.00	-.18627	.22840	.996	-.8981	.5256
7.00	-.71752	.29016	.248	-1.6219	.1868
8.00	-.17015	.29302	1.000	-1.0834	.7431
9.00	.15244	.29302	1.000	-.7608	1.0657
10.00	.17736	.26474	.999	-.6477	1.0025

IND7

Tests of Between-Subjects Effects

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	42.426[a]	8	5.303	2.620	.008
Intercept	3572.581	1	3572.581	1764.728	.000
schoollevel	1.924	2	.962	.475	.622
schoollocal	18.317	2	9.158	4.524	.011
schoollevel * schoollocal	13.613	4	3.403	1.681	.153
Error	931.241	460	2.024		
Total	5046.000	469			
Corrected Total	973.667	468			

a. R Squared = .044 (Adjusted R Squared = .027)

Sheffe — School local — 95% Confidence Interval

		Mean Difference	Std. Error	Sig.	Lower Bound	Upper Bound
1.00	2.00	-.5940*	.16624	.002	-1.0022	-.1857
	3.00	-.1555	.15368	.600	-.5329	.2219
2.00	1.00	.5940*	.16624	.002	.1857	1.0022
	3.00	.4385*	.16768	.034	.0267	.8503
3.00	1.00	.1555	.15368	.600	-.2219	.5329
	2.00	-.4385*	.16768	.034	-.8503	-.0267

IND8

Tests of Between-Subjects Effects

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	48.752[a]	8	6.094	3.066	.002
Intercept	3922.296	1	3922.296	1973.298	.000
schoollevel	3.294	2	1.647	.829	.437
schoollocal	5.464	2	2.732	1.374	.254
schoollevel * schoollocal	34.830	4	8.708	4.381	.002
Error	914.335	460	1.988		
Total	5477.000	469			
Corrected Total	963.087	468			

a. R Squared = .051 (Adjusted R Squared = .034)

ANOVA School Level/Local IND8

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	47.484	8	5.936	2.982	.003

Within Groups	915.603	460	1.990	
Total	963.087	468		

Tukey	School loclevel					95% Confidence Interval	
			Mean Difference	Std. Error	Sig.	Lower Bound	Upper Bound
	4.00	5.00	-.26634	.24643	.977	-1.0344	.5017
		6.00	.10101	.20929	1.000	-.5513	.7533
		7.00	-.32323	.28359	.968	-1.2071	.5606
		8.00	.29456	.29037	.984	-.6104	1.1995
		9.00	-.25383	.29037	.994	-1.1588	.6511
		10.00	.57828	.25562	.367	-.2184	1.3750
		11.00	-.57984	.24991	.332	-1.3587	.1990
		12.00	.29709	.24317	.952	-.4608	1.0550
	5.00	4.00	.26634	.24643	.977	-.5017	1.0344
		6.00	.36735	.25361	.878	-.4231	1.1577
		7.00	-.05690	.31771	1.000	-1.0471	.9333
		8.00	.56090	.32377	.726	-.4482	1.5700
		9.00	.01251	.32377	1.000	-.9966	1.0216
		10.00	.84462	.29302	.096	-.0686	1.7578
		11.00	-.31350	.28805	.976	-1.2112	.5842
		12.00	.56343	.28222	.547	-.3162	1.4430
	6.00	4.00	-.10101	.20929	1.000	-.7533	.5513
		5.00	-.36735	.25361	.878	-1.1577	.4231
		7.00	-.42424	.28985	.872	-1.3276	.4791
		8.00	.19355	.29649	.999	-.7305	1.1176
		9.00	-.35484	.29649	.957	-1.2789	.5692
		10.00	.47727	.26255	.670	-.3410	1.2955
		11.00	-.68085	.25699	.169	-1.4818	.1201
		12.00	.19608	.25045	.997	-.5845	.9766
	7.00	4.00	.32323	.28359	.968	-.5606	1.2071
		5.00	.05690	.31771	1.000	-.9333	1.0471
		6.00	.42424	.28985	.872	-.4791	1.3276
		8.00	.61779	.35288	.715	-.4820	1.7176
		9.00	.06940	.35288	1.000	-1.0304	1.1692
		10.00	.90152	.32489	.126	-.1110	1.9141
		11.00	-.25661	.32042	.997	-1.2552	.7420
		12.00	.62032	.31519	.567	-.3620	1.6027
	8.00	4.00	-.29456	.29037	.984	-1.1995	.6104
		5.00	-.56090	.32377	.726	-1.5700	.4482
		6.00	-.19355	.29649	.999	-1.1176	.7305
		7.00	-.61779	.35288	.715	-1.7176	.4820
		9.00	-.54839	.35835	.841	-1.6652	.5685
		10.00	.28372	.33082	.995	-.7473	1.3148
		11.00	-.87440	.32643	.158	-1.8918	.1430
	9.00	12.00	.00253	.32130	1.000	-.9989	1.0039
		4.00	.25383	.29037	.994	-.6511	1.1588
		5.00	-.01251	.32377	1.000	-1.0216	.9966
		6.00	.35484	.29649	.957	-.5692	1.2789
		7.00	-.06940	.35288	1.000	-1.1692	1.0304
		8.00	.54839	.35835	.841	-.5685	1.6652
		10.00	.83211	.33082	.227	-.1989	1.8632
		11.00	-.32601	.32643	.986	-1.3434	.6914
	10.00	12.00	.55092	.32130	.737	-.4505	1.5523

		4.00	-.57828	.25562	.367	-1.3750	.2184
		5.00	-.84462	.29302	.096	-1.7578	.0686
		6.00	-.47727	.26255	.670	-1.2955	.3410
		7.00	-.90152	.32489	.126	-1.9141	.1110
		8.00	-.28372	.33082	.995	-1.3148	.7473
		9.00	-.83211	.33082	.227	-1.8632	.1989
		11.00	-1.15812*	.29595	.003	-2.0805	-.2358
	11.00	12.00	-.28119	.29029	.988	-1.1859	.6235
		4.00	.57984	.24991	.332	-.1990	1.3587
		5.00	.31350	.28805	.976	-.5842	1.2112
		6.00	.68085	.25699	.169	-.1201	1.4818
		7.00	.25661	.32042	.997	-.7420	1.2552
		8.00	.87440	.32643	.158	-.1430	1.8918
		9.00	.32601	.32643	.986	-.6914	1.3434
		10.00	1.15812*	.29595	.003	.2358	2.0805
	12.00	12.00	.87693	.28527	.057	-.0121	1.7660
		4.00	-.29709	.24317	.952	-1.0550	.4608
		5.00	-.56343	.28222	.547	-1.4430	.3162
		6.00	-.19608	.25045	.997	-.9766	.5845
		7.00	-.62032	.31519	.567	-1.6027	.3620
		8.00	-.00253	.32130	1.000	-1.0039	.9989
		9.00	-.55092	.32130	.737	-1.5523	.4505
		10.00	.28119	.29029	.988	-.6235	1.1859

IND9

Tests of Between-Subjects Effects

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	21.033[a]	8	2.629	1.484	.160
Intercept	4974.449	1	4974.449	2808.542	.000
schoollevel	1.884	2	.942	.532	.588
schoollocal	.577	2	.288	.163	.850
schoollevel * schoollocal	17.915	4	4.479	2.529	.040
Error	811.203	458	1.771		
Total	6662.000	467			
Corrected Total	832.236	466			

a. R Squared = .025 (Adjusted R Squared = .008)

ANOVA School Level/Local IND9

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	20.597	8	2.575	1.453	.172
Within Groups	811.639	458	1.772		
Total	832.236	466			

Tukey	School loclevel				95% Confidence Interval	
		Mean Difference	Std. Error	Sig.	Lower Bound	Upper Bound
4.00	5.00	-.18924	.23252	.996	-.9139	.5355
	6.00	.02165	.19748	1.000	-.5938	.6371
	7.00	-.30303	.26758	.969	-1.1370	.5309

	8.00	.41642	.27398	.846	-.4375	1.2703
	9.00	.04545	.27744	1.000	-.8192	.9101
	10.00	.36364	.24120	.852	-.3881	1.1154
	11.00	-.28433	.23581	.955	-1.0193	.4506
	12.00	.12545	.23096	1.000	-.5944	.8453
5.00	4.00	.18924	.23252	.996	-.5355	.9139
	6.00	.21088	.23930	.994	-.5349	.9567
	7.00	-.11379	.29978	1.000	-1.0481	.8205
	8.00	.60566	.30550	.556	-.3465	1.5578
	9.00	.23469	.30861	.998	-.7271	1.1965
	10.00	.55288	.27648	.544	-.3088	1.4146
	11.00	-.09509	.27179	1.000	-.9422	.7520
	12.00	.31469	.26760	.961	-.5193	1.1487
6.00	4.00	-.02165	.19748	1.000	-.6371	.5938
	5.00	-.21088	.23930	.994	-.9567	.5349
	7.00	-.32468	.27349	.959	-1.1771	.5277
	8.00	.39478	.27975	.893	-.4771	1.2667
	9.00	.02381	.28314	1.000	-.8587	.9063
	10.00	.34199	.24774	.905	-.4301	1.1141
	11.00	-.30598	.24249	.942	-1.0617	.4498
	12.00	.10381	.23778	1.000	-.6373	.8449
7.00	4.00	.30303	.26758	.969	-.5309	1.1370
	5.00	.11379	.29978	1.000	-.8205	1.0481
	6.00	.32468	.27349	.959	-.5277	1.1771
	8.00	.71945	.33297	.433	-.3183	1.7572
	9.00	.34848	.33582	.982	-.6982	1.3951
	10.00	.66667	.30656	.424	-.2888	1.6221
	11.00	.01870	.30233	1.000	-.9236	.9610
	12.00	.42848	.29857	.884	-.5021	1.3590
8.00	4.00	-.41642	.27398	.846	-1.2703	.4375
	5.00	-.60566	.30550	.556	-1.5578	.3465
	6.00	-.39478	.27975	.893	-1.2667	.4771
	7.00	-.71945	.33297	.433	-1.7572	.3183
	9.00	-.37097	.34094	.976	-1.4336	.6916
	10.00	-.05279	.31216	1.000	-1.0257	.9201
	11.00	-.70075	.30801	.359	-1.6607	.2592
9.00	12.00	-.29097	.30432	.989	-1.2394	.6575
	4.00	-.04545	.27744	1.000	-.9101	.8192
	5.00	-.23469	.30861	.998	-1.1965	.7271
	6.00	-.02381	.28314	1.000	-.9063	.8587
	7.00	-.34848	.33582	.982	-1.3951	.6982
	8.00	.37097	.34094	.976	-.6916	1.4336
	10.00	.31818	.31519	.985	-.6642	1.3005
	11.00	-.32979	.31109	.979	-1.2994	.6398
10.00	12.00	.08000	.30743	1.000	-.8782	1.0382
	4.00	-.36364	.24120	.852	-1.1154	.3881
	5.00	-.55288	.27648	.544	-1.4146	.3088
	6.00	-.34199	.24774	.905	-1.1141	.4301
	7.00	-.66667	.30656	.424	-1.6221	.2888
	8.00	.05279	.31216	1.000	-.9201	1.0257
	9.00	-.31818	.31519	.985	-1.3005	.6642
	11.00	-.64797	.27925	.332	-1.5183	.2224
11.00	12.00	-.23818	.27517	.995	-1.0958	.6194
	4.00	.28433	.23581	.955	-.4506	1.0193
	5.00	.09509	.27179	1.000	-.7520	.9422
	6.00	.30598	.24249	.942	-.4498	1.0617

