1-1-2011

Content Area Literacy: Relationship Between Lesson Design and Professional Development

Jodi Owens-Kristenson
Walden University

Walden University

COLLEGE OF EDUCATION

This is to certify that the doctoral study by

Jodi OwensKristenson

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. Brenda Kennedy, Committee Chairperson, Education Faculty
Dr. Jose Otaola, Committee Member, Education Faculty
Dr. Donald Yarosz, University Reviewer, Education Faculty

Chief Academic Officer

Eric Riedel, Ph.D.

Walden University
2013

Abstract

Content Area Literacy: Relationship Between Lesson Design and Professional Development

by

Jodi Owens-Kristenson

MS, University Of Minnesota, Mankato, 2004

BS, University of Minnesota, Twin Cities, 1984

Doctoral Study Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Education

Teacher Leadership

Walden University

April 2013

Abstract

Despite Minnesota's investment in professional development in content area literacy, secondary students are not showing expected literacy gains. A lack of literacy proficiency limits future options for students. The purpose of this study was to examine content-area literacy strategy inclusion and its relationship to professional development in the context of complexity theory, efficacy theory, transformational learning theory, structured teaching, and constructivism. A cross-section correlation survey research study was conducted to investigate the relationship of time spent in systematic professional development, type of professional development, rate of strategy inclusion, and confidence in literacy strategy inclusion in lesson design. Convenience sampling was employed to secure secondary teachers ($N = 65$) in public schools in Minnesota. The Spearman Rho Coefficient calculation was used to analyze these 4 variables; relationships were determined at ($p < .05$) and ($p < .01$) confidence levels. According to the results of the study, self-selected professional development is related to the frequency of literacy strategy use and confidence in literacy strategy use. Time in professional development is a critical issue in confidence of literacy strategy use. Recommendations for local districts include providing a menu of self-selected literacy professional development options. This study may impact social change through providing educators improved literacy instruction, resulting in more competent adult readers and informed decision-makers.

.

Content Area Literacy: Relationship Between Lesson Design and Professional Development

by

Jodi Owens-Kristenson

MS, University Of Minnesota, Mankato, 2004

BS, University of Minnesota, Twin Cities, 1984

Doctoral Study Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Education

Teacher Leadership

Walden University

May 2013

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

Dedication

This research project is dedicated to my mother, Beverly Owens, who passed away in the middle of my doctoral program. Both my mother and father, Wendell Owens, were instrumental in building a strong foundation modeling faith, family, and fortitude. I thank them both for the sacrifices they made to give me both roots and wings.

This research project is also dedicated to my husband, Kevin Kristenson and our two sons Kole and Konnor Kristenson. They provided the emotional support, encouragement, and motivation to keep moving toward the final goal. Thanks to all of you.

Acknowledgments

I would like to acknowledge the following people who supported me through the writing of this doctoral research process: Dr. Brenda J. Kennedy, my committee chair, and Dr. Jose R. Otaola, second member of my committee.

Table of Contents

List of Tables List of Tables

List of Figures

Section 1: Introduction to the Study

Context of the Problem

Without literacy skills, the act of learning through reading is difficult. Future opportunities may be compromised; career opportunities may also be limited. Many junior/senior high school students in the United States exhibit limited literacy skills. According to international comparisons of literacy rates, the United States is leading the world in fourth grade but by 10th grade, the United States drops to among the lowest of developed countries (Carnegie Council on Advancing Adolescent Literacy, 2010). Additionally, the 12th-grade average score on the National Assessment of Educational Progress (NAEP) has decreased over the last 20 years (National Center for Education Statistics, 2009a). While the national average increased by two points from 286 of 500 possible points in 2005 to 288 of 500 possible points in 2009, the national average is still four points lower than it was in 1992 when 12th grade reading assessment scores were first reported (National Center for Education Statistics, 2009a). Because the NAEP includes a cross-section of states, data are not available for every state. Of the states participating, only five of 11 states had scores above the national average, which was 288 in 2009 (National Center for Education Statistics, 2009a). Because the NAEP is the only reading test measuring national reading proficiency at 12th grade, this trend is a concern. In addition, many students who are capable of reading do not read. Reading as a leisure activity has dropped for young adults, compared to the leisure reading of earlier generations (Clemmitt, 2008; National Center for Education Statistics, 2008). Despite

reform efforts, reading achievement in junior/senior high schools has remained stagnant (National Center for Education Statistics, 2009b, 2011).

To remedy student achievement issues, reformers support a change in structure and climate within junior-senior high schools (The Education Alliance, 2004), focusing or narrowing curriculum (Danielson, 2002; Marzano, 2003) and developing collaborative professional development within learning communities (Dufour, Eaker, & Dufour, 2005). Professional learning communities (PLCs) continuously reflect on current teaching practices and student achievement data (Schmoker, 1996, 2001) to improve student achievement. Central to increasing student academic achievement is improving student literacy skills.

Improving literacy skills in junior-senior high schools presents a challenge. Because formal reading instruction ends in sixth grade in many schools, no one person or department is specifically responsible for literacy achievement (May, 2007). Content teachers may look to English teachers to carry the literacy gauntlet (The National Council of Teachers of English, 2007) but many English teachers have limited training in reading instruction. A second obstacle in secondary literacy development is the departmentalized structure of high schools (May, 2007). The isolation that comes from departmentalization creates difficulty in instituting whole-school literacy policy.

To meet adolescent literacy needs within secondary settings, the Minnesota Department of Education began implementing school district policy changes to meet national literacy recommendations based on the government-sponsored report, *Reading Next* (Biancarosa & Snow, 2004). Further policy changes were implemented following a

Carnegie-funded report on content area literacy and student achievement (Heller & Greenleaf, 2007). Between 2005 and 2011 the Minnesota Department of Education invested in adolescent literacy by making the following recommendations:

- Adoption of literacy standards for all secondary teacher preparation programs (Minnesota Board of Teaching, n.d.),
- Inclusion of content area literacy professional development goals in Minnesota school improvement plans,
- Compliance with an adolescent literacy plan (Minnesota Department of Education, 2011c) to guide Minnesota secondary schools' literacy development programs, and
- Teacher participation in 1-day, state-sponsored staff development opportunities (B. Houck, personal communication, May 4, 2007).

Minnesota school districts adopted these recommendations without uniformity from district to district.

Problem Statement

Despite Minnesota's literacy investment, Minnesota's secondary students (Grades 7-12) were not showing expected literacy gains. Table 1 below shows that from 2006 to 2011, Grade 7 students increased reading proficiency by 2.6%, Grade 8 by 3%, and Grade 10 by 9.8 %, respectively. These minimal increases were experienced as a result of districts placing a greater focus on meeting literacy standards through aligned curriculum and 1-day professional development workshop participation. The professional development workshops included both on-site workshops, training all

teachers in 1 day, off-site workshops, and training selected teachers from school districts. Often these selected teachers were required to act as teacher leaders and trainers in their respective school districts. The degree to which follow-up training occurred within school districts is unknown.

Table 1

Minnesota Students Proficient on MCA II Reading Assessment

Year	Grade 7	Grade 8	Grade 10
2006	66.6%	64.6%	65.2%
2007	63.3%	63.3%	62.1%
2008	64.7%	65.7%	70.8%
2009	64.8%	66.8%	74.2%
2010	66.1%	68.3%	75.4%
2011	69.2%	67.6%	75%

Adapted from " Data Reports and Analytics" by Minnesota Department of Education, 2011a. Retrieved from http://www.education.state.mn.us/MDE/Data/index.html

In addition to collecting annual data on reading achievement through the Minnesota Comprehensive Assessment (MCA), Minnesota participates in the NAEP at fourth and eighth grade. This assessment provides a comparison of a cross-section of Minnesota students with other states on a biennial basis. The eighth grade data are the primary comprehensive data, which includes a comparison of Minnesota secondary students (Grades 7-12) with students from other states in the area of reading achievement. Minnesota's growth on the eighth grade NAEP mirrors the growth of the national

average. The national NAEP average increased by four points from 1998 to 2011; Minnesota increased by five points. While Minnesota averages higher than the national average, a significant number of students lack literacy proficiency, as only 39 % of Minnesota students were considered proficient or advanced in 2011 (National Center for Educational Statistics, 2011). Table 2 below indicates that from 1998 to 2011, the number of proficient and advanced students ranged from 35% to 39%. Because high-level literacy skills are needed for career success, Minnesota is leaving behind over 50% of its students.

Table 2

Percentage of Minnesota Proficient or Advanced Eighth Graders on NAEP

Year	% Proficient	% Advanced
1998	34	2
2003	34	3
2005	34	3
2007	34	3
2009	36	3
2011	35	4

Adapted from "Reading 2011 state snapshot report" from National Center for Educational Statistics, 2011. Retrieved from nces.ed.gov/nationsreportcard/pdf/stt**2011**/2012454MN8.pdf

According to Minnesota literacy progress data, a large portion of secondary students may lack high level literacy skills; the primary local school district involved in

this study exhibits a data trend similar to the state of Minnesota. Reading achievement in eighth grade ranged from 50% to 73% proficiency on the reading Minnesota Comprehensive Assessment with the average over the past 5 years being 65 % proficient. Reading achievement in 10th grade ranged from 68% to 80% proficiency with the 5 year average being 75% proficient. While student achievement has improved on average from eighth to 10th grade, the lack of consistently high student literacy achievement results does not meet the district's 85% proficiency goal. In addition, despite an added investment in reading intervention courses for nonproficient readers at Grades 8 and 10, little overall improvement in literacy achievement has been realized (See Table 3).

Table 3

Local District Literacy Proficiency Percentages at 8th and 10th Grade

Year	% Proficient in 8th Grade	% Proficient in 10th Grade
2007	50	72
2008	73	74
2009	63	68
2010	64	81
2011	67	79
2012	71	75

Adapted from "Educational improvement plan MCA data" from Fairmont area Schools, 2012. Retrieved from https://docs.google.com/a/apps.fairmont.k12.mn.us/spreadsheet/ccc?key=0Aj2l1Dpm5F2

XdG54c1NxTGZnMTF2NE5VZDJMRzRXUkE&authkey=CN-PqWI&hl=en&authkey=CN-PqWI#gid=0

While Minnesota school districts and my local school district have been making strides to change classroom literacy practices, their respective student achievement data does not reflect evidence of effective student application of literacy strategies. Two conclusions can be drawn from these data. The first is that literacy strategy instruction, as a means to increase student literacy achievement is ineffective. However, the research is replete with information on literacy strategies that improve student achievement, literacy strategies teachers use, teachers' reasons for not implementing literacy strategies, and teachers' attitudes toward literacy strategy use. A second conclusion that can be drawn from these data is that teachers are not effectively guiding students in the application of reading strategies within content area classrooms. Teachers may have participated in professional development, but until researchers investigate how the training influenced classroom teaching practices, a clear conclusion cannot be drawn. A gap exists regarding the relationship between professional development and teacher application of strategy use during classroom instruction. This research study adds to the literature by analyzing the relationship between professional development and teacher application of literacy strategies in daily lesson design. I investigated the relationship between the variables of time spent in professional development, type of professional development, rate of strategy inclusion in lesson design, and confidence in literacy strategy inclusion in daily lesson design.

Professional development is a key element in addressing factors contributing to the problem of stagnant adolescent literacy achievement despite undergraduate training and professional development in content area literacy. In this study, the variable *type of professional development* was selected because successful staff development must be ongoing and systematic to create lasting change in educational practice and improvement in student achievement (Biancarosa & Snow, 2004; Heller & Greenleaf, 2007; Jacobs, 2008; May 2007). Professional development must be of a certain type to produce a change in practice. Professional development plans that include coaching and collaboration create higher degrees of teacher efficacy, leading to increased implementation of content literacy strategies (Cantrell, Burns, & Callaway, 2009). In this study, I investigated the relationship between the type of professional development as it relates to literacy strategy inclusion in lesson design.

In addition to the type of professional development, time spent in professional development also impacts change in teaching practice and student achievement. Professional development must be of sufficient duration to produce a change in teaching practice (Darling-Hammond, Wei, Andre, Richardson, & Orphanos, 2009; Reeves, 2009). For this reason, the variable *time spent in professional development* was selected as it relates to literacy strategy inclusion in lesson design. I investigated the relationship between time spent in professional development and literacy strategy inclusion in daily lesson design.

While time spent in well-designed and systematic professional development theoretically impacts a change in teaching practice, I associated those two variables with

a third variable. *Rate of strategy inclusion in daily lesson design* was used to determine to what extent professional development has impacted teaching practice. The majority of secondary content teachers have taken a content area reading methods class as part of their undergraduate reading instruction (Alger, 2009; Heller & Greenleaf, 2007) without appreciable increase in student application of literacy strategies. Instruction precedes application. Therefore, I investigated the relationship between time spent in professional development, type of professional development, and literacy strategy inclusion in daily lesson design.

Finally, the variable *confidence with literacy strategy inclusion in daily lesson design* was selected because efficacious beliefs about personal skill in implementing literacy strategies increase the likelihood of strategy inclusion (Cantrell & Callaway, 2008). Teachers who do not implement literacy strategies in content area classrooms despite professional development indicated a lack of confidence as one reason for their failure to implement (Hall, 2005). Without understanding, as well as confidence, in literacy strategy application, teachers are unlikely to implement strategies in their daily lesson design. Therefore, I investigated the relationship between time spent in professional development, type of professional development, and teacher confidence with literacy strategy inclusion in daily lesson design. This study contributed to the body of knowledge needed to address content area literacy strategy inclusion in daily lesson design.

Purpose of the Study

The purpose of this cross-section, correlation survey research study was to investigate the relationship of time spent in systematic professional development, type of professional development, rate of literacy strategy inclusion, and confidence in literacy strategy inclusion in daily lesson design. The associated variables in this study were time participating in content area literacy strategy professional development, type of professional development, rate of literacy strategy inclusion, and confidence with content area strategy inclusion in daily lesson design.

Nature of the Study

In this quantitative cross-section correlation survey research study, I investigated the relationship between time spent in systematic professional development, type of professional development, rate of strategy inclusion, and confidence in literacy strategy inclusion in daily lesson design from the perspective of the following theoretical frameworks: complexity theory, efficacy theory, structured teaching, transformational learning theory, and constructivist learning theory. The study's population was the 25,939 content area classrooms (iSeek Solutions, n.d.) in Minnesota junior and senior high schools. The stratified research sample was chosen through convenience sampling from Minnesota secondary schools. The teachers in the sample were sent a web-based survey, and data were collected electronically. Data were analyzed using the Spearman correlation.

Research Questions and Hypotheses

This cross-section correlation survey research study was conducted to answer the following questions and related hypotheses:

1. What is the relationship between time spent in systematic content area literacy strategy professional development and rate of literacy strategies inclusion in daily lesson design?

$H_0$1: There is no association between time spent in systematic content area literacy professional development and rate of content area literacy strategy implementation in daily lesson design.

$H_0$1: $\bullet = 0$

$H_1$1: There is an association between time spent in systematic content area literacy professional development and rate of content area literacy strategy implementation in daily lesson design.

$H_1$1: $\bullet \neq 0$

The associated variables were time spend in systematic content area literacy professional development and the rate of content area literacy strategy inclusion in daily lesson design.

2. What is the relationship between the type of professional development in content literacy strategy instruction and the rate of content area strategy implementation in daily lesson design?

$H_0$2: There is no association between type of professional development in content area literacy strategies and rate of content area literacy strategy inclusion in daily lesson design.

$H_0$2: • = 0

$H_1$2: There is an association between type of professional development in content area literacy strategies and rate of content area literacy strategy inclusion in daily lesson design.

$H_1$2: • ≠ 0

The associated variables were type of professional development and rate of content area literacy strategy inclusion in daily lesson design.

3. What is the relationship between type of professional development and confidence with literacy strategy inclusion in daily lesson design?

$H_0$3: There is no association between type of professional development in content area literacy strategies and confidence with content area literacy strategy inclusion in daily lesson design.

$H_0$3: • = 0

$H_1$3: There is an association between type of content area literacy professional development and confidence with content area literacy strategy inclusion in daily lesson design.

$H_1$3: • ≠ 0

The associated variables were type of professional development and confidence with content area literacy strategy inclusion in daily lesson design.

4. What is the relationship between time in systematic content area literacy professional development and confidence with literacy strategy inclusion in daily lesson design?

$H_0$4: There is no association between time spent in systematic professional development in content area literacy strategies and confidence with content area literacy strategy inclusion in daily lesson design.

$H_0$4: $\bullet = 0$

$H_1$4: There is an association between time spent in systematic content area literacy professional development and confidence with content area literacy strategy inclusion in daily lesson design.

$H_1 4 \bullet \neq 0$

The associated variables were time spent in systematic content area literacy professional development and confidence with content area literacy strategy inclusion in daily lesson design.

Theoretical Base

I applied five theoretical frameworks to the understanding of content area literacy professional development. The five frameworks included complexity theory, efficacy theory, structured teaching, transformative learning theory, and constructivist learning theory. The five theoretical frameworks were used to explain characteristics of content areas professional development more completely than any one theoretical framework can explain alone, as illustrated in Figure 1.1.

Complexity Theory

Complexity theory, a sister of chaos theory, is used to explain the nonlinear growth of an organization through a variety of paradoxes. Change brings turbulence. Turbulence brings instability. Instability brings opportunity. In the midst of the turbulence, innovation emerges. Without the instability brought on by change, there is no innovation (Nicolaides & Yorks, 2008; Parr, 2004; Zellermayer & Margolin, 2005). Dynamic systems in the midst of turbulence alter their course through feedback mechanisms (Arena, 2009). These feedback systems allow change to move from the inside out rather than the outside in, making change more lasting.

According to complexity theory, growth leads to innovation in schools. Turbulence results from many factors including perceived outside mandates of change (Arena, 2009; Hargreaves, 2004), constraints of time and content coverage pressures (Leroy, Bressoux, Sarrazin, & Trouilloud, 2007), and inefficacious feelings (Cantrell & Callaway, 2008; Ross & Bruce, 2007). Understanding that leaders should expect turbulence and see it as a healthy part of making change, prepares educational leaders for action. Without a turbulent reaction, no constraint can be identified to help set parameters from which innovation and solutions emerge. Promoting content area literacy strategies inclusion in secondary teachers' lessons will produce growth pains.

Efficacy Theory

Efficacy theory is the second theory impacting the framework employed to understand the impact of professional development within a school system. Efficacy theory can be used to link teachers' self-perceptions of adequate knowledge and skill

with willingness to carry out a change in an organization (Tschannen-Moran, Hoy, & Hoy, 1998). Any innovation, especially one for which teachers have limited background or training, will create a perceived lack of efficacy (Goddard, Hoy, & Hoy, 2000). Understanding that feelings of inadequacy impact the outcome of an innovation or change helps professional developers provide appropriate training. Training that is of sufficient duration, provides mastery experiences, vicarious experiences, verbal persuasion, and adequate support during implementation is necessary to increase teacher efficacy to levels needed for sustained change in teaching practice (Labone, 2004; Tschannen-Moran et al., 1998). While most content area classroom teachers have had at least one undergraduate course in content area literacy strategy use, researchers have reported a general lack of efficacy in content area reading strategy use (Akyol & Ulusoy, 2010; Alger, 2009; Cantrell & Callaway, 2008). One undergraduate course alone does not produce efficacious beliefs resulting in literacy-supportive classroom behaviors.