		7.00	-.01870	.30233	1.000	-.9610	.9236
		8.00	.70075	.30801	.359	-.2592	1.6607
		9.00	.32979	.31109	.979	-.6398	1.2994
		10.00	.64797	.27925	.332	-.2224	1.5183
	12.00	12.00	.40979	.27046	.848	-.4331	1.2527
		4.00	-.12545	.23096	1.000	-.8453	.5944
		5.00	-.31469	.26760	.961	-1.1487	.5193
		6.00	-.10381	.23778	1.000	-.8449	.6373
		7.00	-.42848	.29857	.884	-1.3590	.5021
		8.00	.29097	.30432	.989	-.6575	1.2394
		9.00	-.08000	.30743	1.000	-1.0382	.8782
		10.00	.23818	.27517	.995	-.6194	1.0958

IND10

Tests of Between-Subjects Effects

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	38.015[a]	8	4.752	2.250	.023
Intercept	3632.103	1	3632.103	1720.043	.000
Schoollevel	.159	2	.080	.038	.963
Schoollocal	20.332	2	10.166	4.814	.009
schoollevel * schoollocal	9.877	4	2.469	1.169	.324
Error	967.129	458	2.112		
Total	5089.000	467			
Corrected Total	1005.143	466			

a. R Squared = .038 (Adjusted R Squared = .021)

Sheffe School local

					95% Confidence Interval	
		Mean Difference	Std. Error	Sig.	Lower Bound	Upper Bound
1.00	2.00	-.0943	.17734	.868	-.5298	.3412
	3.00	-.1398	.15488	.666	-.5201	.2406
2.00	1.00	.0943	.17734	.868	-.3412	.5298
	3.00	-.0455	.19234	.972	-.5178	.4269
3.00	1.00	.1398	.15488	.666	-.2406	.5201
	2.00	.0455	.19234	.972	-.4269	.5178

IND11

Tests of Between-Subjects Effects

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	25.564[a]	8	3.196	1.801	.075
Intercept	5105.116	1	5105.116	2876.881	.000
schoollevel	1.607	2	.803	.453	.636
schoollocal	9.979	2	4.990	2.812	.061
schoollevel * schoollocal	9.482	4	2.370	1.336	.256
Error	812.735	458	1.775		
Total	6661.000	467			
Corrected Total	838.300	466			

a. R Squared = .038 (Adjusted R Squared = .021)

IND12

Tests of Between-Subjects Effects

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	16.814[a]	8	2.102	1.332	.225
Intercept	5992.785	1	5992.785	3798.725	.000
schoollevel	.024	2	.012	.008	.993
schoollocal	2.123	2	1.062	.673	.511
schoollevel * schoollocal	13.271	4	3.318	2.103	.079
Error	717.798	455	1.578		
Total	7640.000	464			
Corrected Total	734.612	463			

a. R Squared = .023 (Adjusted R Squared = .006)

IND13

Tests of Between-Subjects Effects

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	31.444[a]	8	3.930	1.885	.060
Intercept	4371.194	1	4371.194	2096.686	.000
schoollevel	.061	2	.030	.015	.985
schoollocal	9.782	2	4.891	2.346	.097
schoollevel * schoollocal	18.033	4	4.508	2.162	.072
Error	940.250	451	2.085		
Total	5935.000	460			
Corrected Total	971.693	459			

a. R Squared = .032 (Adjusted R Squared = .015)

IND14

Tests of Between-Subjects Effects

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	30.931[a]	8	3.866	2.585	.009
Intercept	4802.867	1	4802.867	3211.419	.000
Schoollevel	1.254	2	.627	.419	.658
Schoollocal	3.855	2	1.927	1.289	.277
schoollevel * schoollocal	25.220	4	6.305	4.216	.002k
Error	684.966	458	1.496		
Total	6184.000	467			
Corrected Total	715.897	466			

a. R Squared = .043 (Adjusted R Squared = .026)

ANOVA School Level/Local IND14

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	31.161	8	3.895	2.605	.009
Within Groups	684.736	458	1.495		
Total	715.897	466			

Tukey	School loclevel				95% Confidence Interval	
		Mean Difference	Std. Error	Sig.	Lower Bound	Upper Bound
4.00	5.00	-.30612	.21393	.885	-.9729	.3606
	6.00	-.03590	.18240	1.000	-.6044	.5326
	7.00	-.82844*	.24895	.026	-1.6043	-.0525
	8.00	.16853	.25196	.999	-.6167	.9538
	9.00	-.05727	.25196	1.000	-.8426	.7280
	10.00	-.00742	.22189	1.000	-.6990	.6841
	11.00	-.54719	.21541	.216	-1.2186	.1242
	12.00	-.10724	.21112	1.000	-.7652	.5507
5.00	4.00	.30612	.21393	.885	-.3606	.9729
	6.00	.27022	.22028	.950	-.4163	.9568
	7.00	-.52232	.27791	.628	-1.3885	.3438
	8.00	.47465	.28060	.752	-.3999	1.3492
	9.00	.24885	.28060	.994	-.6257	1.1234
	10.00	.29870	.25395	.961	-.4928	1.0902
	11.00	-.24107	.24831	.988	-1.0150	.5328
	12.00	.19888	.24459	.996	-.5634	.9612
6.00	4.00	.03590	.18240	1.000	-.5326	.6044
	5.00	-.27022	.22028	.950	-.9568	.4163
	7.00	-.79255	.25443	.050	-1.5855	.0004
	8.00	.20443	.25737	.997	-.5977	1.0066
	9.00	-.02138	.25737	1.000	-.8235	.7808
	10.00	.02848	.22802	1.000	-.6822	.7391
	11.00	-.51130	.22172	.341	-1.2023	.1797
	12.00	-.07134	.21755	1.000	-.7494	.6067
7.00	4.00	.82844*	.24895	.026	.0525	1.6043
	5.00	.52232	.27791	.628	-.3438	1.3885
	6.00	.79255	.25443	.050	-.0004	1.5855
	8.00	.99698*	.30814	.035	.0366	1.9573
	9.00	.77117	.30814	.233	-.1892	1.7315
	10.00	.82102	.28408	.094	-.0644	1.7064
	11.00	.28125	.27905	.985	-.5885	1.1510
	12.00	.72120	.27575	.183	-.1382	1.5806
8.00	4.00	-.16853	.25196	.999	-.9538	.6167
	5.00	-.47465	.28060	.752	-1.3492	.3999
	6.00	-.20443	.25737	.997	-1.0066	.5977
	7.00	-.99698*	.30814	.035	-1.9573	-.0366
	9.00	-.22581	.31057	.998	-1.1938	.7422
	10.00	-.17595	.28672	1.000	-1.0696	.7177
	11.00	-.71573	.28174	.216	-1.5938	.1624
9.00	12.00	-.27577	.27846	.987	-1.1437	.5921
	4.00	.05727	.25196	1.000	-.7280	.8426
	5.00	-.24885	.28060	.994	-1.1234	.6257
	6.00	.02138	.25737	1.000	-.7808	.8235
	7.00	-.77117	.30814	.233	-1.7315	.1892
	8.00	.22581	.31057	.998	-.7422	1.1938
	10.00	.04985	.28672	1.000	-.8438	.9435
	11.00	-.48992	.28174	.722	-1.3680	.3882
10.00	12.00	-.04997	.27846	1.000	-.9179	.8179
	4.00	.00742	.22189	1.000	-.6841	.6990

		5.00	-.29870	.25395	.961	-1.0902	.4928
		6.00	-.02848	.22802	1.000	-.7391	.6822
		7.00	-.82102	.28408	.094	-1.7064	.0644
		8.00	.17595	.28672	1.000	-.7177	1.0696
		9.00	-.04985	.28672	1.000	-.9435	.8438
		11.00	-.53977	.25520	.464	-1.3351	.2556
	11.00	12.00	-.09982	.25158	1.000	-.8839	.6843
		4.00	.54719	.21541	.216	-.1242	1.2186
		5.00	.24107	.24831	.988	-.5328	1.0150
		6.00	.51130	.22172	.341	-.1797	1.2023
		7.00	-.28125	.27905	.985	-1.1510	.5885
		8.00	.71573	.28174	.216	-.1624	1.5938
		9.00	.48992	.28174	.722	-.3882	1.3680
		10.00	.53977	.25520	.464	-.2556	1.3351
	12.00	12.00	.43995	.24589	.689	-.3264	1.2063
		4.00	.10724	.21112	1.000	-.5507	.7652
		5.00	-.19888	.24459	.996	-.9612	.5634
		6.00	.07134	.21755	1.000	-.6067	.7494
		7.00	-.72120	.27575	.183	-1.5806	.1382
		8.00	.27577	.27846	.987	-.5921	1.1437
		9.00	.04997	.27846	1.000	-.8179	.9179
		10.00	.09982	.25158	1.000	-.6843	.8839

IND15

Tests of Between-Subjects Effects

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	12.040[a]	8	1.505	.988	.444
Intercept	7842.099	1	7842.099	5149.215	.000
schoollevel	1.103	2	.551	.362	.696
schoollocal	4.983	2	2.491	1.636	.196
schoollevel * schoollocal	4.168	4	1.042	.684	.603
Error	691.428	454	1.523		
Total	9789.000	463			
Corrected Total	703.469	462			

a. R Squared = .017 (Adjusted R Squared = .000)

IND16

Tests of Between-Subjects Effects

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	23.448[a]	8	2.931	1.606	.121
Intercept	5541.514	1	5541.514	3036.961	.000
schoollevel	6.246	2	3.123	1.712	.182
schoollocal	2.917	2	1.458	.799	.450
schoollevel * schoollocal	14.722	4	3.680	2.017	.091
Error	837.533	459	1.825		
Total	7175.000	468			
Corrected Total	860.981	467			

a. R Squared = .027 (Adjusted R Squared = .010)

TEM17

Tests of Between-Subjects Effects

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	47.095[a]	8	5.887	3.244	.001
Intercept	5927.050	1	5927.050	3265.963	.000
schoollevel	6.458	2	3.229	1.779	.170
schoollocal	14.914	2	7.457	4.109	.017
schoollevel * schoollocal	19.955	4	4.989	2.749	.028
Error	813.028	448	1.815		
Total	7700.000	457			
Corrected Total	860.123	456			

a. R Squared = .055 (Adjusted R Squared = .038)

Sheffe — School local

		Mean Difference	Std. Error	Sig.	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound
1.00	2.00	-.5510*	.15912	.003	-.9418	-.1602
	3.00	-.2591	.14788	.216	-.6223	.1040
2.00	1.00	.5510*	.15912	.003	.1602	.9418
	3.00	.2919	.15995	.190	-.1010	.6847
3.00	1.00	.2591	.14788	.216	-.1040	.6223
	2.00	-.2919	.15995	.190	-.6847	.1010

ANOVA School Level/Local TEM17

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	46.593	8	5.824	3.207	.001
Within Groups	813.530	448	1.816		
Total	860.123	456			

Tukey — School loclevel

		Mean Difference	Std. Error	Sig.	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound
4.00	5.00	-.65622	.23618	.125	-1.3924	.0800
	6.00	-.19952	.20215	.987	-.8296	.4306
	7.00	-.50928	.28152	.676	-1.3868	.3682
	8.00	-.24261	.28152	.995	-1.1201	.6349
	9.00	-.14799	.27803	1.000	-1.0146	.7186
	10.00	.59548	.24891	.291	-.1804	1.3713
	11.00	-.46145	.24124	.605	-1.2134	.2905
	12.00	-.18928	.23460	.997	-.9205	.5420
5.00	4.00	.65622	.23618	.125	-.0800	1.3924
	6.00	.45669	.24332	.630	-.3017	1.2151
	7.00	.14694	.31239	1.000	-.8268	1.1207
	8.00	.41361	.31239	.924	-.5601	1.3873
	9.00	.50823	.30925	.780	-.4557	1.4722
	10.00	1.25170*	.28336	.000	.3684	2.1350
	11.00	.19476	.27665	.999	-.6676	1.0571