Structured Teaching

One framework that may produce enough support for the growth of efficacious beliefs and behavioral change is structured teaching (Fisher & Frey, 2008 a & b). Structured teaching is not generally considered a professional development model. Instead, it is an organizational teaching structure designed for delivering learning within K-12 classrooms. However, the similarities of this instructional model and characteristics of successful professional development are markedly similar.

Structured teaching is a model of gradual release moving through four phases. The first phase is modeling and teaching about a new practice (Fisher & Frey, 2008 a &

b). The second is expert guidance as the learner practices the strategy or skill (Fisher & Frey, 2008 a & b). The third phase is collaborative assistance (Fisher & Frey, 2008 a & b). The fourth is independent practice (Fisher & Frey, 2008 a & b). While adult learning is not the same as that of children or adolescents, the phases of structured teaching align with recommendations from successful reform-supported (Darling-Hammond et al., 2009; Deshler, 2004; Garet, Porter, Desimone, Birman, & Yoon, 2001) professional development research.

Transformative Learning Theory

A fourth framework offering useful constructs for supporting efficacious attitudes and behavior is transformative learning theory (Mezirow, 2000). According to transformative learning theory, characteristics of events bring about real and lasting change (Mezirow, 2000). Three characteristics must be present in a system to overcome homeostasis and produce transformation. Experiential learning, critical self-reflection, and rationale discourse (Brown, 2006; Mezirow, 2000) must be present in any system desiring lasting change. As professional development is organized to promote knowledge and skill development for content areas literacy strategy inclusion, experiential learning, critical self-reflection, and rationale discourse must be facilitated.

Constructivism

Through experiential learning, critical self-reflection and rationale discourse, personal understanding is constructed. The final theoretical framework used in this study is constructivism. Constructivists pose that true learning comes not from the rote following of a process but in the interaction between the learner and the concepts being

learned (Dewey, 1981; Piaget, 1952). As new learning is contemplated and connected to past learning, new constructs form. Professional development that facilitates this contemplation and construction of knowledge will more likely result in long-lasting learning and change (Walker, 2002).

In this correlation cross-sectional research study, I employed concepts from all of the above theoretical frameworks. Both complexity and efficacy theories helped me to understand the context in which content area literacy professional development is conducted. Structured teaching organized a delivery system for the professional development. Transformative and constructivist theories guided the development of questions and exercises within the stages of structured teaching. The interaction of the five theoretical frameworks can be seen in Figure 1.

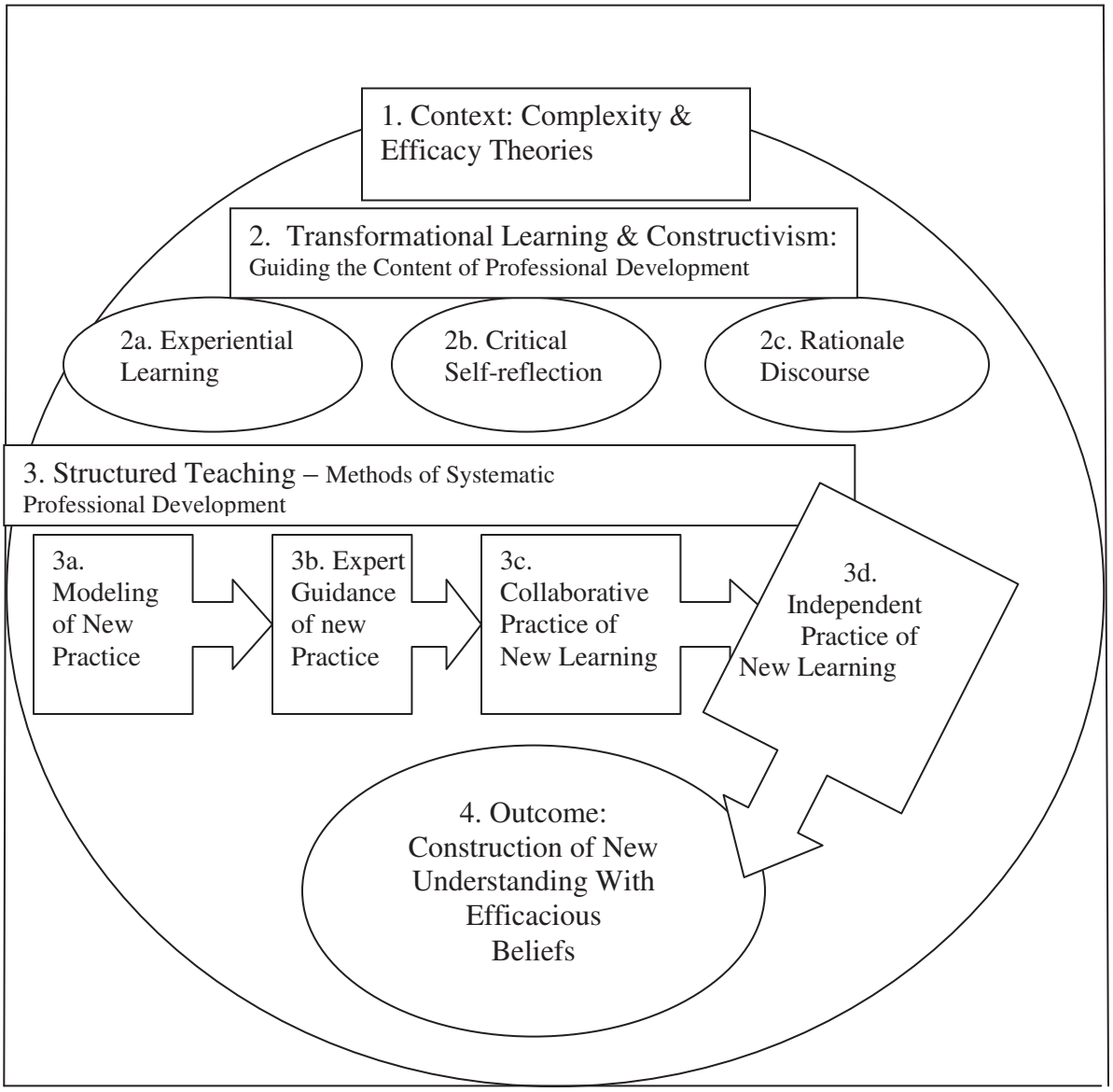

Figure 1. Diagram illustrating interaction of theoretical frameworks.

Figure 1 illustrates the interactions of the theoretical frameworks that influenced this research study. The outer circle (See Number 1) illustrates how the theories of complexity and efficacy form the context in which the study is framed. Minnesota

content area teachers are being asked to change their teaching practice with the implementation of the Common Core Literacy Standards during the 2012-2013 school year (Common Core State Standards Initiative, 2011). The change in content standards brings feelings of apprehension (Arena, 2009; Hargreaves, 2004), inefficaciousness, and lack of confidence (Cantrell & Callaway, 2008; Ross & Bruce, 2007). Adequate systematic, collaborative, and meaningful professional development has alleviated these feelings (Darling-Hammond et al., 2009; Davis & Sumara, 1997). In this study, I investigated the relationship between professional development and literacy strategy inclusion in daily lesson design. I investigated the variables of time spent in professional development, type of professional development, rate of strategy inclusion in lesson design, and confidence in literacy strategy inclusion in daily lesson design.

The center of Figure 1 (See Numbers 2 and 3) illustrates how the theories of transformational learning theory (Mezirow, 2000) (See Number 2a-2c) and structured teaching (Fisher & Frey, 2008a, 2008b, 2009) (See Number 3a-3d) facilitate the characteristics of lasting and meaningful professional development. Both theories include traits of professional learning environments in which lasting change is made. High-quality professional development must possess experiential learning (Taylor, 2000) experiences that allow the participant to feel, see, or live a situation. In addition, self-reflection, or comparing oneself to a standard, rationale discourse (Brown, 2006), and discussing the reasons behind a decision should exemplify all stages of professional development. The stages of structured teaching (Fisher & Frey, 2008a, 2008b, 2009) define the stages of professional development in which new teaching practices are

internalized. The professional development expert models the intended behavior or target. The behavior is practiced with guidance from the expert. The behavior is practiced or implemented with peer collaboration, generally in a PLC or coaching setting, and finally, the strategy is applied independently. Moving through the stages of structured teaching with professional development that exemplifies the characteristics of transformational learning theory leads to the outcome of the theoretical model and construction and efficacy in understanding.

The bottom portion of Figure 1 (See Number 4) represents how constructivism (Dewey, 1981; Piaget, 1952; Vygotsky, 1987) and efficacy (Labone, 2004; Tschannen-Moran et al., 1998) guide the outcome based on the theoretical model. I used the study's survey to determine the relationship between feelings of increased efficacy as it related to systematic professional development (Ross & Bruce, 2007). As teachers build a greater understanding of content area literacy strategy use, they will develop cognitive structures regarding content area literacy strategy inclusion in daily lessons (Darling-Hammond et al., 2009). The frequent application of learning from professional development experiences is an expected outcome of constructing new understanding. Therefore, if the strategies are present in daily lesson design, construction of understanding has preceded the presence of the strategies. A full review of the theoretical frameworks and how they impact content-area professional development understanding appears in Section 2 of this research project study.

Definitions of Terms

As with any research study, word meanings impact understanding. Understanding is facilitated through precise word selection, but shared meaning is necessary for understanding. To maintain clarity and promote understanding of this study, operational definitions of key terms are reviewed.

Content area reading: Reading required in specialized subject matter, such as science or social studies to learn basic concepts within that subject matter (Heller & Greenleaf, 2007).

Discipline-specific reading strategies: The sophisticated, less generalizable reading skills and processes specific to certain subject matter (Shanahan & Shanahan, 2008). Discipline specific reading is the thinking required when reading a text that matches or mirrors the thinking of professionals within the discipline (Carnegie Council on Advancing Adolescent Literacy, 2010).

Reading strategies: Thinking processes or thoughts that readers employ to decode words, understand meanings of words, clarify understanding, or unlock meaning from text (Afflerbach, Pearson, & Paris, 2008). A strategy is used with intent to meet a goal during the reading process (Cantrell & Carter, 2009). Reading strategies can be categorized in a variety of ways. One means of categorization is based on the reading process. Strategies can be used before, during, or after reading (BiFuh Ambe, 2007) to gain meaning and understanding from text.

Reading skills: Automatic mental processes done efficiently and without awareness to facilitate understanding while reading (Afflerbach et al., 2008). Adequate

practice, motivation, understanding, scaffolding, and guided instruction all facilitate skill development (Afflerbach et al., 2008).

Teaching strategies: The purposeful learning activities teachers design to teach concepts or processes required to learn subject matter (Afflerbach et al., 2008). Teachers may model a reading strategy as a teaching strategy (Afflerbach et al., 2008). Modeling is the teaching strategy; the reading strategy is what is modeled (Afflerbach et al., 2008). As that process becomes automatic, it moves from a strategy to a skill (Afflerbach et al., 2008).

Professional learning community (PLC): Groups of teachers collaborating with the goal of high achievement for all students (Dufour et al., 2005). PLCs design a shared vision based on power standards (Dufour et al., 2005). These standards guide construction of common assessments (Dufour et al., 2005). The methods used by PLC' to bring about high learning for all students are collaborative scoring of student work, cooperative intervention for students who do not reach standards, and embedded real-time professional development based on student needs (Dufour et al., 2005).

Professional development: Learning opportunities available to teachers and other educational personnel with the goal of strengthening understanding and skills associated with their teaching practice (Darling-Hammond et al., 2009).

Systematic professional development: Professional development that is not a one-shot workshop, of significant duration, collaborative, "intensive, ongoing, and connected to practice" (Darling-Hammond et al., 2009, p. 5).

Secondary school: Grades following elementary school. For the majority of Minnesota schools, secondary includes Grades 7-12 (Minnesota Department of Education, 2012.). Some researchers include Grades 4-12 in their research on content area literacy (Biancarosa & Snow, 2004). For the purposes of this study, secondary schools included Grades 7-12.

Assumptions

The cross-sectional, correlation survey research project population was selected from secondary teachers in the state of Minnesota. I assumed that the population had a normal distribution of content area reading professional development, varying from district to district and person to person. I also assumed that teachers will answer survey questions accurately. Some answers require recall of information. Time estimates were based on recall and may not be precise; however, the time demarcations of the measurement tool were wide enough to compensate for lack of precision. Finally, I assumed that self-perception is valid data. Teachers were asked to determine the frequency of certain content area literacy strategies in daily lesson design. I assumed that their self-perception was correct perception. While the accuracy of self-perception data has been debated, the use of self-perception data in professional development studies is common (Darling-Hammond et al., 2009) and, therefore, was included in this study.

Limitations

One limitation of this study was that the measurement device included personal recall of data rather than actual observational data. Recall data tends to be less reliable than direct observation. To overcome this limitation, an interval scale was used creating

more sensitive data analysis (Trochim, 2006b). The unit demarcation of the measurement tool was wide enough to identify trends in the duration of professional development as it related to literacy strategy inclusion in lesson design. A narrow demarcation would make self-perception error more likely.

A second limitation of this study was that it was a snapshot of professional development devoid of the complexity of context and elements of timing. Improvement in any endeavor is not only the result of the professional development, but in the precursors and contextual factors in which the professional development occurred (Mourshed, Chijioke, & Barber, 2010). While I investigated individual components of increased content area literacy inclusion in lesson design, I did not address how the individual components were combined to create a professional development plan. Further investigation regarding the context and order of the professional development experiences would be a recommendation for future study.

Delimitations

The study was conducted using a sample from the population of teachers in the state of Minnesota. While education is similar from state to state, the extrapolation of this study to other states is a delimitation. Other states may have similar findings but studies must be conducted in each state to determine similar relationships.

A correlation study does not prove causation. The data from this study cannot be used to determine causation. Further research should be conducted to determine cause and effect relationships between professional development and literacy strategy inclusion in daily lesson design.

Significance of the Study

This study was significant in that I analyzed the connection between time spent in systematic professional development, type of professional development, rate of strategy inclusion in lesson design, and confidence in literacy strategy inclusion in daily lesson design. Several researchers have focused on teacher comfort (Hall, 2005) and attitudes (Cantrell et al., 2009; Fisher & Frey, 2008c) regarding content literacy strategies. Other researchers measured the effectiveness of various content reading strategies (Radcliffe, Caverly, Hand, & Franke, 2008) on student achievement (O'Reilly & McNamara, 2007). Further scholars investigated the characteristics of teachers who implement content literacy strategies in their daily lesson design (Cantrell & Callaway, 2008). A research gap existed investigating the relationship between systematic professional development, type of professional development, frequency of content area strategy inclusion in lesson design, and teacher confidence in literacy strategy inclusion in daily lesson design.

This study may impact social change by providing a better understanding of the characteristics of professional development that contribute to teacher implementation of discipline-specific literacy strategies. Because time spent in systematic professional development and specific types of professional development are correlated to teacher efficacy and rates of strategy inclusion in lesson design, duplication of these same methods from school to school may likely produce gains in content area literacy strategy use. The goal of the local district associated with the study is that the results of the study will direct a professional development plan to support teachers in more frequent literacy strategy use and greater confidence in strategy use. Increased literacy strategy use may, in

turn, increase adolescent literacy strategy understanding and increased achievement. The specific positive outcome of this study may be that, as a teacher presents text, he or she models a thinking process that best unlocks the meaning of the text and matches the thinking demanded of the discipline. As students practice these same thinking processes, they will gain competence in the thinking required in real life application of the content area**.** Social change would be evident in more competent adolescent readers and thinkers at the local level, which would ultimately impact the state level.

Summary and Transition

Despite Minnesota's investment in literacy policy and professional development, Minnesota's secondary students were not showing expected literacy gains. Content area literacy strategy inclusion is one means Minnesota teachers can incorporate literacy strategies and skills along with content. While content area teachers may likely have had some training in content area literacy strategies, school districts need more information regarding targeted professional development in content area literacy strategy inclusion in lesson design. The purpose of this cross-section, correlation survey research study was to investigate the relationship of time spent in systematic professional development, type of professional development, rate of literacy strategy inclusion, and confidence in literacy strategy inclusion in daily lesson design. I investigated this research study from five theoretical frameworks. Complexity theory, efficacy theory, structured teaching, transformational learning theory, and constructivist learning theory formed the basis on which the research questions, hypotheses, and survey questions were based. An overview of the literature on content area and discipline-specific reading strategy

research and theories is presented in Section 2. Section 3 presents the methodology of the cross-section correlation survey research study. Section 4 presents the results of the study. Section 5 provides a discussion of those results, along with recommendations for social impact and future research.

Section 2: Literature Review

As adolescents experience educational preparation for college and the world of work, demands for literacy increase. Even entry-level, blue-collar jobs demand high rates of literacy to understand technical manuals (Daggott & Hasselbring, 2007). To meet increasing professional literacy demands, public policy regarding higher literacy standards has influenced education standards. Elementary schools received initial attention through *Reading First* initiatives with more recent research and reform efforts focused on secondary schools. Central to secondary literacy reform is the goal of content-area or discipline-specific literacy practices and the professional development required to produce classroom instruction promoting higher degrees of adolescent literacy. In this cross-section, correlation survey research study, I investigated the relationship of time spent in systematic professional development, type of professional development, and their association with rate of and confidence in literacy strategy inclusion in daily lesson design. Professional development that impacts teaching practice is meant to address increased adolescent literacy demands.

This literature review includes the historical context of content-area literacy practices, five theoretical frameworks influencing this study, and professional development models that are related to the five theoretical frameworks. I further examine specific literacy strategies most appropriate for successful literacy lessons and study methodology. Five theoretical frameworks: complexity theory, efficacy theory, structured teaching, transformational learning, and constructivism provide various lenses for better understanding the research impacting adolescent content-area and discipline-

specific literacy. Finally, the research supporting the selection of a Spearman correlation survey research study is reviewed.

To find literature for Section 2, I accessed the Walden University, Capella University, and Martin County libraries. The literature for Section 2 was obtained from peer-reviewed journals, textbooks, research webinars, government-sponsored databases, and Internet searches using phrases such as *content-area literacy, discipline-specific literacy, professional development, staff development, high school literacy,* and *high school literacy reform.* The databases I used to conduct my literature review include Academic Search Premier, Education Research Complete, ERIC, Google Scholar, ProQuest Education Journals, SAGE Journals Online, and Science Direct. The parameters for the search include articles from peer-reviewed journals and those including full text versions. Themes emerging from this exhaustive search are summarized in Section 2.

Historical Perspective of Adolescent Literacy

Current research embodies learning from past research. An effective literature review includes the context in which a current study emerges. This study on the relationship of time spent in systematic professional development, type of professional development, and their association with rate of and confidence in literacy strategy inclusion in daily lesson was built on past research supporting strategy development. I also applied elements of each theoretical framework to the current study.

The study of reading and writing processes embedded within content-area classes began in the early 1900s. Huey (1968) proposed in the early 1900s that reading

instruction should be embedded in content areas and that content-area materials were adequate for reading lessons. Herber (as cited in Herber & Sanders, 1969) was one of the first researchers who investigated the impact of teaching reading and writing within content area courses. In 1970, Herber authored the first textbook on reading instruction in the content areas (as cited in Jacobs, 2008). Herber (1969) focused on varied grouping structures; lessons with preparing, guiding, and evaluating phases of instruction; and skills needed to unlock meaning within subjects. Herber's focus changed two times: first to content area literacy and then to adolescent literacy (as cited in Conley, 2007).