	12.00	.46694	.27088	.732	-.3774	1.3113
6.00	4.00	.19952	.20215	.987	-.4306	.8296
	5.00	-.45669	.24332	.630	-1.2151	.3017
	7.00	-.30976	.28753	.977	-1.2060	.5865
	8.00	-.04309	.28753	1.000	-.9393	.8532
	9.00	.05153	.28412	1.000	-.8341	.9371
	10.00	.79501	.25570	.051	-.0020	1.5920
	11.00	-.26193	.24824	.980	-1.0357	.5118
	12.00	.01024	.24179	1.000	-.7434	.7639
7.00	4.00	.50928	.28152	.676	-.3682	1.3868
	5.00	-.14694	.31239	1.000	-1.1207	.8268
	6.00	.30976	.28753	.977	-.5865	1.2060
	8.00	.26667	.34794	.998	-.8179	1.3512
	9.00	.36129	.34512	.981	-.7145	1.4370
	10.00	1.10476*	.32213	.019	.1007	2.1088
	11.00	.04783	.31624	1.000	-.9379	1.0336
	12.00	.32000	.31121	.983	-.6500	1.2900
8.00	4.00	.24261	.28152	.995	-.6349	1.1201
	5.00	-.41361	.31239	.924	-1.3873	.5601
	6.00	.04309	.28753	1.000	-.8532	.9393
	7.00	-.26667	.34794	.998	-1.3512	.8179
	9.00	.09462	.34512	1.000	-.9811	1.1704
	10.00	.83810	.32213	.189	-.1660	1.8422
	11.00	-.21884	.31624	.999	-1.2046	.7669
9.00	12.00	.05333	.31121	1.000	-.9167	1.0234
	4.00	.14799	.27803	1.000	-.7186	1.0146
	5.00	-.50823	.30925	.780	-1.4722	.4557
	6.00	-.05153	.28412	1.000	-.9371	.8341
	7.00	-.36129	.34512	.981	-1.4370	.7145
	8.00	-.09462	.34512	1.000	-1.1704	.9811
	10.00	.74347	.31908	.326	-.2511	1.7381
	11.00	-.31346	.31314	.986	-1.2895	.6626
10.00	12.00	-.04129	.30805	1.000	-1.0015	.9189
	4.00	-.59548	.24891	.291	-1.3713	.1804
	5.00	-1.25170*	.28336	.000	-2.1350	-.3684
	6.00	-.79501	.25570	.051	-1.5920	.0020
	7.00	-1.10476*	.32213	.019	-2.1088	-.1007
	8.00	-.83810	.32213	.189	-1.8422	.1660
	9.00	-.74347	.31908	.326	-1.7381	.2511
	11.00	-1.05694*	.28760	.008	-1.9534	-.1605
11.00	12.00	-.78476	.28205	.124	-1.6639	.0944
	4.00	.46145	.24124	.605	-.2905	1.2134
	5.00	-.19476	.27665	.999	-1.0571	.6676
	6.00	.26193	.24824	.980	-.5118	1.0357
	7.00	-.04783	.31624	1.000	-1.0336	.9379
	8.00	.21884	.31624	.999	-.7669	1.2046
	9.00	.31346	.31314	.986	-.6626	1.2895
	10.00	1.05694*	.28760	.008	.1605	1.9534
12.00	12.00	.27217	.27531	.987	-.5860	1.1303
	4.00	.18928	.23460	.997	-.5420	.9205
	5.00	-.46694	.27088	.732	-1.3113	.3774
	6.00	-.01024	.24179	1.000	-.7639	.7434
	7.00	-.32000	.31121	.983	-1.2900	.6500
	8.00	-.05333	.31121	1.000	-1.0234	.9167
	9.00	.04129	.30805	1.000	-.9189	1.0015
	10.00	.78476	.28205	.124	-.0944	1.6639

TEM18

Tests of Between-Subjects Effects

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	21.072[a]	8	2.634	1.453	.172
Intercept	7574.096	1	7574.096	4179.105	.000
schoollevel	3.799	2	1.899	1.048	.351
schoollocal	3.961	2	1.981	1.093	.336
schoollevel * schoollocal	10.584	4	2.646	1.460	.213
Error	811.943	448	1.812		
Total	9577.000	457			
Corrected Total	833.015	456			

a. R Squared = .025 (Adjusted R Squared = .008)

TEM19

Tests of Between-Subjects Effects

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	34.561[a]	8	4.320	2.874	.004
Intercept	6634.135	1	6634.135	4412.897	.000
schoollevel	3.601	2	1.801	1.198	.303
schoollocal	3.256	2	1.628	1.083	.339
schoollevel * schoollocal	25.626	4	6.406	4.261	.002
Error	671.998	447	1.503		
Total	8367.000	456			
Corrected Total	706.559	455			

a. R Squared = .049 (Adjusted R Squared = .032)

ANOVA School Level/Local TEM19

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	34.653	8	4.332	2.882	.004
Within Groups	671.906	447	1.503		
Total	706.559	455			

Tukey	School loclevel				95% Confidence Interval	
		Mean Difference	Std. Error	Sig.	Lower Bound	Upper Bound
4.00	5.00	-.53103	.21488	.249	-1.2008	.1388
	6.00	-.11441	.18392	.999	-.6877	.4589
	7.00	-.77457	.25613	.065	-1.5729	.0238
	8.00	.05876	.25613	1.000	-.7396	.8571
	9.00	-.00898	.25295	1.000	-.7974	.7795
	10.00	.31591	.22646	.899	-.3900	1.0218
	11.00	-.36732	.21948	.762	-1.0515	.3168
	12.00	-.06165	.21488	1.000	-.7314	.6081
5.00	4.00	.53103	.21488	.249	-.1388	1.2008
	6.00	.41663	.22138	.627	-.2734	1.1067

	7.00	-.24354	.28422	.995	-1.1295	.6424
	8.00	.58980	.28422	.492	-.2961	1.4757
	9.00	.52205	.28136	.645	-.3550	1.3991
	10.00	.84694*	.25781	.030	.0433	1.6505
	11.00	.16371	.25170	.999	-.6209	.9483
	12.00	.46939	.24770	.618	-.3027	1.2415
6.00	4.00	.11441	.18392	.999	-.4589	.6877
	5.00	-.41663	.22138	.627	-1.1067	.2734
	7.00	-.66016	.26160	.223	-1.4756	.1553
	8.00	.17317	.26160	.999	-.6423	.9886
	9.00	.10543	.25849	1.000	-.7003	.9112
	10.00	.43031	.23264	.649	-.2948	1.1555
	11.00	-.25292	.22585	.971	-.9569	.4511
	12.00	.05276	.22138	1.000	-.6373	.7428
7.00	4.00	.77457	.25613	.065	-.0238	1.5729
	5.00	.24354	.28422	.995	-.6424	1.1295
	6.00	.66016	.26160	.223	-.1553	1.4756
	8.00	.83333	.31656	.176	-.1534	1.8201
	9.00	.76559	.31400	.266	-.2132	1.7443
	10.00	1.09048*	.29308	.007	.1769	2.0040
	11.00	.40725	.28772	.892	-.4896	1.3041
	12.00	.71293	.28422	.231	-.1730	1.5989
8.00	4.00	-.05876	.25613	1.000	-.8571	.7396
	5.00	-.58980	.28422	.492	-1.4757	.2961
	6.00	-.17317	.26160	.999	-.9886	.6423
	7.00	-.83333	.31656	.176	-1.8201	.1534
	9.00	-.06774	.31400	1.000	-1.0465	.9110
	10.00	.25714	.29308	.994	-.6564	1.1707
	11.00	-.42609	.28772	.864	-1.3229	.4707
9.00	12.00	-.12041	.28422	1.000	-1.0063	.7655
	4.00	.00898	.25295	1.000	-.7795	.7974
	5.00	-.52205	.28136	.645	-1.3991	.3550
	6.00	-.10543	.25849	1.000	-.9112	.7003
	7.00	-.76559	.31400	.266	-1.7443	.2132
	8.00	.06774	.31400	1.000	-.9110	1.0465
	10.00	.32488	.29031	.971	-.5800	1.2298
	11.00	-.35835	.28490	.943	-1.2464	.5297
10.00	12.00	-.05267	.28136	1.000	-.9297	.8244
	4.00	-.31591	.22646	.899	-1.0218	.3900
	5.00	-.84694*	.25781	.030	-1.6505	-.0433
	6.00	-.43031	.23264	.649	-1.1555	.2948
	7.00	-1.09048*	.29308	.007	-2.0040	-.1769
	8.00	-.25714	.29308	.994	-1.1707	.6564
	9.00	-.32488	.29031	.971	-1.2298	.5800
	11.00	-.68323	.26166	.185	-1.4988	.1324
11.00	12.00	-.37755	.25781	.871	-1.1812	.4261
	4.00	.36732	.21948	.762	-.3168	1.0515
	5.00	-.16371	.25170	.999	-.9483	.6209
	6.00	.25292	.22585	.971	-.4511	.9569
	7.00	-.40725	.28772	.892	-1.3041	.4896
	8.00	.42609	.28772	.864	-.4707	1.3229
	9.00	.35835	.28490	.943	-.5297	1.2464
	10.00	.68323	.26166	.185	-.1324	1.4988
12.00	12.00	.30568	.25170	.953	-.4789	1.0902
	4.00	.06165	.21488	1.000	-.6081	.7314
	5.00	-.46939	.24770	.618	-1.2415	.3027

6.00	-.05276	.22138	1.000	-.7428	.6373
7.00	-.71293	.28422	.231	-1.5989	.1730
8.00	.12041	.28422	1.000	-.7655	1.0063
9.00	.05267	.28136	1.000	-.8244	.9297
10.00	.37755	.25781	.871	-.4261	1.1812

TEM20

Tests of Between-Subjects Effects

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	49.868[a]	8	6.233	4.400	.000
Intercept	6380.631	1	6380.631	4503.410	.000
schoollevel	6.487	2	3.244	2.289	.103
schoollocal	10.781	2	5.391	3.805	.023
schoollevel * schoollocal	27.461	4	6.865	4.845	.001
Error	630.496	445	1.417		
Total	8081.000	454			
Corrected Total	680.363	453			

a. R Squared = .073 (Adjusted R Squared = .057)

Scheffe — School local

		Mean Difference	Std. Error	Sig.	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound
1.00	2.00	-.4263*	.14092	.011	-.7724	-.0802
	3.00	.0212	.13107	.987	-.3007	.3431
2.00	1.00	.4263*	.14092	.011	.0802	.7724
	3.00	.4474*	.14203	.007	.0986	.7963
3.00	1.00	-.0212	.13107	.987	-.3431	.3007
	2.00	-.4474*	.14203	.007	-.7963	-.0986

ANOVA School Level/Local TEM20

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	49.474	8	6.184	4.362	.000
Within Groups	630.889	445	1.418		
Total	680.363	453			

Tukey — School loclevel

		Mean Difference	Std. Error	Sig.	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound
4.00	5.00	-.62255	.20868	.073	-1.2730	.0279
	6.00	.08846	.17922	1.000	-.4702	.6471
	7.00	-.44364	.24874	.693	-1.2190	.3317
	8.00	.15636	.24874	.999	-.6190	.9317
	9.00	.02195	.24566	1.000	-.7438	.7877
	10.00	.60874	.21993	.128	-.0768	1.2943
	11.00	-.43253	.21476	.534	-1.1020	.2369
	12.00	.07132	.20868	1.000	-.5792	.7218

5.00	4.00	.62255	.20868	.073	-.0279	1.2730
	6.00	.71101*	.21549	.029	.0393	1.3827
	7.00	.17891	.27603	.999	-.6815	1.0393
	8.00	.77891	.27603	.112	-.0815	1.6393
	9.00	.64450	.27325	.310	-.2073	1.4963
	10.00	1.23129*	.25038	.000	.4508	2.0118
	11.00	.19002	.24584	.998	-.5763	.9563
	12.00	.69388	.24055	.095	-.0560	1.4437
6.00	4.00	-.08846	.17922	1.000	-.6471	.4702
	5.00	-.71101*	.21549	.029	-1.3827	-.0393
	7.00	-.53210	.25448	.481	-1.3253	.2612
	8.00	.06790	.25448	1.000	-.7253	.8612
	9.00	-.06651	.25147	1.000	-.8504	.7174
	10.00	.52028	.22640	.345	-.1854	1.2260
	11.00	-.52099	.22138	.313	-1.2110	.1691
	12.00	-.01713	.21549	1.000	-.6888	.6546
7.00	4.00	.44364	.24874	.693	-.3317	1.2190
	5.00	-.17891	.27603	.999	-1.0393	.6815
	6.00	.53210	.25448	.481	-.2612	1.3253
	8.00	.60000	.30743	.578	-.3583	1.5583
	9.00	.46559	.30494	.843	-.4850	1.4161
	10.00	1.05238*	.28463	.007	.1652	1.9396
	11.00	.01111	.28065	1.000	-.8637	.8859
	12.00	.51497	.27603	.638	-.3454	1.3754
8.00	4.00	-.15636	.24874	.999	-.9317	.6190
	5.00	-.77891	.27603	.112	-1.6393	.0815
	6.00	-.06790	.25448	1.000	-.8612	.7253
	7.00	-.60000	.30743	.578	-1.5583	.3583
	9.00	-.13441	.30494	1.000	-1.0850	.8161
	10.00	.45238	.28463	.810	-.4348	1.3396
	11.00	-.58889	.28065	.476	-1.4637	.2859
9.00	12.00	-.08503	.27603	1.000	-.9454	.7754
	4.00	-.02195	.24566	1.000	-.7877	.7438
	5.00	-.64450	.27325	.310	-1.4963	.2073
	6.00	.06651	.25147	1.000	-.7174	.8504
	7.00	-.46559	.30494	.843	-1.4161	.4850
	8.00	.13441	.30494	1.000	-.8161	1.0850
	10.00	.58679	.28194	.488	-.2920	1.4656
	11.00	-.45448	.27792	.785	-1.3208	.4118
10.00	12.00	.04937	.27325	1.000	-.8024	.9011
	4.00	-.60874	.21993	.128	-1.2943	.0768
	5.00	-1.23129*	.25038	.000	-2.0118	-.4508
	6.00	-.52028	.22640	.345	-1.2260	.1854
	7.00	-1.05238*	.28463	.007	-1.9396	-.1652
	8.00	-.45238	.28463	.810	-1.3396	.4348
	9.00	-.58679	.28194	.488	-1.4656	.2920
	11.00	-1.04127*	.25546	.002	-1.8376	-.2450
11.00	12.00	-.53741	.25038	.443	-1.3179	.2430
	4.00	.43253	.21476	.534	-.2369	1.1020
	5.00	-.19002	.24584	.998	-.9563	.5763
	6.00	.52099	.22138	.313	-.1691	1.2110
	7.00	-.01111	.28065	1.000	-.8859	.8637
	8.00	.58889	.28065	.476	-.2859	1.4637
	9.00	.45448	.27792	.785	-.4118	1.3208
	10.00	1.04127*	.25546	.002	.2450	1.8376
12.00	12.00	.50385	.24584	.510	-.2625	1.2702

4.00	-.07132	.20868	1.000	-.7218	.5792
5.00	-.69388	.24055	.095	-1.4437	.0560
6.00	.01713	.21549	1.000	-.6546	.6888
7.00	-.51497	.27603	.638	-1.3754	.3454
8.00	.08503	.27603	1.000	-.7754	.9454
9.00	-.04937	.27325	1.000	-.9011	.8024
10.00	.53741	.25038	.443	-.2430	1.3179

TEM21

Tests of Between-Subjects Effects

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	24.076[a]	8	3.010	1.661	.106
Intercept	2951.354	1	2951.354	1628.747	.000
schoollevel	.141	2	.071	.039	.962
schoollocal	9.101	2	4.551	2.511	.082
schoollevel * schoollocal	12.232	4	3.058	1.688	.152
Error	800.921	442	1.812		
Total	4185.000	451			
Corrected Total	824.998	450			

a. R Squared = .029 (Adjusted R Squared = .012)

TEM22

Tests of Between-Subjects Effects

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	40.090[a]	8	5.011	3.285	.001
Intercept	2368.022	1	2368.022	1552.463	.000
schoollevel	2.774	2	1.387	.909	.404
schoollocal	7.193	2	3.596	2.358	.096
schoollevel * schoollocal	17.865	4	4.466	2.928	.021
Error	678.773	445	1.525		
Total	3472.000	454			
Corrected Total	718.863	453			

a. R Squared = .056 (Adjusted R Squared = .039)

ANOVA School Level/Local TEM22

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	40.914	8	5.114	3.357	.001
Within Groups	677.950	445	1.523		
Total	718.863	453			

Tukey	School loclevel				95% Confidence Interval	
		Mean Difference	Std. Error	Sig.	Lower Bound	Upper Bound
4.00	5.00	-.74329*	.21709	.019	-1.4200	-.0666
	6.00	-.80103*	.18605	.001	-1.3810	-.2211

	7.00	-.51404	.25849	.552	-1.3198	.2917
	8.00	-.21404	.25849	.996	-1.0198	.5917
	9.00	-.33447	.25531	.928	-1.1303	.4614
	10.00	-.13784	.22871	1.000	-.8508	.5751
	11.00	-.62128	.22171	.118	-1.3124	.0698
	12.00	-.35553	.21709	.783	-1.0322	.3212
5.00	4.00	.74329*	.21709	.019	.0666	1.4200
	6.00	-.05774	.22287	1.000	-.7525	.6370
	7.00	.22925	.28614	.997	-.6627	1.1212
	8.00	.52925	.28614	.649	-.3627	1.4212
	9.00	.40882	.28326	.880	-.4741	1.2918
	10.00	.60544	.25955	.325	-.2036	1.4145
	11.00	.12201	.25340	1.000	-.6679	.9119
	12.00	.38776	.24937	.828	-.3895	1.1651
6.00	4.00	.80103*	.18605	.001	.2211	1.3810
	5.00	.05774	.22287	1.000	-.6370	.7525
	7.00	.28699	.26337	.976	-.5340	1.1079
	8.00	.58699	.26337	.389	-.2340	1.4079
	9.00	.46656	.26024	.687	-.3446	1.2778
	10.00	.66318	.23421	.109	-.0669	1.3932
	11.00	.17975	.22737	.997	-.5290	.8885
	12.00	.44550	.22287	.545	-.2492	1.1402
7.00	4.00	.51404	.25849	.552	-.2917	1.3198
	5.00	-.22925	.28614	.997	-1.1212	.6627
	6.00	-.28699	.26337	.976	-1.1079	.5340
	8.00	.30000	.31869	.990	-.6934	1.2934
	9.00	.17957	.31611	1.000	-.8058	1.1649
	10.00	.37619	.29505	.938	-.5435	1.2959
	11.00	-.10725	.28966	1.000	-1.0101	.7957
	12.00	.15850	.28614	1.000	-.7334	1.0504
8.00	4.00	.21404	.25849	.996	-.5917	1.0198
	5.00	-.52925	.28614	.649	-1.4212	.3627
	6.00	-.58699	.26337	.389	-1.4079	.2340
	7.00	-.30000	.31869	.990	-1.2934	.6934
	9.00	-.12043	.31611	1.000	-1.1058	.8649
	10.00	.07619	.29505	1.000	-.8435	.9959
	11.00	-.40725	.28966	.895	-1.3101	.4957
9.00	12.00	-.14150	.28614	1.000	-1.0334	.7504
	4.00	.33447	.25531	.928	-.4614	1.1303
	5.00	-.40882	.28326	.880	-1.2918	.4741
	6.00	-.46656	.26024	.687	-1.2778	.3446
	7.00	-.17957	.31611	1.000	-1.1649	.8058
	8.00	.12043	.31611	1.000	-.8649	1.1058
	10.00	.19662	.29226	.999	-.7144	1.1076
	11.00	-.28682	.28682	.986	-1.1809	.6072
10.00	12.00	-.02107	.28326	1.000	-.9040	.8619
	4.00	.13784	.22871	1.000	-.5751	.8508
	5.00	-.60544	.25955	.325	-1.4145	.2036
	6.00	-.66318	.23421	.109	-1.3932	.0669
	7.00	-.37619	.29505	.938	-1.2959	.5435
	8.00	-.07619	.29505	1.000	-.9959	.8435
	9.00	-.19662	.29226	.999	-1.1076	.7144
	11.00	-.48344	.26342	.659	-1.3046	.3377
11.00	12.00	-.21769	.25955	.996	-1.0267	.5914
	4.00	.62128	.22171	.118	-.0698	1.3124
	5.00	-.12201	.25340	1.000	-.9119	.6679

		6.00	-.17975	.22737	.997	-.8885	.5290
		7.00	.10725	.28966	1.000	-.7957	1.0101
		8.00	.40725	.28966	.895	-.4957	1.3101
		9.00	.28682	.28682	.986	-.6072	1.1809
		10.00	.48344	.26342	.659	-.3377	1.3046
	12.00	12.00	.26575	.25340	.981	-.5241	1.0556
		4.00	.35553	.21709	.783	-.3212	1.0322
		5.00	-.38776	.24937	.828	-1.1651	.3895
		6.00	-.44550	.22287	.545	-1.1402	.2492
		7.00	-.15850	.28614	1.000	-1.0504	.7334
		8.00	.14150	.28614	1.000	-.7504	1.0334
		9.00	.02107	.28326	1.000	-.8619	.9040
		10.00	.21769	.25955	.996	-.5914	1.0267

ORG23

Tests of Between-Subjects Effects

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	26.472[a]	8	3.309	1.574	.130
Intercept	2829.585	1	2829.585	1345.800	.000
schoollevel	2.296	2	1.148	.546	.580
schoollocal	2.826	2	1.413	.672	.511
schoollevel * schoollocal	21.413	4	5.353	2.546	.039
Error	925.113	440	2.103		
Total	4207.000	449			
Corrected Total	951.586	448			

a. R Squared = .056 (Adjusted R Squared = .039)

ANOVA School Level/Local ORG23

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	26.334	8	3.292	1.565	.133
Within Groups	925.251	440	2.103		
Total	951.586	448			

Tukey	School loclevel				95% Confidence Interval	
		Mean Difference	Std. Error	Sig.	Lower Bound	Upper Bound
4.00	5.00	-.56667	.25680	.403	-1.3672	.2338
	6.00	.02169	.21788	1.000	-.6575	.7009
	7.00	-.68571	.31183	.408	-1.6578	.2863
	8.00	.13333	.30369	1.000	-.8134	1.0800
	9.00	.00000	.30369	1.000	-.9467	.9467
	10.00	.10000	.27332	1.000	-.7520	.9520
	11.00	-.11739	.26048	1.000	-.9294	.6946
	12.00	.00816	.25505	1.000	-.7869	.8032
5.00	4.00	.56667	.25680	.403	-.2338	1.3672
	6.00	.58835	.26295	.383	-.2314	1.4081
	7.00	-.11905	.34483	1.000	-1.1940	.9559
	8.00	.70000	.33750	.492	-.3521	1.7521
	9.00	.56667	.33750	.759	-.4854	1.6187
	10.00	.66667	.31045	.442	-.3011	1.6344