The importance of reading strategies and skills in reading and learning from secondary texts became an accepted recommendation in the 1980s. However, debate remained regarding how to effectively integrate reading instruction in secondary classrooms (Jacobs, 2008). Issues of lack of training for secondary teachers as well as debate surrounding who was responsible for high school reading instruction emerged (Early, 1977). Several college teacher preparatory programs began requiring reading in the content area courses for secondary preservice teachers (Conley, 2007). Content area reading texts in the 1980s were written either supporting one theoretical position or were generic in their focus (Jacobs, 2008). The texts did not address how to teach reading within specific content subjects.

The 1990s marked a change in research focus from the study of content to the study of the adolescent learner. *Adolescent literacy* was coined during this research era. Adolescent literacy is defined as the study of adolescents and their relationship with text (Conley, 2007). Researchers found great diversity among adolescents, especially in their

literacy practices. Many of the researchers of this time appeared to glamorize types of adolescent literacy with recommendations that teachers use adolescent literacy preferences as a means to motivate adolescents to read and write (Conley, 2007). Influence from this research agenda can be seen in current recommendations (Heron-Hruby, Hagood, & Alvermann, 2008) to broaden the definition of literacy (Lam, 2009) to include tagging and texting as classroom instructional techniques (MacGillivray & Curwen, 2007).

The computer age influenced the development of the cognitive processing curriculum model. This common curriculum model influenced the development of strategy use in content area literacy instruction. Thinking processes generally employed by competent readers became the guide for reading curriculum and is still influential in reading texts (Richardson, Morgan, & Fleener, 2009). The application of literacy strategy use during reading produced a generic content area reading instructional focus. General strategies that may or may not be effective for unlocking specific content were taught to all secondary preservice teachers (Keene, 2010). These content-area literacy classes resulted in teachers becoming aware of the strategies. This resulting awareness led to teachers directing students to use a literacy strategy while reading without necessarily providing instruction as to how to use the strategy (Keene, 2010). Criticism that content area literacy strategies were no more than a means to unlock literal meaning from text rather than a way to facilitate high levels of thinking and reasoning became common (Conley, 2007).

In response to this criticism, content area literacy researchers began investigating differences in how readers of one discipline process text differently from other disciplines (Shanahan & Shanahan, 2008). Researchers focused on how texts differed from one discipline to another (Fang, 2006). These subject matter differences have led to the most recent evolution of content area literacy, discipline-specific literacy strategy research. Discipline-specific strategy use assists teachers in reflecting on their own thinking while reading (Carnegie Council on Advancing Adolescent Literacy, 2010). They, in turn, communicate that thinking to students (Carnegie Council on Advancing Adolescent Literacy, 2010). In studying discipline-specific strategies, researchers investigated the thinking of actual professionals in a specific field of study and devised literacy strategies for content classes based on that research (Shanahan & Shanahan, 2008).

In this study, I built on the findings of past research in that I investigated the role of professional development on strategy inclusion in lesson design and teacher confidence with literacy strategy inclusion in lesson design. Specific findings from past research provided the foundation of the survey from which relationships were determined. This research study added to the body of knowledge regarding how time spent in professional development and type of profession development was related to efficacy and inclusion of literacy strategies in daily lesson design.

A Closer Look At Five Theoretical Frameworks

In addition to building on the historical foundation of content area literacy, this study was also guided by five theoretical frameworks. They were complexity theory, efficacy theory, structured teaching, transformational learning theory, and constructivist

theory. Each theory is summarized and applied to content area literacy strategy use in the following sections.

Complexity Theory: Transformation Understanding

As school districts require subject matter specialists to add content area literacy strategies to an already full curriculum, frustration, conflict, and feelings of reduced efficacy result. Feelings of frustration influence successful implementation of literacy strategies (Cantrell & Callaway, 2008). Understanding how turbulence within systems can lead to positive results provides hope and direction to literacy leaders. Complexity theory provides a context for understanding how the turbulence of educational change can act as an impetus for positive results.

Complexity theory offers language to explain the muddled growth of an organization over time, including the anxiety produced through the learning process. The nonlinear path of a learning organization is unpredictable, occurring within parameters on the edge of chaos and confusion (Parr, 2004). Complexity theory includes useful constructs as districts enforce accountability measures, introduce PLC, and introduce concepts of professional development designed to change teaching practices.

Backdrop of Complexity Theory

Application of the constructs of complexity theory requires an understanding of the theory. Complexity theory is grounded in Dewey's (1981) constructs of continuity and interactivity. Continuity means that learning is an accumulative phenomenon. Past learning impacts present learning, which impacts future learning. Interactivity involves learning within its context. Social, emotional, and cognitive elements impact the learning

of individuals and organizations (Nicolaides & Yorks, 2008). The two constructs are interactive. Learning has an historical component, a nonlinear present component, and a future impact (Dewey, 1981; Nicolaides & Yorks, 2008).

In addition to the cumulative nature of learning, complexity of learning can best be described as an interdependence of constraints and freedoms. Together they determine boundaries within which innovation or learning takes place. Nicolaides and Yorks (2008) explained these constructs:

> Complexity theory argues that constraints are not negative, but provide for the space within which innovation emerges. Constraints not only limit possibilities; constraints are also enabling. By eliminating certain possibilities, others are introduced. Constraints are an aspect in complexity that enables emerging realities to take shape. Understanding the nature of boundaries (constraints and freedoms) from the perspective of something that is enabling is something of a contradiction. (p. 55)

The contradictions or paradoxes generated within dynamic systems of change create disorder and instability. Within this zone of contradiction and instability, a learning organization leads to creative solutions to complex problems plaguing the system. If the instability can be maintained long enough, the tendency toward sameness can be overcome.

Critical events play a role in an organization's capacity to sustain instability and produce adaptation. Critical events are those that help a system make a distinction between old habits or patterns and new ones (Zellermayer & Margolin, 2005). Critical

events push a system toward change (Zellermayer & Margolin, 2005). These events are negotiated through a core group who are activists within the learning system and a periphery group who are observers of the change. While the periphery group may be considered passive observers, they influence the outcome (Nicolaides & Yorks, 2008; Zellermayer & Margolin, 2005). They challenge and withhold reaction, thereby maintaining a level of chaos from which novel solutions emerge. Therefore, both teachers who are promoting change and those who repudiate change determine the outcome of a critical event.

Implications of Complexity Theory to Content Area Reading Practices

The paradoxes of complexity can be seen in research regarding school systems. Researchers' recommendations supporting uniform curriculum practices advocate consistency. Researchers who have supported team-based decision-making advocate freedom. Tensions from these research perspectives produce system instability. Researchers who have supported common practices (Marzano, 2003; Reeves 2006; Schmoker, 2006) and the Common Core standards movement (Common Core, 2011) have recommended that schools determine a consistent curriculum from teacher to teacher. Educators who have promoted PLC decision-making (DuFour et al., 2005) advocate freedom in policy selection. Through professional conversations, adaptations and solutions emerge to balance these tensions (Arena, 2009; Davis & Sumara, 1997). Solutions require a change in strategies as well as beliefs. Solutions and changes produce tensions and turbulence. As teachers seek to move through the tension and turbulence,

professional conversations, facilitated by systematic professional development, produce solutions.

Just as opposing forces exist within the larger school system, so they exist within content area literacy research. Researchers have supported consistent literacy practice (Fischer & Frey, 2007; Marzano, 2007) and the need for flexible teacher-directed strategy application to meet student needs (Conley, 2008; Tovani, 2004). Two opposing research positions create a paradox, pointing to a need for understanding the complexities of system-specific literacy practices. Meanwhile, teachers are asked to implement these strategies with little understanding of the strategy or desire to implement the strategy (Hall, 2005; McCoss-Yergian & Krepps, 2010). More energy, in the form of professional development, must be placed within the learning system to overcome these opposing forces or no lasting change will occur. Without more energy, the inertia of sameness will be maintained, as the system has not sustained instability long enough for solutions to emerge (Arena, 2009; Davis & Sumara, 1997). Comfort with system turbulence resulting from secondary teachers being asked to make instructional change is necessary for the emergence of lasting solutions. In this study, I investigated the role of professional development in content area literacy as it related to the reduction of turbulence and apprehension resulting from change in a complex environment. Time spent in systematic professional development was proposed as the means of providing the energy needed to overcome the inertia of sameness.

Teacher Efficacy: Theory of Hope

Professional development moves teachers towards greater efficacy even in the midst of system turbulence. Tschannen-Moran et al. (1998) stated, "Teacher efficacy is the teacher's belief in his or her capability to organize and execute courses of action required to successfully accomplish a specific teaching task in a particular context" (p. 233). Within the context and complexity of school reform, the classroom teacher makes sense of his or her own teacher efficacy in light of that reform. New reform measures, including content-area literacy strategy expectations, reduce feelings of efficacy (Leroy et al., 2007). Teacher efficacy positively impacts student achievement (Goddard et al., 2000; Ross, 1992; Tschannen-Moran & Barr, 2004), pushes teachers to overcome implementation obstacles (Cantrell & Callaway, 2008), and varies depending on context (Goddard et al., 2000). If teachers do not feel confident using literacy strategies, they will not implement the strategy in daily lessons.

In addition to personal teacher efficacy, collective teacher efficacy is a school-level belief that teachers, working together, possess the necessary qualities to positively impact student learning. Collective teacher efficacy is positively correlated with general student achievement, increased teacher persistence, and increased parent involvement (Goddard et al., 2000). It has been correlated with reading achievement (Goddard et al., 2000), even in low socioeconomic status schools (SES) schools. The development of teacher collective efficacy is stable and, thus, difficult to change. However, the development of collective efficacy is cyclical. Once the cycle moves in a positive direction, efficacy grows gradually within the system (Goddard et al., 2000; Tschannen-

Moran et al., 1998). Any comprehensive reform measure is used to impact teacher collective efficacy.

The concept of teacher efficacy grew from two theoretical frameworks, Bandura's (1986) social cognitive and Rotter's (1966) locus of control theories. Tschannen-Moran et al. (1998) refined teacher efficacy theory by addressing the cognitive processing components that teachers weigh in making judgments about their personal efficacy in specific situations. Goddard et al. (2000) applied the same model to collective teacher efficacy, finding the cognitive processing component of efficacy could be measured collectively. Labone (2004) further refined the concept by conceptualizing the influences that produce teacher and collective efficacy. I stopped reviewing here due to time constraints. Please go through the rest of your section and look for the patterns I pointed out to you. I will now look at Section 3.

Three factors are consistently linked to developing or changing teacher efficacy. Mastery experiences, perceiving teaching actions as effective, had the greatest impact on building teacher efficacy (Labone, 2004; Tschannen-Moran et al., 1998). Vicarious experiences, watching or listening to other's attempts to complete a task, impacted teacher efficacy (Tschannen-Moran et al., 1998). Verbal persuasion had some impact on the development of perceptions of efficacy. Two additional factors impact teacher efficacy. The cognitive processing of an event – "what is attended to, what is remembered, and how the teacher thinks about each of the experiences" (Tschannen-Moran et al., 1998, p. 229) impacts perceptions of efficacy. In addition, moderate emotional and physiological arousal tends to increase teacher efficacy.

Early career experiences build foundations for teacher efficacy. Once established, teacher efficacy is generally a stable construct. Teacher efficacy is somewhat situational, however. It changes given new teaching assignments, grade levels, or classes. New school district initiatives generally lowers teacher efficacy for a time (Goddard et al., 2000). Supported mastery experiences (Labone, 2004) and professional development (Nielsen, Barry, & Staab, 2008; Tschannen-Moran & Barr, 2004) are the most effective means to counter decreased teacher efficacy during times of new school initiatives.

Implications of Teacher Efficacy to Content Area Reading Practices

Because secondary teachers are being asked to implement literacy strategies embedded within their content disciplines (Biancarosa & Snow, 2004; Heller & Greenleaf, 2007) in answer to the alarming national adolescent literacy trends, teacher efficacy is impacted. Secondary teachers' preservice training in literacy instruction generally consists of one course (Lesley, Watson, & Elliot, 2007). Attitudes and beliefs among secondary teachers viewed teaching literacy as an add-on rather than a means for deeper understanding of subject matter (McCoss-Yergian & Krepps, 2010; Ness, 2009). When comprehension strategies were addressed in the classroom, teachers often directed students to use content area strategies but did not teach how to use the strategies (Ness, 2009). Increased understanding through vicarious experiences and increased mastery experiences in content area literacy strategies are needed to raise perceived and actual teacher efficacy in content areas literacy strategy use. In this study, I investigated the vehicle of time spent in systematic professional development as a means to bring

vicarious experiences and increased mastery experiences to content area teachers. The result was greater efficacious beliefs about strategy inclusion in lesson design.

Applied Structured Teaching – A Model for Transfer

While situational complexity and change may breed periods where teachers perceive a lack of efficacy, Fisher and Frey (2008c) offer a framework for structured teaching that, when applied to professional development, has potential for delivering appropriate mastery and vicarious experiences. Structured teaching (Fisher & Frey, 2008a, 2008b; Frey & Fisher, 2009) is a gradual release model based on the following theorists: (a) Piaget's (1952) schema theory, (b) Vygotsky's (1987) zone of proximal development, (c) Bandura's (1965) work on modeling and imitation incentives, and (d) Wood, Bruner, and Ross's (1976) scaffolded instructional model. Structured teaching conceptualizes a gradual shift of responsibility from the teacher to the learner. Four stages of teaching and four stages of learning facilitate this shift in responsibility.

While structured teaching has not been addressed as a professional development model, its characteristics are supported by professional development research and adult learning theory (Merriam, 2008). Teachers learn new processes and methodologies from watching good models (Ross & Bruce, 2007; Roe, 2004). Guiding practice and understanding underlies mentoring and coaching models (Boyer, Maney, Kamler, & Comber, 2004; Zwart, Wubbels, Bolhuis, & Bergen, 2008). The value of collaborative structures for professional development enhancement is foundational to the PLC movement (Dufour et al., 2005) and the collaborative scoring of student work (Fisher & Johnson, 2006). The structured teaching model is appropriate for a content area literacy

professional development instructional model because it organizes the process by which teachers learn and provides a process to guide literacy strategy professional development.

Implications of Structured Teaching to Content Area Literacy Professional Development

Content area teachers balance three spheres of knowledge when making decisions about which content area literacy strategy best supports learners in reading texts. Knowledge of general content reading strategies (Fisher & Frey, 2008c), knowledge of specific content discipline (Ness, 2009), and knowledge of learners' needs and characteristics (Ellery, 2009), must be considered when making classroom literacy strategy decisions (Mojo, 2010). Of those three spheres of knowledge, teachers report less confidence in their knowledge and application of content area literacy strategies than the other two spheres (Ness, 2009). A structured teaching model would facilitate systematic professional development to build an understanding of content literacy strategies so teacher decision-making can facilitate content understanding and meet learner needs.

Collaboration is a key element of structured teaching and successful implementation of content area strategies in content area lessons. Not all content literacy strategies are equally useful to understanding content reading (Conley, 2008). The collaboration stage of structured teaching implemented through PLC discussions and action research could determine the appropriateness or inappropriateness of literacy strategy instruction for learning specific content within respective disciplines (Heller & Greenleaf, 2007; Shanahan & Shanahan, 2008). Through the collaboration stage of

structured teaching, literacy strategy protocols specifically matching content and learner profiles could be devised for future literacy decision-making within each discipline. While a literacy coach can bring a strategy to a content area teacher, the content area teacher is the one who must determine appropriate use of the strategy (Heller & Greenleaf, 2007; Tovani, 2004). Content area teacher collaboration facilitated through embedded professional development will identify literacy strategies best matching the demands of a content area discipline.

In this study, the stages of the structured teaching framework formed a process by which professional development experiences were delivered. The extent to which modeling, guided practice, collaborative practice, and independent practice was present in a professional development system determined the systematic nature of the professional development. In this study, I defined systematic professional development as containing all components of structured teaching.

Transformative Learning Theory: Critical reflection

Any reading comprehension staff development plan assumes a change or improvement in individual practice as a result of the plan. I used Mezirow's (2000) transformative learning theory as a means to understand characteristics of real and lasting change. According to Brown (2006), "Transformative learning is a process of experiential learning, critical self-reflection, and rationale discourse…that challenge[s] the learner's basic assumptions of the world" (p. 706). Through critical reflection and rationale discourse, learners make meaning from their experiences. Brown (2006) defined and described the value of critical reflection as deeply considering motives and

examining beliefs as they impact professional practice. Through this reflection beliefs taken for granted are considered. This high level of reflection leads to transformation. Transformative staff development relies on critical reflection regarding an experience. The meaning teachers make through critical reflection is personal and unique.

Rationale discourse provides the means to temper or guide the outcomes of critical reflection. Brown (2006) describes rationale discourse as validating "meaning by assessing reasons. It involves the weighing of supporting evidence, examining alternative perspectives, and critically assessing assumptions" (p. 723). Rational discourse is not just polite conversation about professional issues. Participants in rational discourse are required to probe for understanding, to assess motives, and to suspend biases. Emotional maturity is necessary for effective discourse. Rationale discourse leads to contemplation and articulation of reasons for educational decisions.

Central to transformational learning theory is experiencing a significant event leading to feelings of disorientation or disequilibrium (Taylor 2000). Researchers described "disorienting dilemma" and "triggering event" as terms that distinguish experiences leading to transformation (Taylor, 2000). Transformation is unlikely without an event, promoting deep self-questioning.

Implications of Transformational Learning Theory in Content Area Literacy

When applying transformational learning theory to content area literacy strategy implementation research, a professional development program must consider all components of the theory. The first component, critical reflection, requires time for reflection. Lack of time is consistently cited as a barrier (Barry, 2002; Leroy et al., 2007;

Ness, 2009) to professional development endeavors. If reflection can be facilitated through the PLC process, a school has a greater chance of producing lasting change. If a school has little time for reflection within professional practice, limited professional learning and limited professional change will likely result.

The second component of transformational learning theory, rational discourse, can be applied in professional conversations about literacy strategies. PLC or coaching conversations can also facilitate rational discourse (Peterson, Taylor, Burnham, & Schock, 2009). Cognitive coaching's reflecting conversation protocol can facilitate rationale discourse (Calkins, n.d.). Successful implementation of rational discourse depends upon a positive school climate and training in the procedures of rationale discourse (York & Marsick, 2000). High levels of professional conversation need to be part of any professional development designed to produce lasting change.

While transformational learning relies on a key triggering event (Taylor, 2000) manufacturing this event in a professional setting may be difficult. A controversial shared professional reading or speaker may produce a common experience but the impact of that experience may not compare to those described in the transformative learning literature. The impact of the accountability movement and the consequences of reduced funding because of lack of improvement may be dramatic enough to promote reflection and transformation. In content area literacy professional development, viewing a literacy strategy and measuring its impact on student learning through action research may be a common type of triggering event for transformational learning.

In this study, I used the elements of the transformational learning theory to form a lens by which professional development experiences were evaluated. The extent to which critical reflection, rationale discourse, and key triggering events are present in a professional development system determines the systematic nature of the professional development. This study defined systematic professional development as one containing all components of transformational learning theory.

Constructivism: Bridge From Knowledge to Practice

Organized professional development can be well planned and enjoyable and yet produce varied change in professional practice (Monte-Sano & Cochran, 2009). In part, this varied responsiveness results because learners construct "meaning based upon their previous knowledge, beliefs, and experiences" (Walker, 2002, p.1). Piaget (1952) first described the process of integrating new information with past learning as assimilation and accommodation of a learning situation that produced cognitive dissonance. Vygotsky (1987) pointed out that the development of new ideas, or concepts, was a productive process, not just linguistic process. Dewey (1981) highlighted the role of experience in new concept formation. Constructivist researchers shared the view that concept formation was a function of not only the external stimulation of a learning experience but also the construction or internal understanding of that experience (Dewey, 1981; Piaget, 1952; Vygotsky, 1987).