	11.00	.44928	.29920	.855	-.4834	1.3820
	12.00	.57483	.29449	.578	-.3432	1.4928
6.00	4.00	-.02169	.21788	1.000	-.7009	.6575
	5.00	-.58835	.26295	.383	-1.4081	.2314
	7.00	-.70740	.31692	.387	-1.6953	.2805
	8.00	.11165	.30892	1.000	-.8513	1.0746
	9.00	-.02169	.30892	1.000	-.9847	.9413
	10.00	.07831	.27912	1.000	-.7918	.9484
	11.00	-.13908	.26655	1.000	-.9700	.6918
	12.00	-.01352	.26125	1.000	-.8279	.8009
7.00	4.00	.68571	.31183	.408	-.2863	1.6578
	5.00	.11905	.34483	1.000	-.9559	1.1940
	6.00	.70740	.31692	.387	-.2805	1.6953
	8.00	.81905	.38105	.441	-.3688	2.0069
	9.00	.68571	.38105	.683	-.5021	1.8736
	10.00	.78571	.35731	.408	-.3281	1.8996
	11.00	.56832	.34759	.785	-.5152	1.6519
	12.00	.69388	.34354	.530	-.3770	1.7648
8.00	4.00	-.13333	.30369	1.000	-1.0800	.8134
	5.00	-.70000	.33750	.492	-1.7521	.3521
	6.00	-.11165	.30892	1.000	-1.0746	.8513
	7.00	-.81905	.38105	.441	-2.0069	.3688
	9.00	-.13333	.37442	1.000	-1.3005	1.0338
	10.00	-.03333	.35024	1.000	-1.1251	1.0585
	11.00	-.25072	.34031	.998	-1.3116	.8101
9.00	12.00	-.12517	.33617	1.000	-1.1731	.9228
	4.00	.00000	.30369	1.000	-.9467	.9467
	5.00	-.56667	.33750	.759	-1.6187	.4854
	6.00	.02169	.30892	1.000	-.9413	.9847
	7.00	-.68571	.38105	.683	-1.8736	.5021
	8.00	.13333	.37442	1.000	-1.0338	1.3005
	10.00	.10000	.35024	1.000	-.9918	1.1918
	11.00	-.11739	.34031	1.000	-1.1782	.9434
10.00	12.00	.00816	.33617	1.000	-1.0398	1.0561
	4.00	-.10000	.27332	1.000	-.9520	.7520
	5.00	-.66667	.31045	.442	-1.6344	.3011
	6.00	-.07831	.27912	1.000	-.9484	.7918
	7.00	-.78571	.35731	.408	-1.8996	.3281
	8.00	.03333	.35024	1.000	-1.0585	1.1251
	9.00	-.10000	.35024	1.000	-1.1918	.9918
	11.00	-.21739	.31350	.999	-1.1947	.7599
11.00	12.00	-.09184	.30901	1.000	-1.0551	.8714
	4.00	.11739	.26048	1.000	-.6946	.9294
	5.00	-.44928	.29920	.855	-1.3820	.4834
	6.00	.13908	.26655	1.000	-.6918	.9700
	7.00	-.56832	.34759	.785	-1.6519	.5152
	8.00	.25072	.34031	.998	-.8101	1.3116
	9.00	.11739	.34031	1.000	-.9434	1.1782
	10.00	.21739	.31350	.999	-.7599	1.1947
12.00	12.00	.12555	.29771	1.000	-.8025	1.0536
	4.00	-.00816	.25505	1.000	-.8032	.7869
	5.00	-.57483	.29449	.578	-1.4928	.3432
	6.00	.01352	.26125	1.000	-.8009	.8279
	7.00	-.69388	.34354	.530	-1.7648	.3770
	8.00	.12517	.33617	1.000	-.9228	1.1731
	9.00	-.00816	.33617	1.000	-1.0561	1.0398

	10.00	.09184	.30901	1.000	-.8714	1.0551

ORG24

Tests of Between-Subjects Effects

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	23.686[a]	8	2.961	1.779	.079
Intercept	4098.120	1	4098.120	2462.545	.000
Schoollevel	7.733	2	3.867	2.323	.099
Schoollocal	5.148	2	2.574	1.547	.214
schoollevel * schoollocal	10.246	4	2.562	1.539	.190
Error	727.247	437	1.664		
Total	5596.000	446			
Corrected Total	750.933	445			

a. R Squared = .032 (Adjusted R Squared = .014)

ORG25

Tests of Between-Subjects Effects

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	18.697[a]	8	2.337	1.236	.276
Intercept	2067.219	1	2067.219	1093.272	.000
Schoollevel	7.155	2	3.577	1.892	.152
Schoollocal	.848	2	.424	.224	.799
schoollevel * schoollocal	12.533	4	3.133	1.657	.159
Error	824.413	436	1.891		
Total	3269.000	445			
Corrected Total	843.110	444			

a. R Squared = .022 (Adjusted R Squared = .004)

ORG26

Tests of Between-Subjects Effects

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	27.944[a]	8	3.493	1.764	.082
Intercept	4046.245	1	4046.245	2043.758	.000
Schoollevel	13.503	2	6.752	3.410	.034
Schoollocal	6.649	2	3.325	1.679	.188
schoollevel * schoollocal	11.065	4	2.766	1.397	.234
Error	861.216	435	1.980		
Total	5723.000	444			
Corrected Total	889.160	443			

a. R Squared = .031 (Adjusted R Squared = .014)

Tukey	School level				95% Confidence Interval	
		Mean Difference	Std. Error	Sig.	Lower Bound	Upper Bound
1.00	2.00	-.1434	.16896	.673	-.5408	.2539
	3.00	.0981	.15708	.807	-.2713	.4675
2.00	1.00	.1434	.16896	.673	-.2539	.5408

		3.00	.2415	.16828	.324	-.1543	.6372
	3.00	1.00	-.0981	.15708	.807	-.4675	.2713
		2.00	-.2415	.16828	.324	-.6372	.1543

ORG27

Tests of Between-Subjects Effects

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	31.312[a]	8	3.914	2.150	.030
Intercept	3025.655	1	3025.655	1661.907	.000
Schoollevel	.582	2	.291	.160	.852
Schoollocal	8.615	2	4.307	2.366	.095
schoollevel * schoollocal	21.668	4	5.417	2.975	.019
Error	790.137	434	1.821		
Total	4326.000	443			
Corrected Total	821.449	442			

a. R Squared = .038 (Adjusted R Squared = .020)

ANOVA School Level/Local ORG27

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	31.290	8	3.911	2.148	.030
Within Groups	790.160	434	1.821		
Total	821.449	442			

Tukey	School loclevel					95% Confidence Interval	
			Mean Difference	Std. Error	Sig.	Lower Bound	Upper Bound
	4.00	5.00	-.49675	.24063	.499	-1.2469	.2534
		6.00	-.02131	.20406	1.000	-.6575	.6149
		7.00	-.73383	.29015	.221	-1.6384	.1707
		8.00	.07405	.28626	1.000	-.8184	.9665
		9.00	.19474	.28258	.999	-.6862	1.0757
		10.00	.14474	.25432	1.000	-.6481	.9376
		11.00	-.44163	.24605	.686	-1.2087	.3255
		12.00	-.01955	.23732	1.000	-.7594	.7203
	5.00	4.00	.49675	.24063	.499	-.2534	1.2469
		6.00	.47544	.24742	.599	-.2959	1.2468
		7.00	-.23708	.32212	.998	-1.2413	.7671
		8.00	.57080	.31862	.688	-.4225	1.5641
		9.00	.69149	.31532	.412	-.2915	1.6745
		10.00	.64149	.29026	.401	-.2634	1.5464
		11.00	.05513	.28305	1.000	-.8273	.9375
		12.00	.47720	.27549	.726	-.3816	1.3360
	6.00	4.00	.02131	.20406	1.000	-.6149	.6575
		5.00	-.47544	.24742	.599	-1.2468	.2959
		7.00	-.71252	.29580	.282	-1.6347	.2097
		8.00	.09536	.29199	1.000	-.8149	1.0056
		9.00	.21605	.28838	.998	-.6830	1.1151
		10.00	.16605	.26076	.999	-.6469	.9790
		11.00	-.42031	.25270	.769	-1.2081	.3675
		12.00	.00176	.24420	1.000	-.7595	.7631

	7.00	4.00	.73383	.29015	.221	-.1707	1.6384
		5.00	.23708	.32212	.998	-.7671	1.2413
		6.00	.71252	.29580	.282	-.2097	1.6347
		8.00	.80788	.35750	.369	-.3066	1.9224
		9.00	.92857	.35456	.182	-.1768	2.0339
		10.00	.87857	.33247	.172	-.1579	1.9151
		11.00	.29221	.32619	.993	-.7247	1.3091
		12.00	.71429	.31965	.385	-.2822	1.7108
	8.00	4.00	-.07405	.28626	1.000	-.9665	.8184
		5.00	-.57080	.31862	.688	-1.5641	.4225
		6.00	-.09536	.29199	1.000	-1.0056	.8149
		7.00	-.80788	.35750	.369	-1.9224	.3066
		9.00	.12069	.35138	1.000	-.9748	1.2161
		10.00	.07069	.32909	1.000	-.9552	1.0966
		11.00	-.51567	.32274	.806	-1.5218	.4905
		12.00	-.09360	.31613	1.000	-1.0791	.8919
	9.00	4.00	-.19474	.28258	.999	-1.0757	.6862
		5.00	-.69149	.31532	.412	-1.6745	.2915
		6.00	-.21605	.28838	.998	-1.1151	.6830
		7.00	-.92857	.35456	.182	-2.0339	.1768
		8.00	-.12069	.35138	1.000	-1.2161	.9748
		10.00	-.05000	.32589	1.000	-1.0660	.9660
		11.00	-.63636	.31948	.550	-1.6323	.3596
		12.00	-.21429	.31280	.999	-1.1894	.7609
	10.00	4.00	-.14474	.25432	1.000	-.9376	.6481
		5.00	-.64149	.29026	.401	-1.5464	.2634
		6.00	-.16605	.26076	.999	-.9790	.6469
		7.00	-.87857	.33247	.172	-1.9151	.1579
		8.00	-.07069	.32909	1.000	-1.0966	.9552
		9.00	.05000	.32589	1.000	-.9660	1.0660
		11.00	-.58636	.29478	.552	-1.5053	.3326
		12.00	-.16429	.28753	1.000	-1.0607	.7321
	11.00	4.00	.44163	.24605	.686	-.3255	1.2087
		5.00	-.05513	.28305	1.000	-.9375	.8273
		6.00	.42031	.25270	.769	-.3675	1.2081
		7.00	-.29221	.32619	.993	-1.3091	.7247
		8.00	.51567	.32274	.806	-.4905	1.5218
		9.00	.63636	.31948	.550	-.3596	1.6323
		10.00	.58636	.29478	.552	-.3326	1.5053
		12.00	.42208	.28024	.852	-.4516	1.2957
	12.00	4.00	.01955	.23732	1.000	-.7203	.7594
		5.00	-.47720	.27549	.726	-1.3360	.3816
		6.00	-.00176	.24420	1.000	-.7631	.7595
		7.00	-.71429	.31965	.385	-1.7108	.2822
		8.00	.09360	.31613	1.000	-.8919	1.0791
		9.00	.21429	.31280	.999	-.7609	1.1894
		10.00	.16429	.28753	1.000	-.7321	1.0607

ORG28

Tests of Between-Subjects Effects

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	40.024[a]	8	5.003	2.725	.006
Intercept	2697.270	1	2697.270	1469.233	.000
schoollevel	3.032	2	1.516	.826	.439

schoollocal	22.288	2	11.144	6.070	.003
schoollevel * schoollocal	10.761	4	2.690	1.465	.212
Error	794.917	433	1.836		
Total	3932.000	442			
Corrected Total	40.024[a]	8	5.003	2.725	.006

a. R Squared = .048 (Adjusted R Squared = .030)

Scheffe	School local				95% Confidence Interval	
		Mean Difference	Std. Error	Sig.	Lower Bound	Upper Bound
1.00	2.00	-.4515*	.16286	.022	-.8515	-.0515
	3.00	.1625	.15149	.563	-.2096	.5346
2.00	1.00	.4515*	.16286	.022	.0515	.8515
	3.00	.6140*	.16286	.001	.2140	1.0140
3.00	1.00	-.1625	.15149	.563	-.5346	.2096
	2.00	-.6140*	.16286	.001	-1.0140	-.2140

ORG29

Tests of Between-Subjects Effects

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	58.332[a]	8	7.292	3.651	.000
Intercept	3737.206	1	3737.206	1871.051	.000
schoollevel	6.259	2	3.130	1.567	.210
schoollocal	29.434	2	14.717	7.368	.001
schoollevel * schoollocal	14.703	4	3.676	1.840	.120
Error	862.870	432	1.997		
Total	5171.000	441			
Corrected Total	921.202	440			

a. R Squared = .063 (Adjusted R Squared = .046)

Scheffe	School local				95% Confidence Interval	
		Mean Difference	Std. Error	Sig.	Lower Bound	Upper Bound
1.00	2.00	-.5844*	.17010	.003	-1.0023	-.1666
	3.00	.1061	.15826	.799	-.2826	.4949
2.00	1.00	.5844*	.17010	.003	.1666	1.0023
	3.00	.6906*	.16987	.000	.2733	1.1078
3.00	1.00	-.1061	.15826	.799	-.4949	.2826
	2.00	-.6906*	.16987	.000	-1.1078	-.2733

ORG30

Tests of Between-Subjects Effects

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	38.731[a]	8	4.841	2.540	.010
Intercept	3302.589	1	3302.589	1732.719	.000
schoollevel	1.958	2	.979	.514	.599
schoollocal	27.957	2	13.978	7.334	.001
schoollevel *	3.635	4	.909	.477	.753

schoollocal				
Error	832.929	437	1.906	
Total	4626.000	446		
Corrected Total	871.659	445		

a. R Squared = .044 (Adjusted R Squared = .027)

Scheffe	School local				95% Confidence Interval	
		Mean Difference	Std. Error	Sig.	Lower Bound	Upper Bound
1.00	2.00	-.4431*	.16495	.028	-.8483	-.0379
	3.00	.2360	.15387	.309	-.1419	.6140
2.00	1.00	.4431*	.16495	.028	.0379	.8483
	3.00	.6791*	.16495	.000	.2740	1.0843
3.00	1.00	-.2360	.15387	.309	-.6140	.1419
	2.00	-.6791*	.16495	.000	-1.0843	-.2740

ORG31

Tests of Between-Subjects Effects					
Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	24.691[a]	8	3.086	1.492	.158
Intercept	4271.156	1	4271.156	2065.313	.000
schoollevel	.562	2	.281	.136	.873
schoollocal	9.112	2	4.556	2.203	.112
schoollevel * schoollocal	10.421	4	2.605	1.260	.285
Error	897.531	434	2.068		
Total	5840.000	443			
Corrected Total	922.221	442			

a. R Squared = .027 (Adjusted R Squared = .009)

ORG32

Tests of Between-Subjects Effects					
Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	47.383[a]	8	5.923	3.412	.001
Intercept	3415.719	1	3415.719	1967.789	.000
schoollevel	1.368	2	.684	.394	.675
schoollocal	23.983	2	11.991	6.908	.001
schoollevel * schoollocal	14.028	4	3.507	2.020	.091
Error	753.344	434	1.736		
Total	4722.000	443			
Corrected Total	800.727	442			

a. R Squared = .059 (Adjusted R Squared = .042)

Scheffe	School local				95% Confidence Interval	
		Mean Difference	Std. Error	Sig.	Lower Bound	Upper Bound
1.00	2.00	-.6844*	.15873	.000	-1.0743	-.2945
	3.00	-.2755	.14685	.173	-.6361	.0852
2.00	1.00	.6844*	.15873	.000	.2945	1.0743

		3.00	.4089*	.15831	.036	.0201	.7978
	3.00	1.00	.2755	.14685	.173	-.0852	.6361
		2.00	-.4089*	.15831	.036	-.7978	-.0201

ORG33

Tests of Between-Subjects Effects

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	21.422[a]	8	2.678	1.661	.106
Intercept	3155.100	1	3155.100	1956.944	.000
schoollevel	.986	2	.493	.306	.737
schoollocal	10.314	2	5.157	3.199	.042
schoollevel * schoollocal	8.129	4	2.032	1.260	.285
Error	699.720	434	1.612		
Total	4362.000	443			
Corrected Total	721.142	442			

a. R Squared = .030 (Adjusted R Squared = .012)

Scheffe — School local

					95% Confidence Interval	
		Mean Difference	Std. Error	Sig.	Lower Bound	Upper Bound
1.00	2.00	-.3703	.15277	.054	-.7455	.0049
	3.00	.0124	.14152	.996	-.3352	.3600
2.00	1.00	.3703	.15277	.054	-.0049	.7455
	3.00	.3827*	.15277	.044	.0075	.7580
3.00	1.00	-.0124	.14152	.996	-.3600	.3352
	2.00	-.3827*	.15277	.044	-.7580	-.0075

ORG34

Tests of Between-Subjects Effects

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	32.402[a]	8	4.050	2.223	.025
Intercept	4431.087	1	4431.087	2432.090	.000
schoollevel	13.101	2	6.550	3.595	.028
schoollocal	5.439	2	2.719	1.493	.226
schoollevel * schoollocal	14.312	4	3.578	1.964	.099
Error	787.072	432	1.822		
Total	6093.000	441			
Corrected Total	819.474	440			

a. R Squared = .040 (Adjusted R Squared = .022)

Tukey — School level

					95% Confidence Interval	
		Mean Difference	Std. Error	Sig.	Lower Bound	Upper Bound
1.00	2.00	.2383	.17073	.344	-.1633	.6398
	3.00	.2991	.14836	.109	-.0498	.6480
2.00	1.00	-.2383	.17073	.344	-.6398	.1633
	3.00	.0609	.18640	.943	-.3775	.4992
3.00	1.00	-.2991	.14836	.109	-.6480	.0498

	2.00	-.0609	.18640	.943	-.4992	.3775

ORG35

Tests of Between-Subjects Effects

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	18.235[a]	8	2.279	1.099	.363
Intercept	2903.189	1	2903.189	1399.392	.000
schoollevel	1.879	2	.939	.453	.636
schoollocal	4.775	2	2.387	1.151	.317
schoollevel * schoollocal	14.034	4	3.508	1.691	.151
Error	904.529	436	2.075		
Total	4434.000	445			
Corrected Total	922.764	444			

a. R Squared = .020 (Adjusted R Squared = .002)

ORG36

Tests of Between-Subjects Effects

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	59.543[a]	8	7.443	3.871	.000
Intercept	4228.590	1	4228.590	2199.436	.000
schoollevel	.260	2	.130	.068	.935
schoollocal	39.278	2	19.639	10.215	.000
schoollevel * schoollocal	12.195	4	3.049	1.586	.177
Error	832.477	433	1.923		
Total	5761.000	442			
Corrected Total	892.020	441			

a. R Squared = .067 (Adjusted R Squared = .050)

Scheffe — School local

		Mean Difference	Std. Error	Sig.	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound
1.00	2.00	-.2795	.16705	.248	-.6898	.1308
	3.00	.5182*	.15478	.004	.1380	.8984
2.00	1.00	.2795	.16705	.248	-.1308	.6898
	3.00	.7977*	.16682	.000	.3879	1.2075
3.00	1.00	-.5182*	.15478	.004	-.8984	-.1380
	2.00	-.7977*	.16682	.000	-1.2075	-.3879

ORG37

Tests of Between-Subjects Effects

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	42.018[a]	8	5.252	2.715	.006
Intercept	6288.058	1	6288.058	3250.329	.000
schoollevel	7.660	2	3.830	1.980	.139
schoollocal	14.533	2	7.266	3.756	.024
schoollevel * schoollocal	16.852	4	4.213	2.178	.071

Error	847.351	438	1.935	
Total	8259.000	447		
Corrected Total	889.369	446		

a. R Squared = .047 (Adjusted R Squared = .030)

Scheffe	School local				95% Confidence Interval	
		Mean Difference	Std. Error	Sig.	Lower Bound	Upper Bound
1.00	2.00	-.2196	.16657	.420	-.6287	.1895
	3.00	.2896	.15455	.174	-.0899	.6692
2.00	1.00	.2196	.16657	.420	-.1895	.6287
	3.00	.5093*	.16612	.010	.1012	.9173
3.00	1.00	-.2896	.15455	.174	-.6692	.0899
	2.00	-.5093*	.16612	.010	-.9173	-.1012

ORG38

Tests of Between-Subjects Effects

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	17.637[a]	8	2.205	1.022	.419
Intercept	2597.634	1	2597.634	1203.846	.000
schoollevel	4.937	2	2.468	1.144	.320
schoollocal	2.457	2	1.229	.569	.566
schoollevel * schoollocal	8.742	4	2.185	1.013	.400
Error	921.372	427	2.158		
Total	4004.000	436			
Corrected Total	939.009	435			

a. R Squared = .019 (Adjusted R Squared = .000)

ORG39

Tests of Between-Subjects Effects

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	20.644[a]	8	2.581	1.467	.167
Intercept	3575.829	1	3575.829	2032.536	.000
schoollevel	3.176	2	1.588	.903	.406
schoollocal	12.944	2	6.472	3.679	.026
schoollevel * schoollocal	8.751	4	2.188	1.244	.292
Error	761.774	433	1.759		
Total	5035.000	442			
Corrected Total	782.419	441			

a. R Squared = .026 (Adjusted R Squared = .008)

Scheffe	School local				95% Confidence Interval	
		Mean Difference	Std. Error	Sig.	Lower Bound	Upper Bound
1.00	2.00	.1275	.15996	.728	-.2654	.5204
	3.00	.3416	.14783	.070	-.0215	.7047
2.00	1.00	-.1275	.15996	.728	-.5204	.2654
	3.00	.2141	.15996	.409	-.1788	.6070

3.00	1.00	-.3416	.14783	.070	-.7047	.0215
	2.00	-.2141	.15996	.409	-.6070	.1788

ORG40

Tests of Between-Subjects Effects

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	12.556[a]	8	1.569	.884	.529
Intercept	3805.313	1	3805.313	2144.348	.000
schoollevel	1.901	2	.950	.535	.586
schoollocal	1.691	2	.846	.477	.621
schoollevel * schoollocal	10.039	4	2.510	1.414	.228
Error	757.745	427	1.775		
Total	5285.000	436			
Corrected Total	770.300	435			

a. R Squared = .016 (Adjusted R Squared = .002)

ORG41

Tests of Between-Subjects Effects

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	24.700[a]	8	3.087	1.471	.166
Intercept	5166.068	1	5166.068	2460.669	.000
schoollevel	1.451	2	.726	.346	.708
schoollocal	7.092	2	3.546	1.689	.186
schoollevel * schoollocal	9.231	4	2.308	1.099	.356
Error	909.065	433	2.099		
Total	7004.000	442			
Corrected Total	933.765	441			

a. R Squared = .026 (Adjusted R Squared = .008)

ORG42

Tests of Between-Subjects Effects

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	43.551[a]	8	5.444	2.533	.011
Intercept	3267.302	1	3267.302	1520.004	.000
schoollevel	2.185	2	1.092	.508	.602
schoollocal	.140	2	.070	.033	.968
schoollevel * schoollocal	38.600	4	9.650	4.489	.001
Error	920.001	428	2.150		
Total	4813.000	437			
Corrected Total	963.551	436			

a. R Squared = .045 (Adjusted R Squared = .027)