As adults construct their own understanding of concepts and respond to professional development, dialogue facilitates construction of new knowledge. New understanding is more than learning information; it is a meaning-making and meaning-

connecting process. Past learning must be connected to present learning. Discussion about common experiences and practices facilitates embedding new understanding in present schema.

Implications of Constructivist Learning Theory in Content Area Literacy

Opportunities for reflection, dialogue, and debate need to be facilitated during content-area literacy strategy professional development trainings. Opportunities for disagreement must also be permitted. Researcher support content area teachers working together to determine, construct, and research strategies (Carnegie Council on Advancing Adolescent Literacy, 2010; Darling-Hammond et al., 2009; Heller & Greenleaf, 2007; Shanahan & Shanahan, 2008) appropriate for maximizing student understanding of subject matter. Collaboration based on evidence builds understanding. Teachers report needing professional development in effective collaboration methods (Abadiano & Turner, 2004). Providing more time for professional development without providing appropriate reflection and collaboration may not produce construction of deeper understanding. In this study, evidence of appropriate reflection and collaboration defined systematic professional development.

As teachers experience meaning making through discussion and collaboration, they in turn can use this learning experience as a model for classroom meaning making. Just as teachers learn through discussion and reflection, so students learn through these processes. Teachers experiencing the deep understanding constructivism can facilitate, will transfer to students experiencing a similar situation (Keene, 2010). In this study, I sought to better understand the relationship between the applications of content area

literacy strategies in daily lesson design as evidence of teachers' constructed understanding of strategy use.

Integrating the Theoretical Frameworks

To better understand the shifts and changes in content area literacy strategy instruction and the professional development impacting the implementation of these strategies, five theoretical frameworks guide this research synthesis. Complexity theory, efficacy theory, structured teaching, transformational learning theory, and constructivist theory presented frameworks from which content area literacy professional development was analyzed. The following diagram illustrates the relationship between the theoretical frameworks (See Figure 2).

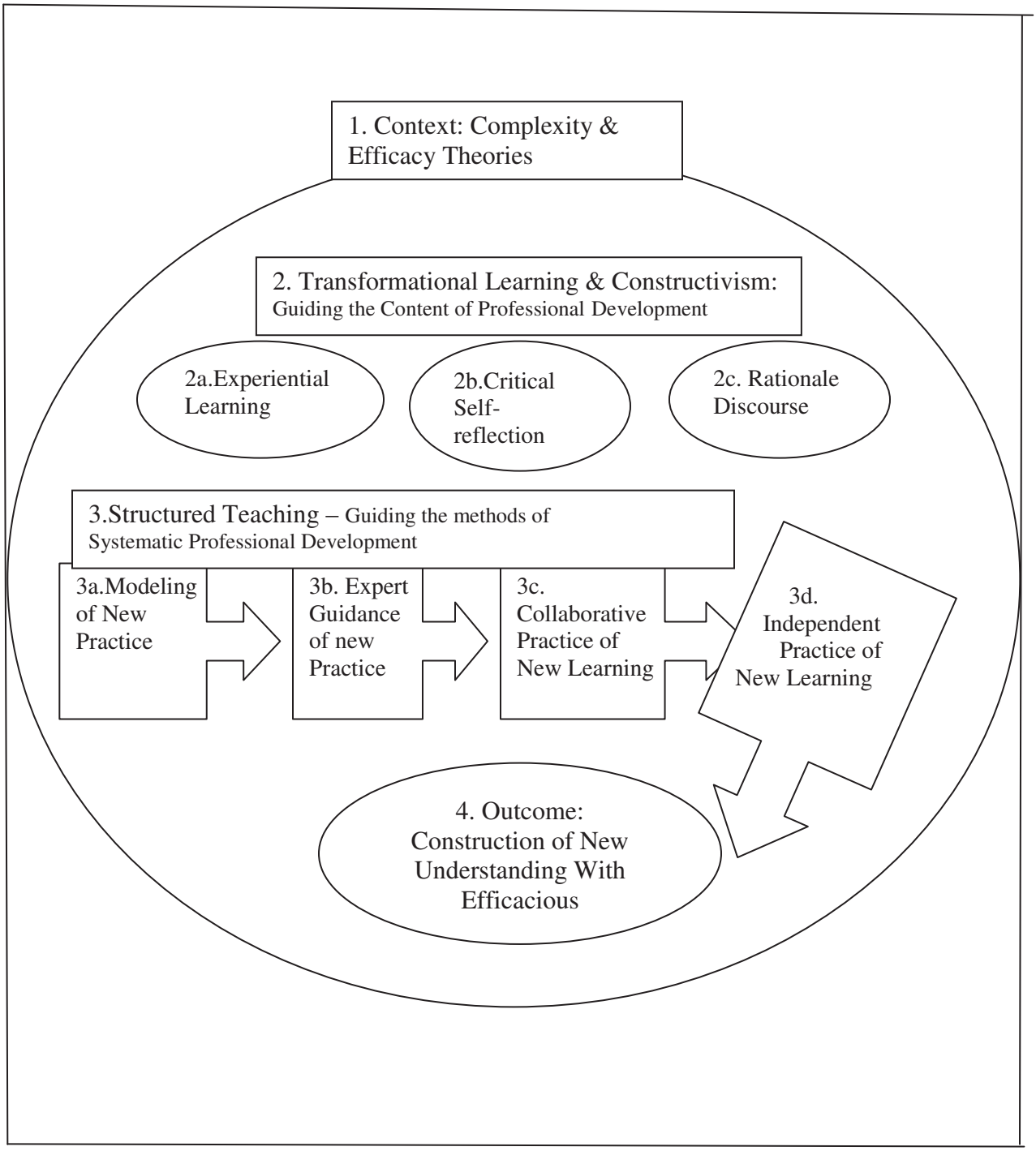

Figure 2 Diagram illustrates the context, processes, and outcomes of five theoretical frameworks

Figure 2 illustrates the interactions of the theoretical frameworks influencing this research study. The outer circle (See Number 1) illustrates how the theories of complexity and efficacy form the context in which the study is framed. Minnesota content area teachers are being asked to change their teaching practice with Minnesota's adoption of the Common Core State Literacy Standards (Common Core State Standards Initiative, 2011). The new content standards will produce feelings of apprehension (Arena, 2009; Hargreaves, 2004), inefficaciousness, and lack of confidence (Cantrell & Callaway, 2008; Ross & Bruce, 2007). Adequate systematic, collaborative, and meaningful professional development has alleviated these feelings (Davis & Sumara, 1997). In this research study, I investigated the relationship between professional development and literacy strategy inclusion in daily lesson design. The variables time spent in professional development, type of professional development, rate of strategy inclusion in lesson design and confidence in literacy strategy inclusion in daily lesson design were analyzed.

The center of Figure 2 (See Numbers 2 and 3) illustrates how the theories of transformational learning theory (Mezirow, 2000) (See Number 2a-2c) and structured teaching (Fisher & Frey, 2008a, 2008b; Frey & Fisher, 2009) (See Numbers 3a-3d) facilitate the characteristics of lasting and meaningful professional development. I used both theories to describe traits of professional learning environments in which lasting change is made. High quality professional development must possess experiential learning (Taylor, 2000), experiences that allow the professional development to feel, see, or live a situation. In addition, self-reflection, or comparing oneself to a standard, and

rationale discourse (Brown, 2006), discussing the reasons behind a decision, should exemplify all stages of professional development. The stages of structured teaching (Fisher & Frey, 2008a, 2008b; Frey & Fisher, 2009) define the process of professional development in which new teaching practices are internalized. The professional development expert models the intended behavior or target. The behavior is practiced with guidance from the expert. The behavior is practiced or implemented with peer collaboration generally in a PLC or coaching setting, and finally, the strategy is applied independently. Moving through the stages of structured teaching with supportive professional development that exemplifies characteristics of transformational learning theory will lead to the outcome of the theoretical model, construction of new learning, and efficacy in the application of the learning.

Finally, the bottom portion of Figure 2 (See Number 4) represents how constructivism (Dewey, 1981; Piaget, 1952; Vygotsky, 1987) and efficacy (Labone, 2004; Tschannen-Moran et al., 1998) become the outcome of the theoretical model. Through the study's survey, I sought to determine the relationship between feelings of increased efficacy and systematic professional development. In addition, as teachers build greater understanding of content area literacy strategy use, they will develop deeper cognitive structures regarding content area literacy strategy inclusion in daily lessons (Darling-Hammond et al., 2009; Ross & Bruce, 2007). The frequent application of learning from professional development experiences is an expected outcome of constructing new understanding. Therefore, if the strategies are present in daily lesson design, construction of understanding has preceded the presence of the strategies.

Applied Theory to Practical Research Practices

In this research study, I investigated the relationship between time spent in systematic professional development, type of professional development, rate of literacy strategy inclusion in lesson design, and confidence in literacy strategy inclusion in daily lesson design in light of five theoretical frameworks. Two bodies of research provided guidance for better understanding of professional development leading to increased content area literacy instruction. Research in characteristics of general professional development and content area literacy strategy professional development provided the practical background for this research study.

Traits of Successful Literacy Professional Development Models

The frameworks of complexity theory and efficacy theory reinforce the concept that turbulence and feelings of inadequacy result when change of teaching practice is prescribed. Professional development must be able to overcome these impediments if transformation of practice and construction of new knowledge is to occur. Researchers support the relationship between teachers' reduction of apprehension as student achievement increases (Guskey, 2002; Ness 2009) as a result of a new practice. High quality professional development impacts general student achievement in elementary literacy (Putnam, Smith, & Cassady, 2009; Yoon, Duncan, Lee, Scarloss, & Shapely, 2007). The research directly linking content area literacy professional development and middle and high school student achievement is more limited than research on elementary literacy achievement. Reed (2009) surveyed several middle level studies finding one study (Bryant et al., 2000) addressing professional development and its impact on student

achievement. In this correlation survey research study, I did not address student achievement as a variable. I used the research-based characteristics of professional development that impact student achievement as a means to define systematic professional development.

Characteristics that influenced student achievement. Reed (2009) found three traits of successful content-area professional development that positively influenced student achievement. The first trait was that the professional development focus was based on perceived teacher need. A needs assessment dictated the professional development focus. Hall and Hord (2006) confirmed this point. However, Guskey (2002) contradicted this recommendation to some extent. Guskey pointed out that changes in belief followed changes in student achievement. If teacher preferences, or beliefs, dictated innovation on the front end, the actual innovation was changed beyond recognition and the fidelity of the innovation was compromised (Fisher, 2006). Even with the same professional development experiences, teachers implemented strategies differently because of varied beliefs, styles, and perceptions of need. The research conclusion regarding professional development and perceived need is mixed.

A second trait of successful professional development positively impacting student achievement was adequate duration and time allotment for professional development. Researchers confirmed that time engaged in professional development is a critical component of successful classroom change (Reed, 2009). Yoon et al. (2007) reviewed studies of professional development impacting student achievement and found that duration of 14-49 hours positively impacted student achievement of middle or high

school students. Timperley and Phillips (2003) found 30 hours of professional development spread over six months produced change in teacher beliefs. Darling-Hammond et al. (2009) reported that nearly 50 hours of professional development within a year's time produced positive changes in teaching practice. In this research study, I used the above research-supported time delineations in constructing the instrument for this research study.

Embedded professional development is more likely to be of the duration necessary to produce instructional change. How professional development is embedded in the day-to-day workings of a teacher is varied, but one trend supported by research is that teachers are not changing practice without systematic, purposeful professional development over time (Biancarosa & Snow, 2004; Heller & Greenleaf, 2007; May, 2007). Collaborative teams (DuFour et al., 2005; Hall & Hord, 2006), outside agencies (Coborn, Bae, & Turner, 2008; Correnti & Rowan, 2007), and reciprocal or expert coaching models (Lockwood, Sloan McCombs, & Marsh, 2010) are common in studies that produced a change in practice. System change is a contributing factor to improving teachers' practice. In this research study, I analyzed the amount of time spent in professional development in relationship to literacy strategy inclusion in daily lesson design.

A third trait of successful professional development that positively impacts student learning was that the educational system provided some means for teachers to debrief from pressures stemming from the school environment (Reed, 2009). Environmental events causing teachers pressure included students who lack readiness

because of impoverished backgrounds, students with behavioral or academic challenges, and frustration from inefficacy. Reed (2009) found that one successful school found relief through collaborative teams. Butler, Lauscher, Jarvis-Selinger and Beckingham (2004) concurred that collaboration through group problem solving was a means of teacher stress reduction. Common procedures, practices, and policies have shown promise in addressing some behavioral contextual factors that interrupt learning and cause teachers stress (Office of Special Education Programs (OSEP), 2010). In this study, I investigated the relationship of time spent in systematic professional development, type of professional development, rate of literacy strategy inclusion, and confidence in literacy strategy inclusion in daily lesson as a means to address student literacy readiness.

Characteristics that impact a change in teaching practice. Researchers who identified an improvement in student achievement may be limited, but several researchers summarized professional development methods leading to a change in teaching practice. A change in practice must precede a change in student achievement. Deshler (2004) reported that professional development relying on presentation of information produced a 5% change in practice. With the addition of modeling, practice, and feedback, only a 10-15% change in practice occurred. However, if coaching was added to the model, an 80-90% change in classroom practice was observed.

Reciprocal peer coach coaching models change teaching practice in elementary schools (Zwart, et al., 2007; Zwart, et al., 2008; Zwart, Wubbels, Bergen, & Bolhuis, 2009), but secondary literacy coaching models are less common (Gross, 2010). Gross

(2010) reported secondary teachers' initial reactions to literacy coaching were skeptical but final reactions to literacy coaching experiences were positive. The impact of coaching was reported as more positive than off-site training. Coaching models that promoted reflection on student data (Lovett, Lacerenza, De Palma, Benson, & Steinbeck, 2008), and feedback (Veenman & Denessen, 2001) had the greatest impacting on producing a change in teaching practice. Introducing coaching into an educational system can cause conflicts with existing curriculum practices, expectations of the role of a literacy coach, and time constraints (Otaiba, Hosp, Smartt, & Dole, 2008). In this study, I sought to define systematic professional development in light of the specific professional development characteristics that create change in teaching practice.

According to transformational and constructivist theories, a significant meaning-laden experience must be internalized to construct meaning. Literacy strategy instruction is what content teachers must experience and process before strategies are internalized and applied in teaching practice. While limited research has been conducted focusing on the impact of literacy strategy use and its impact on general student achievement at the secondary level, several researchers have investigated the link between strategy instruction, student application of the strategy, and impact on reading understanding. Biancarosa & Snow (2004) completed a federally sponsored report and concluded that adolescent literacy should include "instruction in the strategies and processes that proficient readers use to understand what they read" (p.4). Specific strategy instruction resulted in improvement in researcher-produced reading measures (Griffin, Wiley, & Thiede, 2008; Wilson, Grisham, & Smetana, 2009). Evidence of the positive impact of

strategy instruction on reading comprehension is strong (Kamil, Borman, Dole, Kral, Salinger, & Torgersen, 2008). However, other researchers found that student strategy use had a positive direct impact on inference formation but only an indirect impact on general comprehension of text (Cromley, Snyder-Hogan, & Luciw-Dubas, 2010). McKeown, Beck, and Blake (2009) concluded that content-based classroom instruction should drive the literacy curriculum rather than strategy-driven curriculum models. The researchers concluded that strategies be practiced in short texts and recognized when students report use of strategies. The researcher also recommended mixing reading and discussion of content texts as a lesson organizational strategy regardless of lesson focus. Researchers supported both a strategy and content-based literacy instructional model. It is not the focus of this research study to further clarify this issue. In this study, I sought to analyze the degree to which strategy instruction is present in daily lesson design. Further research is recommended to clarify the issue of how best to integrate strategy and content instruction in daily content area lessons.

While content area reading strategy implementation is supported by research, a growing body of research investigates teacher's lack of implementation despite undergraduate coursework and professional development. The reasons include literacy strategies incompatibility with content discipline (Draper, 2008; Siebert & Draper, 2008), lack of teacher confidence (Cantrell & Callaway, 2008) and discomfort (Cantrell et al., 2009) with literacy strategies, and divided pressure between content coverage and literacy strategy instruction (Barry, 2002). In this research study, I did not investigate reasons for lack of implementation; therefore, further studies may be warranted.

Content area literacy strategies can be organized in different ways, as literacy strategies may be applied at different points in the reading process. The following summary of strategy research has been organized into two groups: strategies used at specific points in the reading process and strategies recommended for understanding of discipline-specific texts. In this study, I used the before, during, and after-reading organizational structure as a means to determine frequency of each strategy in daily lesson design.

Reading process strategies: Before reading. As students begin to read a text, specific prereading strategies assist in meaning creation. The building and consideration of background knowledge is a critical strategy in understanding texts (Cromley et al., 2010; Marzano, 2003) prior to reading a text. Students need to be reminded to apply or connect background knowledge as well as purposefully build background knowledge through prerequisite class participation (Cromley et al., 2010). A background knowledge, or schema, is linked to increased understanding of text (Keene, 2010). Previewing concepts in a text with supportive class discussion as in an anticipation guide (Richardson et al., 2009) graphics or illustrations, or concept comparison (Marzano, 2004; Richardson et al., 2009) are some examples of purposefully building background knowledge.

A literacy strategy related to building background knowledge is pre-teaching or previewing key vocabulary. Since background knowledge and vocabulary knowledge are stored as conceptual understanding, preteaching or previewing key vocabulary helps build background knowledge (Marzano, 2004). Content area texts do attempt to define

key vocabulary but students may not utilize text supports without teacher direction and modeling. In addition, conceptual knowledge is best built through experience and nonlinguistic representation (Hyerle, 2009; Marzano, 2004) rather than through use of dictionary skills.

Prior to reading any text, effective literacy instructors help students establish a purpose for reading. The purpose of a reading task influences the rate of reading, attention given when reading, and self-regulation during reading (Honig, Diamond, & Gutlohn, 2008). Explaining the rationale for reading a text or the expected task following the reading of the text are examples of methods for establishing a purpose for reading.

Reading process strategies: During reading. A myriad of student-applied reading strategies shown to improve student understanding of texts are options for instruction in content area classrooms. In addition, a variety of teacher instructional strategies are available to assist students in the development of these during-reading mental processes. While not all of the teacher instructional strategies match all content areas equally well, several transcend subject matter. In the following section, the mental processes students use to make meaning from text during reading will first be addressed followed by a review of the teaching strategies used to support the mental development of these strategies.

During-reading strategies good readers utilize while reading. Reading researchers have confirmed that good readers use a variety of strategies to make sense of their own reading (Ellery & Rosenboom, 2011; Lapp & Fisher, 2009; Pressley & Afflerbach, 1995). While many of these strategies are invisible to the competent reader,

teaching the strategies competent readers employ is recommended as part of a comprehensive secondary content area reading instructional system (Biancarosa & Snow, 2004; Heller and Greenleaf, 2007). While content-based curriculum models outperformed strategy-based curriculum models in one longitudinal study (McKeown et al., 2009), direct instruction surrounding the mental processes good readers use is recommended by a variety of researchers (Biancarosa & Snow, 2004; Heller & Greenleaf, 2007; Lapp & Fisher, 2009). The following contains a summary of student-utilized cognitive strategies support effective reading in content area classrooms.

Monitoring comprehension, recognizing a lack of understanding and doing something to restore meaning, is considered an important cognitive reading strategy (Ellery & Rosenboom, 2011; Lapp & Fisher, 2009; Pressley & Afflerbach, 1995). Cantrell and Carter (2009) investigated the type of monitoring strategies used by effective readers. Researchers found that surface-level repair strategies, those that quickly allowed for correction of meaning, and deep-level global strategies, such as visualization, use of context clues, or predicting, were positively correlated with high-achieving readers. However, surface-level support strategies such as underlining and note taking were negatively correlated. In addition, rereading a selection and self-explanation strategies increased the literacy understanding of poor readers to that of competent readers (Griffin et al., 2008). The quality of the self-explanation did not negate the improvement in understanding. These findings have implications for during-reading comprehension monitoring instruction in the classroom, as strategies more geared toward deeper

construction of understanding should be presented to a greater degree than support strategies.

Closely related to monitoring comprehension is the reader's skill at recognizing text or task demands and flexibly planning or monitoring a course of action to meet those demands. Readers use elements of the text such as text organization, signal words, headings, or diagrams to plan or monitor their own reading (Lapp & Fisher, 2009). The ability to be sensitive to type of text and flexibly alter mental plans as the demands of a text change, was correlated to scholastic success in a study of middle level Italian students (Meneghetti, Carretti, & De Beni, 2006). Teaching students to self-regulate and devise their own strategic systems produced gains in tutoring settings (Butler, 2002). Literacy strategy instruction should include coaching readers in adjusting reading to meet text demands.

Good readers also employ the strategies of questioning, summarizing, predicting, and inferring (Lapp & Fisher, 2009; Richardson et al., 2009), during the reading process. Good readers also visualize mental images such as pictures, symbols, graphic organizers, or mental movies while reading. Good readers employ reading strategies with little awareness of strategy use. Effective literacy strategy instruction makes the invisible thinking processes of good readers visible generally through "thinking aloud" or modeling the thinking process of good readers.

Teaching strategies used to support during reading comprehension. The goal of good literacy instruction is not a single application of a reading strategy, but the development of a broad repertoire of strategies to be used at will when a reader needs to

make sense of text (Biancarosa & Snow, 2004; Heller & Greenleaf, 2007; Lapp & Fisher, 2009; Richardson et al., 2009). Teachers devise lessons using appropriate teaching tools to cultivate the development of the mental processes used by good readers. The following descriptions offer promising teaching methods used to support strategy development in students.

A teaching method that promotes active thinking while reading is the use of questioning strategies. Good readers use questioning strategies before, during, or after reading. Elaborate questioning strategies, such as Question, Answer, Relationship (QAR) (Raphael & Au, 2009; Raphael, Highfield & Au., 2006), have been proposed to assist students in asking and answering questions. Gunn (2008) found that generic question stems are an effective means helping readers navigate through texts that are poorly written and for which readers have limited background knowledge. While QAR can be an overwhelming strategy for content-area teachers, generic question stems offer a promising alternative.

Teaching strategies that support student collaboration have been found to improve reading achievement. These strategies can be used before, during, and after reading. Use of Peer Assisted Learning Strategies (Sporer & Brunstein, 2009) at the secondary level produced better procedural and summarization skills on a researcher-designed measure but did not improve the procedures and knowledge of predication skills. Use of multistep, collaborative strategies such as reciprocal teaching (Biancarosa & Snow, 2004, Palincsar & Brown, 1984; Sporer, Brunstein, & Kieschke, 2009) and questioning the author (Biancarosa & Snow, 2004; Murphy, Wilkinson, Soter, Hennessey, & Alexander,

2009) has improved comprehension of text. Collaborative reading strategies are effective because they create active processing of text while discussing thinking processes and content with peers.

Teaching text organizational and design features facilitate student understanding and memory. Assisting students in understanding the benefits of text features and text organizational structures (Meyer & Poon, 2001; Sanchez, Lorch, & Lorch, 2001), have proven beneficial to student understanding of text. Semantic association of terms used in reading assignment as well as an understanding of text organization facilitates text memory (Wolfe, 2005). Instruction that teaches how a text is organized as well as provides foundational skills enabling students to do their own analysis of text organization is beneficial to understanding.

Reading process strategies: After reading. Chiu, Chow, and Mcbride-Chang, (2007) compared the learning benefits of various after-reading strategies designed to promote learning of content. The researchers found that students who relied on memorization strategies alone did not produce high gains in understanding. In contrast, students who applied focused, purposeful metacognitive strategies produced gains in understanding. Application of metacognitive strategies also impacted the strategy use of the peers with who studied with participants. Higher-level processes offer more benefit than rote memorization methods following reading of text.

Discussion is a common instructional method that assists students in constructing meaning from text. Soter, et al. (2008) investigated various discussion strategies and found critical-analytic questioning processes to promote student participation and high-

level reasoning when compared with other discussion processes. While teacher modeling and scaffolding is a necessary element in teaching students the art of discussion, high amounts of teacher talk were associated with lower levels of participation and thinking for students. Several types of discussion formats increased literal and inferential understanding of text (Murphy et al., 2009) but were limited in their increase of critical reasoning and analysis. Collaborative discussion formats were more beneficial for struggling readers than for advanced readers. Higher-level discussion foci tend to produce greater consolidation of information than lower-level discussions.

Responding to reading through writing is a common after-reading strategy. Graham and Hebert (2010) reported that writing activities have a high impact on student achievement. Students responding to text by giving reactions, analyzing, or interpreting in an extended manner was highly associated with increased student achievement. Summarizing positively impacted understanding, with a more powerful effect in the elementary than the middle or high school. Writing when answering questions about a text also showed a positive impact on student achievement.

Discipline-specific reading strategies. Discipline-specific reading strategy instruction embedded in content lessons is a fairly new recommendation for content area teachers (Heller & Greenleaf, 2007). The premise of discipline-specific strategy research is that specific literacy processes more naturally support certain disciplines. For instance, professionals read a history text differently than a science text. Literacy experts have identified specific literacy strategies for reading history, chemistry, and mathematics texts. Specific strategies for each of each of these content areas are being field-tested.

Literacy strategies specific to disciplines have not entered professional development circles (Shanahan & Shanahan, 2008).

A recent Carnegie-sponsored report recommended that content teachers have "a strong background in their content areas and a metacognitive understanding of the specific types of literacy skills these areas required (Carnegie Council on Advancing Adolescent Literacy, 2010, p. 37). Variation in literacy strategy results from differences in text structures (Fang, 2006) and foundational reasoning regarding subject matter (McConachie, et al., 2006). While literacy experts understand general literacy strategy use, they may not be experts in discipline-specific strategy application. Therefore, literacy professionals can assist but not develop discipline-specific literacy strategies for content area teachers.

Recommendations that content teachers reflect on personal literacy strategy use to guide students (Tovani, 2004), is one means to determine discipline-specific literacy strategies appropriate for subject matter. Studying the thinking processes used by scientists, historians, or mathematicians is a second way to determine discipline-specific strategies. Shanahan and Shanahan (2008) studied the thinking of professionals in various fields, converted the professionals' reading processes into literacy strategies, and are currently testing those strategies in content reading classes. Heller and Greenleaf (2007) recommended that content teachers work together to determine appropriate discipline-specific literacy strategies. Continued research is needed to determine most appropriate discipline-specific literacy strategies for each discipline.

This correlation research project applied information regarding literacy strategy

teaching methods as a foundation for developing the measurement tool used in the study. Questions were organized within the before, during, and after reading process framework. Discipline-specific strategies were not be addressed in this study, as these strategies are in the process of being developed.

Research Design

In this study, I sought to investigate the relationship of time spent in systematic professional development, type of professional development and their association with rate of and confidence in literacy strategy inclusion in daily lesson. Because I sought to measure the strength of a relationship as a means to predict efficient future professional development regarding content area literacy, quantitative methodology was selected over a qualitative or mixed method design. Creswell (2003) recommended that a quantitative research approach is best applied when a research problem has an adequate research base and contains a predictive quality. Because researchers have worked for 30 years in the area of content area literacy strategy inclusion, the topic does have an adequate research base upon which to make predictions. In addition, the described problem implied a predicted solution. For both of these reasons a quantitative approach was selected.

Within a quantitative research approach, survey or experimental methodology can be used to clarify a problem. A survey design was selected for this research project because of its efficient means to identify data trends (Creswell, 2003). A correlation statistical procedure was selected as a means to analyze the survey results because the study makes no attempt to control or manipulate variables (Gravetter & Wallnau, 2008).

In this research study, I sought to investigate the relationship of time spent in

systematic professional development, an interval variable, and type of professional development and their association with rate of and confidence in literacy strategy inclusion in daily lesson design. Type of professional development and association with rate and confidence in lesson design are categorical variables. The Spearman statistical correlation calculation was selected because of the mix of interval and categorical variables.

Section Summary and Conclusion

Through this literature review, I concluded that current educational trends support new recommendations in secondary literacy practice. Minnesota's Common Core literacy standards (Minnesota Department of Education, 2011b) expect content area teachers to change their teaching practice by teaching literacy standards embedded in content standards. Change often causes confusion and feelings of inefficaciousness. Professional development assists teachers in developing knowledge and skills to reduce these feelings, therefore, increasing efficacy and decreasing stress. Professional development linked to perceived teacher needs, of adequate duration, collaborative in nature, and systematic in implementation, has the greatest impact on change in practice. Five theoretical frameworks formed the foundation for this research project. Complexity theory, efficacy theory, transformational learning theory, structured teaching and constructivism interact and set a foundation for change in practice.

Professional development must produce increased literacy strategy presence in classrooms prior to impacting secondary literacy achievement. Therefore, the rate of strategy inclusion was assumed to be a precursor to increased student literacy

achievement. Because of the previous assumption, in this study, I investigated the relationship of time spent in systematic professional development, type of professional development and their association with rate of and confidence in literacy strategy inclusion in daily lesson. This study added to the existing knowledge base concerning type and duration of professional development and strategy inclusion in content area teacher lesson design. This study may impact social change as teachers increase their understanding and confidence with content area literacy strategy inclusion in daily lesson design, teachers will provide students with models to better understand high levels of literacy. As students gain more understanding, students will be able to read higher levels of text. Higher literacy skills will create a more educated and successful populace. Section 3 presents the methodology of the cross-section correlation survey research study. It includes a review of the research design, setting and sample, data collection, data analysis, and instrumentation associated with this cross-section, correlation survey research study.

Section 3: Research Method

Researchers (Biancarosa & Snow, 2004; Ellery & Rosenboom, 2011; Honig et al., 2008) have supported the inclusion of literacy strategies embedded in content area lessons for maximum literacy achievement. The Common Core Literacy standards (Common Core Standards Initiative, 2011), adopted by several states, necessitate the teaching of literacy standards within high school content classes. Most Minnesota teachers have taken undergraduate coursework to meet language and literacy strategy standards. Most Minnesota school districts have supported professional development activities promoting literacy strategy inclusion in content area courses. Yet, few researchers have investigated the impact of training and professional development on literacy strategy inclusion in content area lesson design. School district's professional development structures should be designed to support teachers in embedding literacy strategies in content lessons. In this study, I analyzed the relationship between professional development and content area literacy strategy inclusion in lesson design. Section 3 includes a review of the research design, setting and sample, data collection, data analysis, and instrumentation associated with this cross-section, correlation survey research study (IRB approval # 08-24-12-0133617).

Research Design and Approach

The goal of this quantitative cross-section correlation survey research study was to analyze the relationship between time spent in systematic professional development, the type of professional development, the rate of literacy strategy inclusion, and confidence in literacy strategy inclusion in daily lesson design. I considered using either

qualitative or quantitative, or mixed methods as the research design. Since the research goal was to generalize to a population rather than to explore a problem, the goal itself fits more appropriately with a quantitative research design rather with a qualitative research design (Trochim, 2006c). I investigated a problem with well-defined variables; I sought to investigate the relationship between these variables rather than to explore the variables. Creswell (2003) pointed out that quantitative research is best used for problems with identified variables, narrow focus, and predictive elements. Qualitative research goals are explorative, and researchers seek to understand relationships not yet defined. The goal was not to explore how the intricacies of professional development change teaching practice, a goal more appropriately met through qualitative research methods. Instead, I attempted to determine the strength of the relationship between professional development and literacy strategy inclusion. A quantitative design best aligned with the problem and goals of the study.

The goal of this study was to analyze the relationship between time spent in systematic professional development, type of professional development, rate of inclusion, and confidence in literacy strategy inclusion in daily lesson design. I selected a cross-section, correlation research study because I made no attempt to manipulate variables. Gravetter and Wallnau (2008) described a correlation as determining three characteristics of any relationship between variables: the direction, form, and strength of the relationship. While correlations do not prove causation, they do show the degree to which the variables exist together in the sample.

A survey research design is more efficient in gaining information from a diverse sample spread over a wide geographic area than an experimental design. Speedy turn-around time from survey dissemination to tabulation is a characteristic of survey efficiency (Creswell, 2003; Fink, 2006; Trochim, 2006b). Additionally, efficiency in conducting the sample analysis provides prompt generalization to better understand the larger population and use the findings of the research in professional practice. While a survey research design does not allow judgments regarding quality of answers, it does allow for information gathering from dispersed populations.

During this study, I gathered data with varied scales of measurement. The survey data were collected using nominal, or categorical scales, and ordinal scales of measurement. Because of these varied scales of measurement, I selected the Spearman correlation (Gravetter & Wallnau, 2008) as well as descriptive statistics to interpret the data. Varied scales of measurement limit the inferential correlation calculations a researcher can use. Because the scales of measurement varied and there were four variables rather than two, Spearman was the only correlation calculation that fit the research data parameters.

The role of a researcher is key in completing a successful survey research project (Andreski, 1972). Since 2004, I have been the literacy coordinator and reading interventionist in my school district. My primary responsibilities are intervention in Grades K through 6, with consultation responsibilities in Grades 6 through 10. I am also a literacy coach and perform some professional development training for my district and others in the state of Minnesota. As the primary researcher, I disseminated the survey,

collected the data, analyzed the data, and wrote up the results of the study. My roles as literacy coordinator and coach had no impact on my ability to collect the data. Walden advisors and expert editors oversaw the accuracy of the data calculations and interpretation. Raw data will be electronically stored for 3 years following the completion of the study in an external hard drive locked in a safe deposit box.

Setting and Sample

Secondary schools in the state of Minnesota were the site of this research study. All content area classrooms across the state of Minnesota are under mandate to embed the Common Core Standards in secondary classrooms by the 2012 school year (Minnesota Department of Education, 2011b). The Common Core Standards embed literacy standards in most subject matter areas (Common Core Initiative, 2011). Since Minnesota has adopted the Common Core standards and has mandated implementation during the 2012 school year, all Minnesota schools are assumed to be moving toward the implementation of these standards. Therefore, all Minnesota schools are assumed to have some degree of professional development regarding embedding literacy strategies in content area lesson design to be in compliance with the upcoming standards.

Because all schools in the state must embed the Common Core Standards in secondary content area classrooms, Minnesota secondary schools was the population for this research study. Teachers in Minnesota secondary content area classrooms number nearly 25,939 (iSeek Solutions, n.d.) and are housed within 519 school districts (EducationBug, 2012). I selected a multistage, clustering sample procedure (Creswell, 2003) to obtain the sample for this study. In the first stage of sample selection, I selected

10 school districts. The potential sample included three large, four middle-sized, and three small-sized school districts. I used a random numbers table to determine which school districts were contacted. I contacted district superintendents via e-mail requesting permission to survey high school staff (see Appendix A for e-mail requesting permission to survey district teachers). As I received no responses, I called prospective superintendents (see Appendix B for the phone conversation protocol). No school district responded to my request so I selected replacement school districts. Schools selected to replace schools who declined or who did not respond to communication regarding participation in the study were selected based on a convenience sampling procedure. School district offices provided e-mail addresses of potential participants, or they were obtained from district web sites. During the second stage of sample selection, I selected teachers for whom the Common Core Standards apply; all other teachers were excluded. I sent an introductory letter via e-mail to inform the selected teachers of the purpose of the study (see Appendix C), the approval of their superintendent, and provided them with a link to the survey. Because the first wave of responses did not meet the desired sample size, I contacted the teachers a second time via e-mail (see Section 4 for contingencies in meeting sample size).

A clustering sample rather than a single-stage random sample (Creswell, 2003) was more convenient because I had no access to the entire population of teachers across the state of Minnesota. A multistage, clustering sample means the researcher contacts groups or school districts first (Renner, 1988). The groups, in turn, provide access to individuals within the group. Purchasing or obtaining the names and e-mail addresses of

all secondary teachers across the state of Minnesota was not practical. The multistage clustering sample was most efficient for this study. A second reason for selecting a multistage clustering sample was that district permission is necessary to use school e-mail accounts. Because permission was required, a multistage clustered sample was necessary.

After selecting teachers through a random numbers table, I checked teacher eligibility for the research study. To be eligible for this study, teachers had to teach a subject for which the Common Core Standards applied. Eligible teachers included teachers of English, social studies, science, and technical subjects (Common Core State Standards Initiative, 2011). Teachers who taught subjects without connection to Common Core Standards implementation were not eligible for participation. Teachers were stratified from each school district based upon subject taught. An equal representation of English, social studies, science, and technical subjects was sought. Stratification ensures that each subject matter is represented in nearly the same proportion as is in the population (Creswell, 2003; Renner, 1988).

Survey research studies are designed to generalize to a population. Adequate sample size assures more accurate generalizations. Based on the population of Minnesota teachers, an adequate sample size of 379 Minnesota content-area teachers was the goal for this study. The following formula determined a 95% confident level with a ± 5 margin of error (Creative Research Systems, 2010):

$$ss = \frac{Z^2 * (p) * (1-p)}{c^2}$$

Where:

Z = Z value (e.g. 1.96 for 95% confidence level)

p = percentage picking a choice, expressed as decimal

(.5 used for sample size needed)

c = confidence interval, expressed as decimal

(e.g., .04 = ±4)

A sample size with a 95% confidence level reduces the standard error, increasing the likelihood that results will be significant (Gravetter & Wallnau, 2008). The sample size does not impact the effect size, however.

Survey response rates vary. To meet the sample size goal of 379 participants, more than 379 surveys were sent to teachers. While survey response rates from the general public is low, survey response rates from employees in an institution range from 60-90% (Ray, 2006). Because superintendents of the participating districts gave approval, the survey was considered more closely aligned to the response rates of an employee rather than the response rates of the general public. I estimated a 40-50% response rate. With that estimated response rate, I anticipated sending out 760 surveys for this study. However, because of the lack of district participation, this goal was not met (see Section 4 for contingencies met in meeting sample size), as only 155 surveys were sent out.

Because this survey was designed to predict responses in the general population, I needed to determine if the survey responses contained a response bias. If teacher who responded to the survey had different responses from teachers who did not respond, a study contains response bias. For this study, response bias was detected through wave analysis (Creswell, 2003). I conducted wave analysis through a question matrix procedure. In the matrix procedure, I compared early to late responses. I determined that the variation between early and late responses was more of a function of when the survey was sent to teachers rather than a characteristic associated with bias.