ANOVA School Level/Local ORG42

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	31.161	43.551	8	5.444	2.533
Within Groups	684.736	920.001	428	2.150	
Total	715.897	963.551	436		

Tukey	School loclevel				95% Confidence Interval	
		Mean Difference	Std. Error	Sig.	Lower Bound	Upper Bound
4.00	5.00	-.62165	.26287	.306	-1.4412	.1979
	6.00	-.16739	.22413	.998	-.8662	.5314
	7.00	-.64596	.31644	.515	-1.6325	.3406
	8.00	.21118	.31644	.999	-.7754	1.1978
	9.00	.21594	.30825	.999	-.7451	1.1770
	10.00	.16722	.28014	1.000	-.7062	1.0406
	11.00	-.14921	.26873	1.000	-.9871	.6886
	12.00	-.66637	.25929	.203	-1.4748	.1420
5.00	4.00	.62165	.26287	.306	-.1979	1.4412
	6.00	.45426	.26945	.755	-.3858	1.2943
	7.00	-.02432	.35001	1.000	-1.1155	1.0669
	8.00	.83283	.35001	.298	-.2584	1.9241
	9.00	.83759	.34262	.263	-.2306	1.9058
	10.00	.78887	.31757	.243	-.2012	1.7790
	11.00	.47244	.30755	.838	-.4864	1.4313
	12.00	-.04472	.29934	1.000	-.9780	.8885
6.00	4.00	.16739	.22413	.998	-.5314	.8662
	5.00	-.45426	.26945	.755	-1.2943	.3858
	7.00	-.47857	.32193	.861	-1.4823	.5251
	8.00	.37857	.32193	.961	-.6251	1.3823
	9.00	.38333	.31388	.952	-.5953	1.3619
	10.00	.33462	.28633	.963	-.5581	1.2273
	11.00	.01818	.27518	1.000	-.8397	.8761
	12.00	-.49898	.26596	.631	-1.3282	.3302
7.00	4.00	.64596	.31644	.515	-.3406	1.6325
	5.00	.02432	.35001	1.000	-1.0669	1.1155
	6.00	.47857	.32193	.861	-.5251	1.4823
	8.00	.85714	.39184	.416	-.3645	2.0788
	9.00	.86190	.38525	.383	-.3392	2.0630
	10.00	.81319	.36316	.382	-.3191	1.9454
	11.00	.49675	.35443	.897	-.6083	1.6018
	12.00	-.02041	.34733	1.000	-1.1033	1.0625
8.00	4.00	-.21118	.31644	.999	-1.1978	.7754
	5.00	-.83283	.35001	.298	-1.9241	.2584
	6.00	-.37857	.32193	.961	-1.3823	.6251
	7.00	-.85714	.39184	.416	-2.0788	.3645
	9.00	.00476	.38525	1.000	-1.1964	1.2059
	10.00	-.04396	.36316	1.000	-1.1762	1.0883
	11.00	-.36039	.35443	.984	-1.4654	.7446
9.00	12.00	-.87755	.34733	.222	-1.9604	.2053
	4.00	-.21594	.30825	.999	-1.1770	.7451
	5.00	-.83759	.34262	.263	-1.9058	.2306
	6.00	-.38333	.31388	.952	-1.3619	.5953
	7.00	-.86190	.38525	.383	-2.0630	.3392
	8.00	-.00476	.38525	1.000	-1.2059	1.1964
	10.00	-.04872	.35604	1.000	-1.1588	1.0613
	11.00	-.36515	.34714	.980	-1.4474	.7171
10.00	12.00	-.88231	.33988	.191	-1.9420	.1773
	4.00	-.16722	.28014	1.000	-1.0406	.7062

		5.00	-.78887	.31757	.243	-1.7790	.2012
		6.00	-.33462	.28633	.963	-1.2273	.5581
		7.00	-.81319	.36316	.382	-1.9454	.3191
		8.00	.04396	.36316	1.000	-1.0883	1.1762
		9.00	.04872	.35604	1.000	-1.0613	1.1588
		11.00	-.31643	.32244	.987	-1.3217	.6889
	11.00	12.00	-.83359	.31462	.170	-1.8145	.1473
		4.00	.14921	.26873	1.000	-.6886	.9871
		5.00	-.47244	.30755	.838	-1.4313	.4864
		6.00	-.01818	.27518	1.000	-.8761	.8397
		7.00	-.49675	.35443	.897	-1.6018	.6083
		8.00	.36039	.35443	.984	-.7446	1.4654
		9.00	.36515	.34714	.980	-.7171	1.4474
		10.00	.31643	.32244	.987	-.6889	1.3217
	12.00	12.00	-.51716	.30450	.747	-1.4665	.4322
		4.00	.66637	.25929	.203	-.1420	1.4748
		5.00	.04472	.29934	1.000	-.8885	.9780
		6.00	.49898	.26596	.631	-.3302	1.3282
		7.00	.02041	.34733	1.000	-1.0625	1.1033
		8.00	.87755	.34733	.222	-.2053	1.9604
		9.00	.88231	.33988	.191	-.1773	1.9420
		10.00	.83359	.31462	.170	-.1473	1.8145

ORG43

Tests of Between-Subjects Effects

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	36.044[a]	8	4.505	2.080	.036
Intercept	3956.657	1	3956.657	1827.075	.000
schoollevel	6.717	2	3.359	1.551	.213
schoollocal	12.664	2	6.332	2.924	.055
schoollevel * schoollocal	15.733	4	3.933	1.816	.125
Error	935.526	432	2.166		
Total	5726.000	441			
Corrected Total	971.569	440			

a. R Squared = .037 (Adjusted R Squared = .019)

ORG44

Tests of Between-Subjects Effects

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	37.979[a]	8	4.747	2.166	.029
Intercept	3938.744	1	3938.744	1796.884	.000
schoollevel	1.546	2	.773	.353	.703
schoollocal	15.493	2	7.747	3.534	.030
schoollevel * schoollocal	15.468	4	3.867	1.764	.135
Error	944.746	431	2.192		
Total	5559.000	440			
Corrected Total	982.725	439			

a. R Squared = .039 (Adjusted R Squared = .021)

Scheffe	School local				95% Confidence Interval	
		Mean Difference	Std. Error	Sig.	Lower Bound	Upper Bound
1.00	2.00	-.4450*	.17903	.047	-.8847	-.0052
	3.00	.0949	.16553	.849	-.3117	.5015
2.00	1.00	.4450*	.17903	.047	.0052	.8847
	3.00	.5399*	.17855	.011	.1013	.9784
3.00	1.00	-.0949	.16553	.849	-.5015	.3117
	2.00	-.5399*	.17855	.011	-.9784	-.1013

ORG45

Tests of Between-Subjects Effects

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	30.390[a]	8	3.799	1.956	.051
Intercept	5147.642	1	5147.642	2650.161	.000
schoollevel	1.779	2	.890	.458	.633
schoollocal	5.918	2	2.959	1.523	.219
schoollevel * schoollocal	17.758	4	4.440	2.286	.059
Error	842.996	434	1.942		
Total	6893.000	443			
Corrected Total	873.386	442			

a. R Squared = .035 (Adjusted R Squared = .017)

ORG46

Tests of Between-Subjects Effects

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	26.413[a]	8	3.302	1.775	.080
Intercept	4496.695	1	4496.695	2417.868	.000
schoollevel	7.828	2	3.914	2.105	.123
schoollocal	9.104	2	4.552	2.448	.088
schoollevel * schoollocal	9.258	4	2.314	1.244	.291
Error	803.424	432	1.860		
Total	6138.000	441			
Corrected Total	829.837	440			

a. R Squared = .032 (Adjusted R Squared = .014)

PERF47

Tests of Between-Subjects Effects

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	61.839[a]	8	7.730	3.923	.000
Intercept	3638.112	1	3638.112	1846.320	.000
schoollevel	1.719	2	.860	.436	.647
schoollocal	33.865	2	16.933	8.593	.000
schoollevel * schoollocal	6.039	4	1.510	.766	.548
Error	845.330	429	1.970		
Total	5130.000	438			

Corrected Total	907.169	437

a. R Squared = .068 (Adjusted R Squared = .051)

Scheffe	School local				95% Confidence Interval	
		Mean Difference	Std. Error	Sig.	Lower Bound	Upper Bound
1.00	2.00	-.7647*	.16942	.000	-1.1808	-.3486
	3.00	-.7027*	.15794	.000	-1.0906	-.3147
2.00	1.00	.7647*	.16942	.000	.3486	1.1808
	3.00	.0620	.16895	.935	-.3530	.4770
3.00	1.00	.7027*	.15794	.000	.3147	1.0906
	2.00	-.0620	.16895	.935	-.4770	.3530

PERF48

Tests of Between-Subjects Effects					
Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	26.328[a]	8	3.291	2.210	.026
Intercept	4398.579	1	4398.579	2954.149	.000
schoollevel	11.042	2	5.521	3.708	.025
schoollocal	5.292	2	2.646	1.777	.170
schoollevel * schoollocal	6.897	4	1.724	1.158	.329
Error	634.292	426	1.489		
Total	5937.000	435			
Corrected Total	660.621	434			

a. R Squared = .068 (Adjusted R Squared = .051)

Tukey	School level				95% Confidence Interval	
		Mean Difference	Std. Error	Sig.	Lower Bound	Upper Bound
1.00	2.00	.1174	.15670	.734	-.2511	.4860
	3.00	.3273*	.13426	.040	.0115	.6431
2.00	1.00	-.1174	.15670	.734	-.4860	.2511
	3.00	.2099	.17006	.434	-.1901	.6099
3.00	1.00	-.3273*	.13426	.040	-.6431	-.0115
	2.00	-.2099	.17006	.434	-.6099	.1901

PERF49

Tests of Between-Subjects Effects					
Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	3.358a	8	.420	.306	.964
Intercept	1170.145	1	1170.145	854.137	.000
schoollevel	.919	2	.459	.335	.715
schoollocal	.416	2	.208	.152	.859
schoollevel * schoollocal	1.817	4	.454	.332	.857
Error	582.239	425	1.370		
Total	1927.000	434			
Corrected Total	585.597	433			

a. R Squared = .006 (Adjusted R Squared = -.013)

PERF50

Tests of Between-Subjects Effects

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	19.683[a]	8	2.460	1.455	.172
Intercept	3227.454	1	3227.454	1908.035	.000
schoollevel	3.797	2	1.899	1.122	.326
schoollocal	2.372	2	1.186	.701	.497
schoollevel * schoollocal	12.239	4	3.060	1.809	.126
Error	717.199	424	1.692		
Total	4503.000	433			
Corrected Total	736.882	432			

a. R Squared = .027 (Adjusted R Squared = .008)

PERF51

Tests of Between-Subjects Effects

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	13.565[a]	8	1.696	1.014	.424
Intercept	3191.712	1	3191.712	1909.536	.000
schoollevel	1.760	2	.880	.526	.591
schoollocal	.315	2	.157	.094	.910
schoollevel * schoollocal	10.717	4	2.679	1.603	.173
Error	710.370	425	1.671		
Total	4382.000	434			
Corrected Total	723.935	433			

a. R Squared = .019 (Adjusted R Squared = .000)

PERF52

Tests of Between-Subjects Effects

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	13.565[a]	8	1.696	1.014	.424
Intercept	3191.712	1	3191.712	1909.536	.000
schoollevel	1.760	2	.880	.526	.591
schoollocal	.315	2	.157	.094	.910
schoollevel * schoollocal	10.717	4	2.679	1.603	.173
Error	710.370	425	1.671		
Total	4382.000	434			
Corrected Total	723.935	433			

a. R Squared = .019 (Adjusted R Squared = .000)