Data Collection and Analyses

I gained approval from school superintendents or his or her designees to send survey links to eligible teachers within their school district. Through a random numbers table, I determined which teachers within the district were to receive the survey link. I sent an introductory letter and a link to teachers selected from districts with approved participation. The link gave teachers access to the researcher-developed survey on Survey Monkey (SurveyMonkey, 2011), an Internet-based survey web site. The respondents were given a 2-week window in which to complete the cross-sectional survey (see Appendix D). I sent follow up e-mails at the end of Week 1 and Week 2 (see Appendix E).

Data were collected using Survey Monkey (SurveyMonkey, 2011). Survey Monkey allows creation of online surveys at varied service levels. I used the Gold level service contract. This contract allowed analysis of open responses and integration with the Statistical Package for the Social Sciences (SPSS). I selected a web-based survey

dissemination process because of Minnesota teachers' accessibility to e-mail, the low cost of dissemination, and the efficiency of information retrieval. Based on my own experience as a teacher, I concluded that teachers were more likely to immediately select a link from their e-mail account rather than physically returning a completed survey through the U.S. Mail. For these reasons, I selected a web-based survey design rather than a U.S. Mail survey.

While the features of the Survey Monkey web site calculated descriptive statistics, I determined inferential statistics through PASW Statistics 18.0.0 data program (SPSS Inc., 2009). SPSS is a menu-driven program allowing for uploading of data from spreadsheets, dumping of data from Survey Monkey, or hand entrance of data. SPSS allows for multivariate analysis. Descriptive statistics included (a) number of responders versus nonresponders, (b) means of each survey question, standard deviations of each survey question, and range of scores for each survey question as they relate to variables; and (c) percent of respondents from each subject matter area. Inferential statistics included Spearman correlation calculations to investigate four variables. The following research questions and hypotheses guided the investigation:

1. What is the relationship between time spent in systematic content area literacy strategy professional development and rate of literacy strategies inclusion in daily lesson design?

$H_0$1: There is no association between time spent in systematic content area literacy professional development and rate of content area literacy strategy implementation in daily lesson design.

$H_0$1: • = 0

$H_1$1: There is an association between time spent in systematic content area literacy professional development and rate of content area literacy strategy implementation in daily lesson design.

$H_1$1: • ≠ 0

The associated variables were time spend in systematic content area literacy professional development and the rate of content area literacy strategy inclusion in daily lesson design.

2. What is the relationship between the type of professional development in content literacy strategy instruction and the rate of content area strategy implementation in daily lesson design?

$H_0$2: There is no association between type of professional development in content area literacy strategies and rate of content area literacy strategy inclusion in daily lesson design.

$H_0$2: • = 0

$H_1$2: There is an association between type of professional development in content area literacy strategies and rate of content area literacy strategy inclusion in daily lesson design.

$H_1$2: • ≠ 0

The associated variables were type of professional development and rate of content area literacy strategy inclusion in daily lesson design.

3. What is the relationship between type of professional development and confidence with literacy strategy inclusion in daily lesson design?

$H_0$3: There is no association between type of professional development in content area literacy strategies and confidence with content area literacy strategy inclusion in daily lesson design.

$H_0$3: • = 0

$H_1$3: There is an association between type of content area literacy professional development and confidence with content area literacy strategy inclusion in daily lesson design.

$H_1$3: • ≠ 0

The associated variables were type of professional development and confidence with content area literacy strategy inclusion in daily lesson design.

4. What is the relationship between time in systematic content area literacy professional development and confidence with literacy strategy inclusion in daily lesson design?

$H_0$4: There is no association between time spent in systematic professional development in content area literacy strategies and confidence with content area literacy strategy inclusion in daily lesson design.

$H_0$4: • = 0

$H_1$4: There is an association between time spent in systematic content area literacy professional development and confidence with content area literacy strategy inclusion in daily lesson design.

$H_1 4 \bullet \neq 0$

The variables in the above hypotheses represented both discrete variables, *type of professional development,* and continuous variables, *time spent in professional development.* In addition, the variables represented varied scales of measurement. Nominal scales can be seen in *type of professional development* and *confidence with strategy inclusion.* An ordinal scale of measurement can be seen in *rate of strategy inclusion* and *time spent in systematic professional development.* Because of these varied scales of measurement, I selected the Spearman correlation (Gravetter & Wallnau, 2008) as well as descriptive statistics to interpret the data. Varied scales of measurement limited the inferential correlation calculations a researcher can use (Meier & Brudney, 2002). Because the scales of measurement varied and I analyzed four variables rather than two, Spearman was the only correlation calculation that fit the research data parameters. I stopped reviewing here due to time constraints. Please go through the rest of your section and look for the patterns I pointed out to you. I will now look at Section 4.

The Spearman correlation calculation provided the conversion of categorical data into rank orders and measured the consistency of the relationship between the rankings (Gravetter & Wallnau, 2008). Through Question 4, I intended to show the consistency of a relationship even if the correlation is not a consistent one-direction linear relationship. While I expected that time in professional development and type of professional development will consistently influence the use of and confidence in strategy inclusion in lesson design, the scatter plot was unlikely to be a straight line. Spearman facilitated the

calculation of the strength of a relationship, even though the relationship may not be linear.

Because no instrument existed that measured the four specific variables of this study with questions that rank ordered types of professional development, I developed the instrument used to obtain the data for this study. *The Survey of Professional Development and Literacy Strategy Use* was the survey designed specifically for this study. (See more specifics regarding the survey elements in the following section and in Appendix D.) The survey was piloted in two school districts in southern Minnesota to establish reliability. I determined instrument reliability using the Cronbach alpha calculation, a reliability measurement based on splitting the instrument in half and calculating consistency between the halves (Meier & Brudney, 2002). Through this calculation, I measured internal consistency in measurement tools with no correct answer to the instrument questions. The Cronbach alpha coefficient ranges from 0 to 1. A Cronbach alpha coefficient goal of .70 or higher is generally regarded as an acceptable level of reliability (Gliem & Gliem, 2003). Through the survey pilot, I confirmed a reliability coefficient above the .70 target (See Table 4 in Section 4).

Instrumentation and Materials

To obtain data for the study, it was necessary to have an instrument to measure the specific variables of time spent in professional development, type of professional development, rate of strategy inclusion in lesson design, and confidence in literacy strategy use in lesson design. No instrument, in the search of measurement databases and reading related research, met the specific parameters of this study. Barry (2002) did ask

respondents to indicate literacy strategy use through a checklist but did not indicate frequency of strategy use. Using an instrument of this type would place one strategy use statistically equal to consistent strategy use. Therefore, an instrument of this type was discounted. Ness (2007) measured frequency of strategy inclusion in daily lessons through observation. Observation of 300 or more individual teachers was not practical. Several studies investigated the link between professional development and changes in literacy practice (Roe, 2004; Timperley & Phillips, 2003), but analyzed data using qualitative interview and analysis methods. Since no instrument was found to specifically measure the four variables of the study, I created an instrument, *The Survey of Professional Development and Literacy Strategy Use* (see Appendix D).

I used *The Survey of Professional Development and Literacy Strategy Use* to test my study hypotheses. The self-reporting survey was designed with groups of questions aligned to the specific variables of this study. The instrument includes 50 questions, four factual questions, 24 rating scale questions with a follow-up short answer question, and 22 rank-order questions (see Appendix D). Questions have multiple parts and are based on personal experience as well as knowledge obtained through the literature review.

The variable time spent in professional development is assessed with Questions 3 and 4. Through Question 3, I asked for the total amount of time spent in content area literacy professional development during the last 3 years. Through Question 4, I asked teachers to delineate the time spent in specific types of professional development related to content area literacy strategy instruction. Researchers supported 14-50 hours of professional development to make a change in professional practice (Darling-Hammond

et al., 2009; Timperley & Phillips, 2003; Yoon et al., 2007) over a 6-month to 3-year time frame. The specific time delineations within the research studies were used to determine the following time delineations in the questions relating to time spent in professional development: (a) zero hours, (b)1-14 hours, (c)15-25 hours, (d) 26-45 hours, (e) 46-60 hours, (f) over 60 hours.

The instrument contains 22 rank-order questions that measured the variable type of professional development. (See even-numbered Questions 6-48). As a result of the information gained through the literature review, I selected common types of professional development to include in the survey. Common types identified included workshops, either mandated or self-selected (Darling-Hammond et al., 2009), PLC (Dufour et al., 2005), and coaching/mentoring (Boyer et al., 2004; Zwart et al, 2008). Thus, the following types of professional development were included in the survey: (a) postgraduate course on content area reading strategies; (b) district-mandated workshop; (c) self-selected workshop; (d) PLC content area literacy study; (e) collaboration with a literacy coach; (f) collaboration with a mentor; (g) independent study, personal reading, or personal research; and (h) other. Through the survey, I asked participants to determine the amount of time spent in each type of professional development over the last 3 years. In addition, participants were asked to rank order professional development in terms of how the type of professional development facilitated implementation and confidence regarding content area literacy strategy use.

The variables rate of strategy inclusion and confidence in strategy inclusion are measured with 22 questions (See odd-numbered Questions 5-47). Literacy strategies are

presented in a prereading, during-reading, and postreading delineation. Through the literature review, I indicated this delineation is a common organizational structure for strategy instruction and lesson design (Lapp & Fisher, 2009; Mojo, 2010; Richardson et al., 2009). The following prereading strategies represented in the study include: (a) preteaching vocabulary (Keene, 2010; Marzano, 2003), (b) establishing a purpose for reading (Honig et al., 2008), and (c) analyzing and building background knowledge (Cromley et al., 2010; Marzano, 2003). During-reading strategies include: (a) modeling a think aloud (Richardson et al., 2009), (b) using a multistep thinking process (Biancarosa & Snow, 2004, Palincsar & Brown, 1984; Sporer et al., 2009), (c) explaining or used text features to support understanding (Meyer & Poon, 2001; Sanchez et al., 2001), (d) explaining or used text organizational structures to understand text (Wolfe, 2005), (e) demonstrating fix-up strategies to solve problems in reading (Ellery & Rosenboom, 2011; Lapp & Fisher, 2009; Pressley & Afflerbach, 1995). Postreading strategies include (a) note-taking or summarizing (Graham & Hebert, 2010); (b) reflection on meeting the purpose for reading (Chiu et al., 2007; Soter et al., 2008); (c) connecting, evaluating, or synthesizing activities (Graham & Hebert, 2010; Murphy et al., 2009).

Instrument Validity and Reliability

A research study is only as effective as the data it mines and the inferences made from the data (Andreski, 1972). The data are only as effective as the reliability and validity of the instrument used to obtain the data. Validity is the extent to which the researcher can draw accurate conclusions from the measurement data (Creswell, 2003; Meier & Brudney, 2002). If an instrument does not measure the constructs it intends to

measure, the data are not valid. Reliability is best understood as an instrument's capacity to measure a construct consistently each time it is administered; the instrument has little variation in is measurement (Trochim, 2006a). Both validity and reliability are important constructs to ensure in the development of a survey. The validity and reliability of *The Survey of Professional Development and Literacy Strategy Use* was verified through the following procedures.

Content Validity. Content validity is one means to establish overall research validity. Content validity is the extent to which an instrument measures its intended concept (Trochim, 2006a). I used expert review to ensure content validity. I developed the first draft of the instrument in a quantitative research development class. Based on instructor feedback, I revised the clarity of instrument questions. Two college professors familiar with education, professional development, and statistical procedures reviewed the instrument. Based on their feedback, I revised the survey to include rank-order questions. Rank-order questions were compatible with the Spearman statistical calculation. A literacy specialist and professional development chairperson of a Minnesota school district conducted the final instrument review. No major content revisions were recommended. I revised two questions for clarity; the specific changes are reviewed in detail in Section 4.

Construct validity. Construct validity is how well an instrument brings to life the mental model of the researcher (Trochim, 2006a). As I considered the development of the survey and its accurate measure of construct validity, I added questions requiring examples of each of the literacy strategies. From these examples, I determined whether

or not the participant understood the literacy strategy. Participants who did not have a valid construct of the literacy strategy were removed from the interpretive calculation of that specific question. No participants were removed, as few people provided examples. Those participants, who did provide examples, provided logical examples.

Internal reliability. While reliability is a measure of the variance of an instrument, true reliability cannot be determined until after the survey administration. Therefore, any measure of reliability is at best an estimate (Trochim, 2006a). To estimate the reliability of *The Survey of Professional Development and Literacy Strategy Use*, two school districts in southern Minnesota piloted the instrument, once I received IRB approval from Walden University. The number of instructors completed the was 37 teachers. A measure of internal consistency rather than test-retest procedure determined validity. Cronbach alpha calculation measured instrument reliability. This calculation measures internal consistency in measurement tools with no correct answer to questions. The Cronbach alpha coefficient ranges from 0 to 1. In this study, I used a Cronbach alpha coefficient goal of .7 or higher, as a .7 is generally regarded as an acceptable level of reliability (Gliem & Gliem, 2003).

Instrument and data analysis. Data analysis provided insight into the relationship between time spent in systematic professional development, type of professional development, rate of inclusion, and confidence in literacy strategy inclusion in daily lesson design. I collected data using a SurveyMonkey (2011) online survey tool. The internet-based software program calculated descriptive statistics yet allowed the researcher to obtain raw scores to calculate inferential statistics. I entered raw data into

the statistical program PASW Statistics (SPSS Inc., 2009) and applied the Spearman correlation. I used the Spearman correlation to calculate the relationship between variables and reported the relationship in a table format.

Protection of Human Participants

I ensured protection of human participants by complying with IRB recommendations. IRB approval preceded all data collection. No conflicts of interest or coercive practices were associated with this research. Human subjects voluntarily completed the survey without benefit of money or favors. I protected participants' rights as the survey was optional, confidential, and anonymous. Raw data will be protected in an external hard drive locked in a safety deposit box for 5 years.

Dissemination of Findings

As research is conducted to benefit the educational community, dissemination of findings is an important outcome. I will share results of the study at Walden poster sessions and the *Journal of Adolescent & Adult Literacy,* published by The International Reading Association. The research gained from this cross-section survey correlation research study may benefit content area professional development across the state of Minnesota.

Section Summary

The goal of this quantitative cross-section correlation survey research study was to analyze the relationship between time spent in systematic professional development, the type of professional development, the rate of literacy strategy inclusion, and confidence in literacy strategy inclusion in daily lesson design. To analyze the

relationship between variables, I wrote, piloted, and disseminated *The Survey of Professional Development and Literacy Strategy Use* to four schools in the State of Minnesota. The Spearman Rho correlation coefficient was used to calculate the inferential statistics from this survey. Section 4 summarizes the descriptive and inferential results of the survey.

Section 4: Results

Introduction

The purpose of this cross-section, correlation survey research study was to investigate the relationship of time spent in systematic professional development, type of professional development, rate of literacy strategy inclusion, and confidence in literacy strategy inclusion in daily lesson design. Four hypotheses were tested through descriptive and inferential statistics. The research questions guiding this study were (a) What is the relationship between time spent in systematic content area literacy strategy professional development and rate of literacy strategies inclusion in daily lesson design? (b) What is the relationship between the type of professional development in content literacy strategy instruction and the rate of content area strategy implementation in daily lesson design? (c) What is the relationship between type of systematic content area literacy professional development and confidence with literacy strategy inclusion in daily lesson design? (d) What is the relationship between time spent in systematic professional development and confidence with literacy strategy inclusion in daily lesson design?

To analyze the research questions, I used the Spearman Correlation calculation to determine inferential statistics. To assess these specific relationships, I developed and piloted an instrument, *The Survey of Professional Development and Literacy Strategy Use.* A Cronbach alpha coefficient was calculated to determine reliability of the instrument. Section 4 includes a summary of the research tools, the descriptive and inferential statistics for each research question and hypothesis, and the contingencies of the research study.

Research Tools

To answer the research questions and test related hypotheses, I developed *The Survey of Professional Development and Literacy Strategy Use.* Because this survey was a new instrument, I conducted a pilot with two school districts to verify the reliability of the instrument. Thirty-seven surveys were tabulated for the survey pilot. I used the Cronbach alpha coefficient calculation to determine instrument reliability. This calculation is used to measure instrument internal consistency as the means to determine reliability in an instrument without correct answers. The Cronbach alpha coefficient was calculated for all questions related to specific variables. Table 4 indicates the respective coefficients for questions related to each variable. The Cronbach alpha coefficient was above the .70 target, indicating an acceptable level of instrument reliability (Gliem & Gliem, 2003). Because the instrument's reliability coefficient was above the .70 target, no instrument adjustment was made for the sake of reliability.

Table 4

Cronbach Alpha Coefficients for Survey Pilot

Questions Related to Each Variable	Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	*N* of Items
Questions related to time in professional development	.756	.772	9
Questions related to rating types of professional develop in terms of confidence and frequency of strategy use	.918	.897	88
Questions related to confidence in strategy use	.879	.877	11
Questions related to frequency of strategy use	.773	.776	11

While no adjustment was made for the sake of reliability, one question was altered for the sake of clarity. In Question 5, I asked "How often do you assign each type of text in your class?" This question was followed by a list of types of texts: (a) textbook, (b) photocopied handouts, (c) directions for assignments and tests, (d) no reading is done in my course, and (e) other types of text. The possible responses for each of these options were (a) do not use, (b) one to two times per month, (c) about once per week, (d) more than once per week, and (e) almost daily. I thought that removing "no reading is done in my course" made the question clearer because selecting option (a) do not use, to all the types of text essentially indicated that no reading was done in the course. I presented this option to my advisor before removing the question.

Data Analysis Procedures

The procedure I used to send out and collect the survey data followed the procedures outlined in my research proposal. These procedures were designed to protect the rights of human subjects and protect the accuracy of the data. I did not alter these procedures; therefore, the data collection instrument was used correctly.

Data analysis for this research project followed the procedures outlined in the research proposal. I used a random numbers table to select 10 districts. Three small, four medium, and three large districts were selected. All 10 superintendents were contacted, but none of them responded. I contacted all superintendents a second time through my superintendent's e-mail system; no superintendent responded. Because attempts to secure a random sample did not produce results, I began contacting superintendents I knew personally, securing four schools for a convenience sample.

I sent an introductory letter via e-mail containing a link to the Survey Monkey survey to secondary teachers in four school districts. I used the district web sites to identify teachers for whom the common core standards applied. After 1 week, a follow up e-mail was sent. Superintendents communicated their desire to send the survey link at different times depending on the workload of their teachers. Therefore, the surveys that were sent last were the surveys returned last. Wave analysis confirmed variation in the late teacher responses was more a result of the time of survey completion rather than any other teacher characteristic. Therefore, I determined that the sample showed no great variation from early to late participants; hence, there was no evidence of response bias.

The number of surveys sent out was 155. The number of surveys returned was 62. This represented a return rate of 40%.

I closed the survey window after 3 weeks. Data were downloaded in two formats from the Survey Monkey web site. The first report format was a summary report. In this report, responses for each question were totaled and averaged. This report was used for analysis of descriptive statistics. The second report contained actual answers to each survey question. These raw data were coded and readied for the Spearman Rho correlation calculation.

To prepare the data for the Spearman calculation, I organized all data in the same direction as the Spearman Rho calculation required; therefore, low strategy implementation, low time in professional development, low confidence, and low ratings related to type of professional development were all given a Number 1. Likewise, high strategy implementation, time in professional development, confidence, and ratings related to type of professional development were all given subsequently larger values. To facilitate accuracy in transferring numbers, I used the find and replace computer function, color-coding of cells, reading aloud to maintain focus, and double checking work. Separate Excel documents were created for each SPSS calculation to ensure correct variable analysis.