PERF53

Tests of Between-Subjects Effects

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	11.565[a]	8	1.446	.979	.452
Intercept	4006.218	1	4006.218	2712.445	.000
schoollevel	.609	2	.305	.206	.814

schoollocal	3.870	2	1.935	1.310	.271
schoollevel * schoollocal	5.374	4	1.343	.910	.458
Error	618.853	419	1.477		
Total	5335.000	428			
Corrected Total	630.418	427			

a. R Squared = .018 (Adjusted R Squared = .000)

PERF54

Tests of Between-Subjects Effects

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	12.383[a]	8	1.548	1.104	.359
Intercept	4381.450	1	4381.450	3125.656	.000
schoollevel	.396	2	.198	.141	.868
schoollocal	3.494	2	1.747	1.246	.289
schoollevel * schoollocal	7.131	4	1.783	1.272	.280
Error	585.940	418	1.402		
Total	5735.000	427			
Corrected Total	598.323	426			

a. R Squared = .021 (Adjusted R Squared = .002)

PERF55

Tests of Between-Subjects Effects

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	16.078[a]	8	2.010	1.158	.323
Intercept	3896.353	1	3896.353	2245.940	.000
schoollevel	.479	2	.239	.138	.871
schoollocal	4.869	2	2.435	1.403	.247
schoollevel * schoollocal	9.097	4	2.274	1.311	.265
Error	733.839	423	1.735		
Total	5274.000	432			
Corrected Total	749.917	431			

a. R Squared = .021 (Adjusted R Squared = .003)

PERF56

Tests of Between-Subjects Effects

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	20.316[a]	8	2.539	1.260	.263
Intercept	3288.410	1	3288.410	1632.092	.000
schoollevel	.776	2	.388	.193	.825
schoollocal	2.690	2	1.345	.667	.514
schoollevel * schoollocal	18.582	4	4.646	2.306	.058
Error	854.294	424	2.015		
Total	4694.000	433			
Corrected Total	874.610	432			

a. R Squared = .023 (Adjusted R Squared = .005)

PERF57

Tests of Between-Subjects Effects

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	29.051[a]	8	3.631	1.962	.050
Intercept	1974.612	1	1974.612	1066.894	.000
schoollevel	11.968	2	5.984	3.233	.040
schoollocal	15.878	2	7.939	4.290	.014
schoollevel * schoollocal	.535	4	.134	.072	.990
Error	782.891	423	1.851		
Total	3225.000	432			
Corrected Total	811.942	431			

a. R Squared = .036 (Adjusted R Squared = .018)

Tukey — School level

		Mean Difference	Std. Error	Sig.	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound
1.00	2.00	.3089	.17493	.183	-.1026	.7203
	3.00	.3262	.15030	.078	-.0273	.6797
2.00	1.00	-.3089	.17493	.183	-.7203	.1026
	3.00	.0173	.18988	.995	-.4293	.4639
3.00	1.00	-.3262	.15030	.078	-.6797	.0273
	2.00	-.0173	.18988	.995	-.4639	.4293

Scheffe — School local

		Mean Difference	Std. Error	Sig.	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound
1.00	2.00	.0267	.16504	.987	-.3787	.4321
	3.00	.4200*	.15429	.025	.0410	.7990
2.00	1.00	-.0267	.16504	.987	-.4321	.3787
	3.00	.3933	.16480	.059	-.0115	.7981
3.00	1.00	-.4200*	.15429	.025	-.7990	-.0410
	2.00	-.3933	.16480	.059	-.7981	.0115

PERF58

Tests of Between-Subjects Effects

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	10.156[a]	8	1.269	.697	.695
Intercept	3389.669	1	3389.669	1860.322	.000
schoollevel	.229	2	.114	.063	.939
schoollocal	2.280	2	1.140	.626	.535
schoollevel * schoollocal	4.868	4	1.217	.668	.615
Error	772.565	424	1.822		
Total	4746.000	433			
Corrected Total	782.721	432			

a. R Squared = .013 (Adjusted R Squared = .006)

PERF59

Tests of Between-Subjects Effects

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	20.570[a]	8	2.571	1.298	.242
Intercept	2138.976	1	2138.976	1080.138	.000
schoollevel	4.837	2	2.419	1.221	.296
schoollocal	14.424	2	7.212	3.642	.027
schoollevel * schoollocal	1.007	4	.252	.127	.973
Error	843.600	426	1.980		
Total	3418.000	435			
Corrected Total	864.170	434			

a. R Squared = .024 (Adjusted R Squared = .005)

Scheffe	School local				95% Confidence Interval	
		Mean Difference	Std. Error	Sig.	Lower Bound	Upper Bound
1.00	2.00	-.0225	.17008	.991	-.4403	.3953
	3.00	.3729	.15908	.065	-.0178	.7637
2.00	1.00	.0225	.17008	.991	-.3953	.4403
	3.00	.3954	.16984	.068	-.0218	.8126
3.00	1.00	-.3729	.15908	.065	-.7637	.0178
	2.00	-.3954	.16984	.068	-.8126	.0218

PERF60

Tests of Between-Subjects Effects

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	9.593[a]	8	1.199	.692	.699
Intercept	3704.067	1	3704.067	2136.691	.000
schoollevel	1.950	2	.975	.563	.570
schoollocal	1.691	2	.846	.488	.614
schoollevel * schoollocal	6.701	4	1.675	.966	.426
Error	774.898	447	1.734		
Total	5132.000	456			
Corrected Total	784.491	455			

a. R Squared = .012 (Adjusted R Squared = .005)

APPENDIX K:

SURVEY NOTES

A list of email comments sent to me via Survey Monkey after participants completed the survey.

Thank you. Always glad to improve the teaching profession.

I completed your survey, but I wanted to clarify a couple of things. Learning Communities in our school are usually only a couple of people from the department. We work hard to collaborate, and create a positive learning environment for out students. We don't get a lot of designated time to do this, we simply do it on our own. Those of us involved work well with one another, support ideas and work as a great team. Our administration is trying to do some creative scheduling etc. for core curriculum to enhance their learning communities, however, in my area, we are on our own for the most part. Like anything, it takes time to develop.

I completed the survey, but I'm sure I'll be an outlier. My "learning community" is an office where we have all itinerants, mostly special education teachers in early childhood, along with speech/language therapists, occupational therapists, physical therapists, school psychologists and social workers. Therefore, this is not an actual school building with children enrolled. So I answered the questions based upon the buildings' learning community.

Good luck with your work. We do need change in the schools but so far the change is going in the wrong direction. The needed will and has happened in isolated classrooms all over the nation as well as in some standout schools. Kids need experiences out of the school, ownership of their learning, and a fire in their belly that can only come from seeing there are possibilities beyond what they know. I will keep your work in my prayers that you might have some success with your plans. I am teaching a class at … University this summer called scaffolding skills to success. It focuses on making sure kids have the skills they need to succeed and then helping them take ownership of their learning. That is the direction education needs to go. Again, good luck and take care.

I responded to your survey, but I have to tell you as an educator in the … school district it is nearly impossible for me to lump my experience at my school and my experience in my district together. There are strengths and weaknesses in both. I am sometimes not aware of specific district initiatives due to the size of the district, my principal's wishes, etc. Additionally, my school sometimes has initiatives not sanctioned specifically by the district.

Just a bit of input for you…in a big, urban district, the answers to the questions might be complete different for the school from another district. They school may have great leadership that manages to stay under the radar and do what is best for the school's students. This may or may not be what is being directed by the district administration. Consequently, by not specifically defining "learning community" as either the school learning community or the district learning community it was very difficult to answer consistently. It was the same with the questions that included "school/district" in the question. During the course of the survey I went back and forth between answering as part of the district and answering as part of the school's learning community. I chose whichever seemed most appropriate, but I'm not sure my survey information is valid.

I took your survey but it was difficult since there was no (do not know) area to click on questions for which I had little information. My answers would differ from a district coach answer. Our district provides coaches to all schools in both math and reading but often the coaches are not helpful for several reasons. This district also believes they listen to teachers but their decisions are made regardless of teacher input and with little thought. Student achievement initiatives are implemented fast and furiously, too many to possibly do well on any of them. Many are not well thought out and though the district leadership may think they have the interests of the students in the forefront they do not carefully watch how the students are truly affected by their initiatives. Teacher moral is never considered and the rewards are all intrinsic. When your survey asked if good teaching was rewarded, well good teaching is always rewarded. The students learn and that's the only reward that matters. I think that question needed to be qualified. Good luck with your research. It is a difficult time for teachers so we have to keep those intrinsic rewards in focus to keep up our spirits and remember it is for the kids, not for us.

Hello, I just finished your survey. It was marginally painful, just because things are not where they should be in education today.

CURRICULUM VITAE

Jacqueline M. Krohn
jacqueline.krohn@waldenu.edu
krohn.jackie@slpschools.org

EDUCATION

Walden University, 2004 to Present, Minneapolis, Minnesota
Ph D in K-12 Educational Leadership
Anticipated Completion: September, 2010

Dissertation – Learning Communities in Minnesota Public Schools: The Dissemination of Teacher Learning as a Performance Indicator, Spring 2010

Hamline University, St. Paul, Minnesota
Continuing Education Courses in Emergent Literacy, Reading and Writing, 1993-1999

National-Louis University, Evanston, Illinois
Master of Science in Writing Education, June, 1989

- Thesis focused on developing and validating a comprehensive kindergarten and first grade writing scale.
- Illinois Writing Project Leadership Program, July 1988.
- Graduate assistant; Graduate Student Representative for Curriculum Council.

St. Norbert College, De Pere, Wisconsin
Bachelor of Arts in Elementary Education, May, 1984

- Student Teaching Experience: St. Michael's School, Sneem, County Kerry, Ireland; October to December 1983.

PROFESSIONAL EXPERIENCE

Peter Hobart Primary Center, St. Louis Park, Minnesota
Third Grade Teacher (8 years) 2000 to present
First Grade Teacher (7 years) 1993 to 2000

- Recipient of TIES Award, December 2007.

- Recipient of The Who's Who Among American Teachers Award, October 2005.

- Recipient of The Golden Apple Teacher Achiever Award, Ashland Oil Company, May 1996.

- International Baccalaureate Training, Level A
  March, 2006

- Desgined and implemented Problem Solving Workshop to be implemented across grade levels – Kindergarten through grade 3 - 2009.

- Designed and implemented three Writing Workshop seminars for colleagues.

- Supervising Teacher for Student Teacher 2004/2005, 2006, 2008

- Third Grade Team Leader 2003/2004, 2007-2009

- Composed parent brochures for third grade reading and writing curriculum. (2004)

- Composed a third grade Language Arts Curriculum document; aligned curriculum with state standards, state and district assessments, district outcomes, and best practices. (2004)

- Co-wrote an article on Student –led conferences for the *Whole Language Advocate*, 1994.

- Mentored new teachers 2005 to 2006, 2002 to 2004, 1997, and 1994.

- Served on the following district committees: Writing (2 years); Social Studies (2 years); Language Arts (2 years); Science (1 year) and Staff Development (2 years).

Aquila Primary Center, St. Louis Park, Minnesota
First Grade Teacher (2 years) 1991 to 1993

Indian Trail Elementary School, Highland Park, Illinois
First Grade Teacher, 1985 to 1987 (2 years)

- Co-wrote whole language curriculum, for first grade, using Big Books and trade books; introduced in September, 1990.

- Language Arts Committee Representative for First Grade. Active participant in development of Language Arts Curriculum on K-8 basis.

- Co-developed Parent Education Seminar for modeling the effectiveness of whole language curriculum. February, 1991.

- Reading-Writing Awareness Committee, March, 1990.

- Seminar Training in Math Their Way, Cooperative Learning, and Aims Science.

St. Mary's Elementary School, Marathon, Wisconsin
Second Grade Teacher, 1984-1985 (1 year)