The SPSS program facilitated the Spearman Rho calculation. Two-tailed analysis was used to determine both positive and negative relationships. Each calculation was saved as a separate output document and summarized in an Excel chart. SPSS indicated

correlations of significance at $p = .05$ and $p = .01$ levels of significance, respectively. I reported both descriptive and inferential statistics.

Hypotheses Testing

The instrument, *The Survey of Professional Development and Literacy Strategy Use*, was designed to answer four questions regarding literacy strategy use. Each question had related hypotheses that guided the study. This section includes a summary of the descriptive and inferential statistics related to each question and correlating hypotheses.

Research Question 1 and Related Hypotheses

1. What is the relationship between time spent in systematic content area literacy strategy professional development and rate of literacy strategies inclusion in daily lesson design?

$H_0$1 = There is no association between time spent in systematic content area literacy professional development and rate of content area literacy strategy implementation in daily lesson design.

$H_0$1: • = 0

$H_1$1 = There is an association between time spent in systematic content area literacy professional development and rate of content area literacy strategy implementation in daily lesson design.

$H_1$1 • $\neq$ 0

This research question is important because as districts provide professional development for their teachers, the district assumes that the new learning will be

incorporated into daily teaching practice. Knowing to what extent this relationship occurs in the teachers of this research sample can better clarify the validity of this assumption. Ultimately, the answer to this question will better guide school districts in their professional development decisions.

To answer Research Question 1, the variable time spent in professional development was assessed with two factual survey questions (Questions 3 and 4). Question 3 was used to measure the total time spent in content area literacy professional development during the last 3 years. Question 4 was used to measure the amount of time spent in specific types of literacy professional development during the last 3 years. From the results of the survey, I found that all of the teachers had spent some time in content-area literacy professional development, with the majority spending from 1 to 25 hours of time in the last 3 years. The types of professional development comprising the bulk of teacher's professional development time included mandated workshops, with 84% of teachers participating; PLC work, with 57% participating; and mentor collaboration, with 51% participating. Nearly half of the teachers in the study had done some independent research or study this topic. See Table 5 for a summary of descriptive statistics.

Table 5

Time Spent in Content Area Literacy Professional Development

	N	Zero Hours	1-14 Hours	14-29 Hours	30-45 Hours	45 Hours	
Post-graduate college course	62	63%	27%	5%	5%	0 %	
Mandated workshop	62	6%	84%	5%	5%	0	
Self-selected workshop	62	53%	39%	6%	0	2%	
Professional Learning Community (PLC)	62	13%	57%	19%	5%	6%	
Literacy coach collaboration	62	61%	36%	0	0	3 %	
Mentor collaboration	62	39%	51%	5%	0%	5%	
Independent study or personal research	62	24%	48%	16%	6%	6%	
Other professional development	62	79%	19%	0%	2%	0%	
	N	Zero Hours	1-10 Hours	11-25 Hours	26-45 Hours	46-60 Hours	60 Hours
Total Time in Professional Development	62	0%	37%	21%	18%	11%	13%

The variable frequency of strategy use was measured with 11 questions asking teachers to determine how often each strategy was included in a lesson requiring the reading of text. Before-reading strategies were most frequently used by the teachers in the study with nearly one-quarter of the sample using the strategies every time they have students read text. Explaining how to use text features was the most common during-reading literacy strategy with 54% of the sample using this strategy more than half or every time text was assigned. Note-taking and summarizing were the most common

after-reading strategy with 48% of the teachers using this strategy over half to every time reading was assigned. Table 6 summarizes the descriptive statistics of the data collected.

Table 6

Frequency of Strategy Use in Daily Lesson Design

	N	Never Use	Use Less Than Half the time	Use More Than Half the Time	Use Nearly Every Time
Before Reading Strategies					
Preteach vocabulary	65	0	52%	22%	26%
Establish a purpose for reading	53	6%	23%	43%	28%
Analyze & assist students in building background knowledge	51	4%	39%	39%	18%
During Reading Strategies					
Model a "think aloud" to demonstrate a comprehension strategy	52	23%	33%	35%	9%
Use a multi-step thinking process	51	27%	49%	18%	6%
Explain text features	50	14%	32%	32%	22%
Explain text organizational structures	50	30%	40%	20%	10%
Demonstrate a "fix-up" strategy	48	21%	48%	17%	14%
After Reading Strategies					
Require note-taking or summarizing	46	11%	41%	24%	24%
Guide students to reflect on meeting their purpose	47	43%	32%	21%	4%
Help students connect, evaluate, or synthesize the information from text.	47	38%	40%	11%	11%

The relationship between the variables of time spent in professional development and frequency of literacy strategy use was measured with the Spearman Rho correlation coefficient calculation. The Spearman correlation is used to measure the consistency of the relationship of two variables within the survey sample. In this case, the larger

correlation coefficient means that as time in professional development increases, so does the frequency of strategy use. The larger value of the Spearman Rho correlation coefficient means that a stronger relationship exists between the two variables in the survey sample.

From the results of Spearman Rho calculations, I found a significant positive correlation between total time spent in systematic professional development and use of four literacy strategies. The strategies are preteaching vocabulary ($r = .380$, $n = 56$, $p < .01$, two-tailed), evaluating and purposely building background knowledge ($r = .304$, $n = 51$, $p < .05$, two-tailed), using a multistep thinking process ($r = .398$, $n = 51$, $p < .01$, two-tailed), and modeling a fix-up strategy ($r = .332$, $n = 47$, $p < .01$, two-tailed). In addition, I found significant correlations between time spent in self-selected literacy workshops and frequency of strategy use for the following literacy strategies: evaluating and purposely building background knowledge ($r = .419$, $n = 51$, $p < .01$, two-tailed), modeling a think aloud, ($r = .359$, $n = 40$, $p < .01$, two-tailed), using a multistep thinking process ($r = .350$, $n = 51$, $p < .05$, two-tailed), and applying text structures ($r = .519$, $n = 46$, $p < .01$, two-tailed). Likewise, time spent in PLC significantly correlated to frequency of one literacy strategy. Time in PLC was related to more frequent use of fix-up strategies ($r = .295$, $n = 47$, $p < .05$, two-tailed). The Null Hypothesis 1 was rejected and Alternate Hypothesis 1 was retained in these specific relationships.

I found other significant positive correlations between time spent in specific types of professional development and frequency of literacy strategy use. Time spent with a literacy coach correlated with frequency of strategy use for two literacy strategies. Time

spent with a literacy coach correlated with more frequent use of a multistep thinking process ($r = .504$, $n = 51$, $p < .01$, two-tailed) and use of text structures ($r = .298$, $n = 46$, $p < .05$, two-tailed). Time with a respected mentor correlated with more frequent use of six literacy strategies. Time with a respected mentor correlated with more frequent use of establishing a purpose for reading ($r = .293$, $n = 56$, $p < .05$, two-tailed), evaluating and purposely building background knowledge ($r = .378$, $n = 51$, $p < .01$, two-tailed), using a multistep thinking process ($r = .432$, $n = 51$, $p < .01$, two-tailed), applying text structures ($r = .404$, $n = 50$, $p < .01$, two-tailed), modeling fix-up strategies ($r = .312$, $n = 47$, $p < .05$, two-tailed), and reflecting on meeting the purpose for reading ($r = .304$, $n = 47$, $p < .05$, two-tailed). Independent study was correlated to evaluating and purposely building background knowledge ($r = .276$, $n = 51$, $p < .05$, two-tailed), applying text structures ($r = .399$, $n = 46$, $p < .05$, two-tailed), and using note-taking and summarizing strategies ($r = .299$, $n = 47$, $p < .05$, two-tailed). The Null Hypothesis 1 was rejected and Alternate Hypothesis 1 was retained in these specific relationships.

When teachers identified professional development they categorized as "other," they listed web-based webinars and videos, writing and reading, and use of primary source documents as examples professional development they categorized as "other." The time spent in this category of professional development was positively associated with five literacy strategies. Time spent in "other" types of professional development significantly correlated to evaluating and purposely building background knowledge ($r = +.219$, $n = 51$, $p < .05$, two-tailed), using a multistep thinking process ($r = +.369$, $n = 51$, $p < .01$, two-tailed), identifying text features ($r = +.345$, $n = 50$, $p < .01$, two-tailed),

applying text structures ($r = +.429$, $n = 46$, $p < .01$, two-tailed), and reflecting on meeting the purpose for reading ($r = +.325$, $n = 47$, $p < .05$, two-tailed). The Null Hypothesis 1 was rejected and Alternate Hypothesis 1 was retained in these specific correlations. Table 7 summarizes the correlations for the significant positive correlations associated with Hypothesis 1.

One type of professional development indicated a significant negative correlation between the variables time spent in professional development and frequency of literacy strategy use. The correlation between time spent in post-graduate literacy courses and establishing a purpose for reading was the only significant negative correlation ($r = -.369$, $n = 56$, $p < .01$, two-tailed). Because the sample size was rather small for teachers who participated in content-area postgraduate coursework, further research is recommended to clarify this negative correlation. The Null Hypothesis 1 was accepted and the Alternate hypothesis was rejected in this specific relationship

Through the results of Spearman Rho calculations, I concluded that no correlation existed between total time spent in systematic professional development and use of seven literacy strategies. These seven literacy strategies are purposely building background knowledge ($r = .220$), modeling a think aloud ($r = .177$), using text features ($r = .186$), using text structures ($r = .271$), using note-taking and summarizing ($r = -.031$), reflecting on meeting the purpose of reading ($r = .146$), and using activities that connect, evaluate, or analyzing information ($r = .110$). There was no correlation between postgraduate coursework and 10 literacy strategies. These strategies were preteaching vocabulary ($r = -.063$), purposely building background knowledge ($r = -.154$), modeling a think aloud (r

= .003), modeling a multistep thinking strategy (r = .028), using text features (r = .010), modeling a fix-up strategy (r = -.171), using note-taking and summarizing (r = -.034), reflecting on meeting the purpose for reading (r = -.101) and using activities that connect, evaluate, and analyze information (r = .021). The Null Hypothesis 1 was accepted and the Alternate hypothesis was rejected in these specific relationships.

In addition, time spent in mandated workshops indicated no correlation for any literacy strategy. These include preteaching vocabulary (r = .064), establishing a purpose for reading (r = -.176), purposely evaluating and building background knowledge (r = -..097), modeling a think aloud (r = .081), modeling a multistep thinking strategy (r = .034), using text features (r = .078), using text structures (r = .096), modeling a fix-up strategy (r = .093), using note-taking and summarizing (r = .118), reflecting on meeting the purpose for reading (r = .097) and using activities that connect, evaluate, and analyze information (r = -.050). The Null Hypothesis 1 was accepted and the Alternate hypothesis was rejected in these specific instances.

Furthermore, time spent in self-selected workshop indicated no correlation for six literacy strategies. They include preteaching vocabulary (r = .235), establishing a purpose for reading (r = .181), using text features (r = .209), modeling fix-up strategies (r = .240), using note taking and summarizing (r = .183), and reflecting on meeting the purpose for reading (r = .212). Similarly, time spent in a PLC indicated no correlation with ten literacy strategies. These strategies included preteaching vocabulary (r = .100), establishing a purpose for reading (r = .101), purposely building background knowledge (r = .231), modeling a think aloud (r = .179), modeling a multistep thinking strategy (r =

.133), using text features (r = .221), using text structures (r = .217), using note-taking and summarizing (r = .150), reflecting on meeting the purpose for reading (r = .165) and using activities that connect, evaluate, and analyze information (r = .278). Moreover, time spent with a literacy coach indicated a neutral correlation with nine literacy strategies. They include preteaching vocabulary (r = .152), establishing a purpose for reading (r = -.022), purposely evaluating and building background knowledge (r = .246), modeling a think aloud (r = .1244), using text features (r = .120), modeling a fix-up strategy (r = .266), using note-taking and summarizing (r = -.183), reflecting on meeting the purpose for reading (r = .112) and using activities that connect, evaluate, and analyze information (r = .020). The Null Hypothesis 1 was accepted and the Alternate hypothesis was rejected in these specific relationships.

Additionally, time spent with a trusted mentor indicated no correlation for four literacy strategies. These include preteaching vocabulary (r = .073), using text features (r = .192), using note taking and summarizing (r = .089), and using activities that connect, evaluate, and analyze information (r = .280). Also, time in independent study related neutrally to eight literacy strategies. These included preteaching vocabulary (r = .004), purposely evaluating and building background knowledge (r = .248), modeling a think aloud (r = .226), modeling a multi-step thinking strategy (r = .240), using text features (r = .153), modeling a fix-up strategy (r = .170), reflecting on meeting the purpose for reading (r = .018) and using activities that connect, evaluate, and analyze information (r = .101). Finally, the category of "other" professional development related neutrally in six literacy strategies. They include preteaching vocabulary (r = .094), establishing purpose

for reading (r = .019), modeling a think aloud (r = .105), modeling a fix-up strategy (r = .261), using note-taking and summarizing (r = .096), and using activities that connect, evaluate, and analyze information (r = .174). The Null Hypothesis 1 was accepted and the Alternate hypothesis was rejected in these specific relationships. See Table 7 for a summary of all relationships.

Table 7

Summary of Relationship Between Time in Professional Development and Frequency of Strategy Use in Daily Lesson Design

	Post Grad	Mand WS	Self-Sel. WS	PLC	LIT Coach	Mentor	Ind Study	Other	TOT Hours	*N*
Before Reading Strategies										
PV	-.063	.064	.235	.100	.152	.073	.004	.094	.380**	56
PUR	-369**	-.176	.181	.101	-.022	.293*	.276*	.019	.220	56
BK	-.154	.097	.419**	.231	.246	.378**	.248	.219*	.304*	51
During Reading Strategies										
TA	.003	.081	.359**	.179	.124	.287*	.226	.105	.177	40
MSTP	.028	.034	.350*	133	.504**	.432**	.240	.369**	.398**	51
TF	.010	.078	.209	.221	.120	.192	.153	.345**	.186	50
TS	.145	.096	.519**	.217	.298*	.404**	.339*	.429**	.271	46
FUS	-.171	.093	.240	.295*	.266	.312*	.170	.261	.332**	47
After Reading Strategies										
NS	-.034	.118	.183	.150	-.183	.089	.299*	.096	-.031	47
ROP	-.101	.097	.212	.165	.112	.304*	.018	.325*	.146	47
CEA	.021	-.050	.331*	.278	.020	.280	.101	.174	.110	45

Note. PV = Preteaching vocabulary, PUR = Establish Purpose for Reading, BK = Analyze & Purposely Build Background Knowledge, TA = Modeling a Think Aloud, MSTP = Modeling a Multi-Step Thinking Process, TF = Using Text Features, TS = Applying Text Structures, FUS = Modeling Fix-up Strategies, NS = Utilizing Note-taking and Summarizing, ROP = Reflect on Meeting the Purpose for Reading, CEA = Connecting, Evaluating, or Analyzing Information

*p < .05, two tailed. **p < .01, two-tailed.

I expected to find a relationship between time spent in professional development and frequency of literacy strategy inclusion in daily lesson design because of the research base indicating this association (Darling-Hammond et al. 2009; Reed, 2009; Timperley & Phillips, 2003; &Yoon et al., 2007). While conducting this study, I did not seek to determine how much time in professional development was necessary to make a change in instructional practice, I did seek to determine the strength of the relationship between the two variables. Total time in professional development, time in self-selected workshops, time working with a literacy coach, time with a respected mentor, time in independent study, and time in other professional development indicated significant relationships with literacy strategy use. Because of these significant relationships, the study confirmed my expectations that time in professional development would have a significant positive relationship with frequency of strategy use.

During this study, I found positive correlations between several types of professional development and literacy strategy use; however, post-graduate studies in literacy did not produce significant correlations with frequency of strategy use for any literacy strategy. In addition, I discovered significant negative correlations with the literacy strategy establishing a purpose for reading ($r = -.369$, $n = 56$, $p < .01$, two-tailed). Because the sample size of teachers participating in postgraduate studies was relatively small in this study, I would recommend further research to clarify this finding. This relationship was not addressed in the literature review. Further research should be conducted to clarify this finding, as many states are requiring additional coursework and

degrees for literacy specialists. Additionally, time in mandated workshops did not produce a significant positive correlation with frequency of strategy use. Through the literature review, I discovered the ineffectiveness of time in professional development that relies on presenting information (Deshler, 2004) and one-shot professional development experiences (Darling-Hammond et al. 2009). In this research study, I confirmed the findings of the literature review regarding time spent in district-mandated workshops, which tend to be one-shot presentations.

In conclusion, the survey results shed light on Research Question 1. Total time in professional development as well as time in certain types of professional development indicates positive correlations with frequency of literacy strategy use in lesson design. In general, total time in professional development, time in self-selected workshops, time working with a literacy coach, time with a respected mentor, time in independent study, and time in other professional development indicated significant positive correlations with frequency of certain literacy strategy use. Likewise, time spent in postgraduate studies and district mandated workshops generally indicate no correlation to frequency of strategy use in lesson design. As school districts invest professional development resources, they would be wise to invest in professional development that indicates positively correlations between time in that type of professional development and use of literacy strategies.

Research Question 2 and Related Hypotheses

2. What is the relationship between the type of professional development in content literacy strategy instruction and the rate of content area strategy implementation in daily lesson design?

$H_0$2: There is no association between type of professional development in content area literacy strategies and rate of content area literacy strategy inclusion in daily lesson design.

$H_0$2: $\bullet = 0$

$H_1$2: There is an association between type of professional development in content area literacy strategies and rate of content area literacy strategy inclusion in daily lesson design.

$H_1$2: $\bullet \neq 0$

This research question is important because as districts determine the type of professional development in which to invest their resources, districts would be wise to invest in types of professional development that positively correlate to their desired change in teaching practice. District professional development decisions assume a change in teaching practice. If districts invest money in types of professional development that relate negatively or neutrally to the desired change in teaching practice, the district resources would essentially be wasted. Answering this research question will help districts more wisely invest in types of professional development.

To answer Research Question 2, the variable frequency of strategy use was measured with 11 questions asking teachers how often they used each strategy when

teaching a lesson requiring the reading of text. See Table 6 and surrounding discussion regarding the questions measuring this variable. In addition, the variable type of professional development was measured with 22 rank-order questions. The survey's odd Questions 7 through 27 asked teachers to rank order the type of professional development that most prepared them for using each literacy strategy. Mandated and self-selected workshops were most frequently identified as related to frequency of strategy use. "Other" professional development was most frequently identified as least likely to impact frequency of strategy use. See Table 8 for a summary of types of professional development most and least helpful in preparing teachers to use specific literacy strategies.

Table 8

Types of Professional Development Most and Least Helpful Regarding Frequency of Literacy Strategy Use

		Related to Frequency of Strategy Use	
	N	Most Helpful	Least Helpful
Before Reading Strategies			
Preteach vocabulary	56	Self-selected workshop	Other professional development
Establish a purpose for reading	56	Mandated workshop	Other professional development
Analyze & assist students in building background knowledge	51	Mandated workshop	Other professional development
During Reading Strategies			
Model a "think aloud" to demonstrate a comprehension strategy	40	Trusted mentor & Literacy coach	Self-selected workshop
Use a multi-step thinking process	51	Mandated workshop	Other professional development
Explain text features	50	Mandated workshop	Other professional development
Explain text organizational structures	46	Post Graduate Course	Other professional development
Demonstrate a "fix-up" strategy	47	Mandated workshop	Literacy coach
After Reading Strategies			
Require note-taking or summarizing	47	Literacy Coach & Independent Study	Self-selected workshop
Guide students to reflect on meeting their purpose	47	Professional Learning Community	Other professional development
Help students connect, evaluate, or synthesize the information from text.	45	Professional Learning Community	Other professional development

The relationship between the variables type of professional development and frequency of literacy strategy use was assessed with the Spear Rho correlation coefficient calculation. The Spearman correlation measures the consistency in the relationship between these two variables. I found that Postgraduate studies in literacy positively correlated at a significant level with one literacy strategy, using activities that connect, evaluate, and analyze information ($r = .418$, $n = 45$, $p < .01$, two-tailed). Likewise, the mandated workshop was positively correlated to six literacy strategies. They include modeling a think aloud ($r = .367$, $n = 40$, $p < .01$, two-tailed), modeling a multistep thinking strategy ($r = .283$, $n = 51$, $p < .05$, two-tailed), using text features ($r = .357$, $n = 50$, $p < .05$, two-tailed), modeling fix-up strategies ($r = .443$, $n = 47$, $p < .01$, two-tailed), reflecting on purpose for reading ($r = .545$, $n = 47$, $p < .01$, two-tailed), and using activities that connect, evaluate, and analyze information ($r = .473$, $n = 45$, $p < .01$, two-tailed). Similarly, I found a positive correlation to the self-selected workshop and five literacy strategies. These strategies include modeling a think aloud ($r = .294$, $n = 40$, $p < .05$, two-tailed), modeling a multistep thinking strategy ($r = .316$, $n = 51$, $p < .05$, two-tailed), using text structures ($r = .316$, $n = 46$, $p < .05$, two-tailed), modeling fix-up strategies ($r = .406$, $n = 47$, $p < .01$, two-tailed), and using activities that connect, evaluate, and analyze information ($r = .460$, $n = 45$, $p < .01$, two-tailed). The Null Hypothesis 2 was rejected and Alternate Hypothesis 2 was retained in these specific relationships.

In addition, I found a significant positive correlation between PLC, as a type of professional development, and one literacy strategy, using activities that connect,

evaluate, and analyze information ($r = .558$, $n = 45$, $p < .01$, two-tailed). In the same way, the type of professional development, collaboration with a literacy coach positively correlated to using activities that connect, evaluate, and analyze information ($r = .493$, $n = 45$, $p < .01$, two-tailed). Likewise, I found significant positive correlations between collaboration with a respected mentor and two literacy strategies. These included modeling a multistep thinking strategy ($r = .287$, $n = 51$, $p < .05$, two-tailed) and using activities that connect, evaluate, and analyze information ($r = .586$, $n = 45$, $p < .01$, two-tailed). Similarly, independent study positively correlated to use of five literacy strategies. They include evaluating and purposely building background knowledge ($r = .410$, $n = 51$, $p < .01$`, two-tailed), use of text structures ($r = .412$, $n = 46$, $p < .01$, two-tailed), modeling fix-up strategies ($r = .349$, $n = 47$, $p < .05$, two-tailed), and reflecting on meeting the purpose for reading ($r = .425$, $n = 47$, $p < .01$, two-tailed), and using activities that connect, evaluate, and analyze information ($r = .606$, $n = 45$, $p < .01$, two-tailed). Finally, the "other" type of professional development positively correlated with five literacy strategies. They include evaluating and purposely building background knowledge ($r = .386$, $n = 51$, $p < .01$, two-tailed), modeling a multistep thinking strategy ($r = .283$, $n = 51$, $p < .05$, two-tailed), using text structures ($r = .318$, $n = 46$, $p < .01$, two-tailed), modeling fix-up strategies ($r = .303$, $n = 47$, $p < .05$, two-tailed), and using activities that connect, evaluate, and analyze information ($r = .536$, $n = 45$, $p < .01$, two-tailed). The Null Hypothesis 2 was rejected and Alternate Hypothesis 2 was retained in these specific relationships.

I found a significant negative correlation between one type of professional development when relating the variables type of professional development and frequency of literacy strategy use. The correlation between mandatory professional development workshops correlated negatively to evaluating and purposely building background knowledge ($r = -.390$, $n = 51$, $p < .01$, two-tailed). Thus the Null Hypothesis 2 was accepted and Alternate Hypothesis 2 was rejected in this specific relationship.

I found several types of professional development that had no correlation with literacy strategy use. I found neutral correlations between postgraduate studies and ten literacy strategies. These strategies include preteaching vocabulary ($r = -.039$), establishing a purpose for reading ($r = -.053$), evaluating and purposely building background knowledge ($r = .088$), modeling a think aloud ($r = .134$), modeling a multistep thinking strategy ($r = .245$), using text features ($r = -.142$), using text structures ($r = .264$), modeling a fix-up strategies ($r = .200$), using note-taking and summarizing ($r = -.047$), and reflecting on the meeting the purpose for reading ($r = .046$). Likewise, I found a neutral correlation between mandatory workshops and four literacy strategies. They included preteaching vocabulary ($r = -.109$), establishing a purpose for reading ($r = .118$), use of text structures ($r = .218$), and using note taking and summarizing ($r = .258$). Additionally, the self-selected workshop indicated neutral correlations with five literacy strategies. They included preteaching vocabulary ($r = -.112$), establishing a purpose for reading ($r = .161$), evaluating and purposely building background knowledge ($r = .217$), use of text features ($r = -.018$), and using note taking and summarizing ($r = .029$).

Therefore, the Null Hypothesis 2 was accepted and Alternate Hypothesis 2 was rejected in this specific relationship.

Other neutral correlations were identified through the Spearman correlation calculation. The type of professional development professional learning community indicated neutral correlations with preteaching vocabulary (r = -.028), establishing a purpose for reading (r = -.011), evaluating and purposely building background knowledge (r = -.196), modeling a think aloud (r = .230), modeling a multistep thinking strategy (r = .181), using text features (r = .153), using text structures (r = .221), modeling a fix-up strategies (r = .197), using note-taking and summarizing (r = .136), and reflecting on the meeting the purpose for reading (r = .265). Similarly, the type of professional development, working with a literacy coach neutrally related to nine literacy strategies. They included preteaching vocabulary (r = -.172), establishing a purpose for reading (r = .033), evaluating and purposely building background knowledge (r = -.012), modeling a think aloud (r = .230), using text features (r = .052), using text structures (r = .105), modeling a fix-up strategies (r = .214), using note taking and summarizing (r = -.054), and reflecting on the meeting the purpose for reading (r = .102). Additionally, the type of professional development, working with a respected mentor, associated in a neutral manner to nine literacy strategies. They included with preteaching vocabulary (r = -.194), establishing a purpose for reading (r = -.138), evaluating and purposely building background knowledge (r = .074), modeling a think aloud (r = .211), modeling a multistep thinking strategy (r = .214), using text features (r = .208), modeling a fix-up strategies (r = .130), using note-taking and summarizing (r = .059), and reflecting on the

meeting the purpose for reading (r = .174). Independent study as a type of professional development neutrally related to six literacy strategies. They included preteaching vocabulary (r = .133), establishing a purpose for reading (r = -.179), modeling a think aloud (r = .268), modeling a multi-step thinking strategy (r = .268), using text features (r = .187), and using note taking and summarizing (r = .094). Finally, "other" types of professional development neutrally related to six types of professional development. They included preteaching vocabulary (r = .144), establishing a purpose for reading (r = -.013), evaluating and purposely building background knowledge (r = .207), using text features (r = .016), using note taking and summarizing (r = -.013) and reflecting on the meeting the purpose for reading (r = .282). Therefore, the Null Hypothesis 2 was retained and Alternate Hypothesis 2 was rejected in this specific relationship. See Table 9 for a summary of all relationships relating to this hypothesis.

Table 9

Summary of Relationship Between Type of Professional Development and Frequency of Strategy Use in Lesson Design

	Post Grad	Mand WS	Self-Sel. WS	PLC	LIT Coach	Mentor	Ind Study	Other	*N*
Before Reading Strategies									
PV	-.039	-.109	.112	-.028	-.172	-.194	.133	.144	56
PUR	-.053	.118	.161	-.011	.033	-.138	-.179	-.013	56
BK	.088	-.390**	.217	-.196	-.012	.074	.410**	.207	51
During Reading Strategies									
TA	.134	.367**	.294*	.230	.065	.211	.268	.386**	40
MSTP	.245	.283*	.316*	.181	.287*	.214	.268	.283*	51
TF	-.142	.357*	-.018	.153	.052	.208	.187	.016	50
TS	.264	.218	.361*	.221	.105	.393**	.412**	.318*	46
FUS	.200	.443**	.406**	.197	.214	.130	.349*	.303*	47
After Reading Strategies									
NS	-.047	.258	.029	.136	-.054	.059	.094	-.013	47
ROP	.046	.545**	.404**	.265	.102	.174	.425**	.282	47
CEA	.418**	.473**	.460**	.558**	.493**	.586**	.606**	.536**	45

Note. PV = Preteaching vocabulary, PUR = Establish Purpose for Reading, BK = Analyze & Purposely Build Background Knowledge, TA = Modeling a Think Aloud, MSTP = Modeling a Multi-Step Thinking Process, TF = Using Text Features, TS = Applying Text Structures, FUS = Modeling Fix-up Strategies, NS = Utilizing Note-taking and Summarizing, ROP = Reflect on Meeting the Purpose for Reading, CEA = Connecting, Evaluating, or Analyzing Information

*p < .05, two tailed. **p < .01, two-tailed.

I expected the types of professional development that would significantly relate to frequency of literacy strategy inclusion would be the types that incorporate modeling (Ross & Bruce, 2007; Roe, 2004), coaching (Boyer, Maney, Kamler & Comber, 2004; Zwart, et al., 2008), and collaboration (Dufour et al., 2005). My expectation was based on the information found in the literature review. I did not confirm this expectation, through the findings of this study. In contrast, district mandated workshops, self-selected workshops, independent study, and other types of professional development indicated stronger positive correlations with frequency of strategy inclusion. These types of professional development tend to include more passive observation rather than active feedback. A possible reason for this discrepancy is the stage at which teachers are in their internalization of literacy strategy inclusion. If teachers are at the novice stage of literacy strategy inclusion, they may be just gathering information about the strategies. Information is generally gained through reading or viewing. Coaching, and collaboration are used in later stages of strategy inclusion, after a person has gained some knowledge. Further research should be conducted to clarify this possibility.

In conclusion, I shed light on Research Question 2 through the survey results. I identified types of professional development that related positively with frequency of literacy strategy use in lesson design. In general, mandatory workshops, self-selected workshops, time with a literacy coach, time with a respected mentor, independent study, and "other" professional development correlated with frequency of use for multiple literacy strategies.

All types of professional development associated with use of activities that connect, evaluate, and analyze information. As school districts invest professional development resources, they would be wise to invest in professional development that indicates positively correlations between type of professional development and use of literacy strategies.

Research Question 3 and Related Hypotheses

3. What is the relationship between type of professional development and confidence with literacy strategy inclusion in daily lesson design?

$H_0$3: There is no association between type of professional development in content area literacy strategies and confidence with content area literacy strategy inclusion in daily lesson design.

$H_0$3: • = 0

$H_1$3: There is an association between type of content area literacy professional development and confidence with content area literacy strategy inclusion in daily lesson design.

$H_1$3 • ≠ 0

Research Question 3 is important because without confidence in literacy strategy use, teachers will not continue to use a literacy strategy in lesson design. As districts invest in professional development they want sustained change in practice. Efficacy is needed to sustain a change in practice. Therefore, investigating how time in professional development builds efficacy will assist school districts in resource allocation for professional

development that sustains change in teaching practice.

The variable confidence in strategy use was assessed with 11 questions asking participants to determine how confident they felt when using a specific literacy strategy. Teachers who answered the survey were most confident in all prereading strategies, note-taking and summarizing. The teachers reported feeling least confident in strategies requiring metacognition such as demonstrating a "fix-up" strategy, using a multi-step thinking strategy, and synthesizing information from text. See Table 10 for a descriptive summary of results related to the variable confidence in literacy strategy use.

Table 10

Confidence Regarding Strategy Use in Daily Lesson Design

	N	Not Confident	Somewhat Confidence	Reasonably Confident	Exceptionally Confident
Before Reading Strategies					
Preteach vocabulary	46	0%	30%	41%	28%
Establish a purpose for reading	46	4%	20%	54%	22%
Analyze & assist students in building background knowledge	45	4%	31%	49%	16%
During Reading Strategies					
Model a "think aloud" to demonstrate a comprehension strategy	44	18%	39%	32%	11%
Use a multi-step thinking process	44	20%	39%	30%	11%
Explain text features	44	7%	34%	41%	18%
Explain text organizational structures	44	12%	43%	36%	9%
Demonstrate a "fix-up" strategy	45	27%	38%	24%	11%
After Reading Strategies					
Require note-taking or summarizing	45	4%	42%	40%	13%
Guide students to reflect on meeting their purpose	44	18%	48%	30%	4%
Help students connect, evaluate, or synthesize the information from text.	45	24%	44%	20%	11%

The variable type of professional development related to confidence in professional development was measured with eleven rank-order questions. Odd Questions 29 through 49 in the survey asked teachers to rank order each type of professional development in terms of how each helped build confidence in the use of each literacy strategy. Mandated and self-selected workshops were the most frequently identified forms of professional development related to confidence in strategy use.

"Other" professional development was most frequently identified as least likely to impact confidence in strategy use. Teachers listed webinars and videos, primary source documents, and reading and writing as "other" types of professional development. See Table 11 for a summary of types of professional development most and least helpful to building confidence in the use of each literacy strategy.

Table 11

Most and Least Helpful Type of Professional Development Related to Confidence in Strategy Use

		Related to Confidence in Strategy Use	
	N	Most Helpful	Least Helpful
Before Reading Strategies			
Preteach vocabulary	46	Respected mentor	Other professional development
Establish a purpose for reading	42	Mandated workshop	Other professional development
Analyze & assist students in building background knowledge	43	Mandated workshop	Other professional development
During Reading Strategies			
Model a "think aloud" to demonstrate a comprehension strategy	43	Self-selected workshop	Other professional development
Use a multi-step thinking process	45	PLC	Post graduate course
Explain text features	44	Mandated workshop	Other professional development
Explain text organizational structures	44	Mandated workshop	Other professional development
Demonstrate a "fix-up" strategy	43	Mandated workshop	Other professional development
After Reading Strategies			
Require note-taking or summarizing	45	Mandated workshop	Other professional development
Guide students to reflect on meeting their purpose	43	PLC	Other professional development
Help students connect, evaluate, or synthesize the information from text.	43	Mandated workshop	Other professional development

The correlation between the variables type of professional development and confidence in literacy strategy use was measured with the Spearman Rho correlation coefficient calculation. The Spearman correlation measures the consistency in the relationship between these two variables. Through the results of this study, I discovered a significant, positive correlation between self-selected workshops and confidence in modeling a think aloud ($r = .346$, $n = 44$, $p < .05$, two-tailed), modeling a fix-up strategy ($r = .366$, $n = 43$, $p < .05$, two-tailed), and utilizing after reading strategies that connect, evaluate and analyze information ($r = .457$, $n = 43$, $p < .01$, two-tailed). In addition I confirmed a positive correlation between work with a PLC and confidence in modeling a multistep thinking strategy ($r = .297$, $n = 44$, $p < .05$, two-tailed), reflecting on meeting the purpose for reading ($r = .393$, $n = 45$, $p < .05$, two-tailed), and used after reading strategies that connect, evaluate and analyze information ($r = .349$, $n = 43$, $p < .05$, two-tailed). Similarly, time spent with a literacy coach positively correlated with confidence in modeling fix-up strategies ($r = .326$, $n = 43$, $p < .05$, two-tailed) and used after reading strategies that connect, evaluate and analyze information ($r = .384$, $n = 43$, $p < .05$, two-tailed). Likewise, time spent with a trusted mentor was positively related to confidence in using after reading strategies that connect, evaluate and analyze information ($r = .418$, $n = 43$, $p < .01$, two-tailed). Moreover, time in independent study was positively related to modeling a think aloud ($r = .322$, $n = 44$, $p < .05$, two-tailed), modeling a multistep thinking strategy ($r = .482$, $n = 44$, $p < .01$, two-tailed), modeling a fix-up strategy ($r = .387$, $n = 43$, $p < .05$, two-tailed), and applying after reading strategies that connect, evaluate and analyze information ($r = .318$, $n = 43$, $p < .05$, two-tailed). Finally, other

types of professional development was positively related to confidence in use of a multistep thinking strategy ($r = .314$, $n = 44$, $p < .05$, two-tailed) and applying after reading strategies that connect, evaluate and analyze information ($r = .304$, $n = 43$, $p < .05$, two-tailed). Therefore, the Null Hypothesis 3 was rejected and Alternate Hypothesis 3 was retained in these specific relationships.

One type of professional development indicated a significant negative correlation between the variables time spent in professional development and confidence in literacy strategy use. That type of professional development was time spent with a literacy coach. It negatively correlated to preteaching vocabulary ($r = -.449$, $n = 46$, $p < .01$, two-tailed). Null Hypothesis 3 was accepted and Alternate Hypothesis 3 was rejected in this specific relationship.

Several types of professional development indicated no correlation with literacy strategy use. Neither postgraduate studies nor mandatory workshops correlated significantly to confidence in any literacy strategy. Additionally, the self-selected workshop related neutrally to either literacy strategies. They include preteaching vocabulary ($r = -.093$), establishing a purpose for reading ($r = .155$), evaluating and purposely building background knowledge ($r = .080$), modeling a multistep strategy ($r = .276$), using text features ($r = -.146$), using text structures ($r = .246$), using note taking and summarizing ($r = -.024$), and reflecting on a meeting the purpose for reading ($r = .113$). Similarly, working with a PLC related neutrally to confidence in eight literacy strategies. The literacy strategies include preteaching vocabulary ($r = -.066$), establishing a purpose for reading ($r = .026$), evaluating and purposely building background

knowledge (r = .060), modeling a think-aloud (r = -.139), using text features (r = .138), using text structures (r = -.083), modeling fix-up strategies (r = .167), and using note taking and summarizing (r = .028). The Null Hypothesis 3 was accepted and Alternate Hypothesis 3 was rejected in this specific relationship.

Additionally, the type of professional development labeled time with a literacy coach indicated neutral correlations in confidence with eight literacy strategies. They include establishing a purpose for reading (r = .216), evaluating and purposely building background knowledge (r = .026), modeling a think-aloud (r = .168), modeling a multi-step strategy (r = .104), using text features (r = -.124), using text structures (r = .196), using note taking and summarizing (r = .156), and reflecting on meeting the purpose of reading (r = .232). Similarly, the type of professional development labeled as spending time with a respected mentor was neutrally related to ten literacy strategies. These strategies include preteaching vocabulary (r = -.260), establishing a purpose for reading (r = -.070), evaluating and purposely building background knowledge (r = .163), modeling a think-aloud (r = .103), modeling a multistep strategy (r = .277), using text features (r = -.127), using text structures (r = .132), modeling fix-up strategies (r = .238), using note-taking and summarizing (r = -.101), and reflecting on a meeting the purpose for reading (r = .200). Likewise, I found a neutral correlation between independent study indicated and several literacy strategies. These strategies include preteaching vocabulary (r = .224), establishing a purpose for reading (r = -.140), evaluating and purposely building background knowledge (r = .139), using text features (r = .070), using text structures (r = .207),), using note-taking and summarizing (r = .226), and reflecting on a

meeting the purpose for reading (r = .223). Finally, "other" professional development was neutrally correlated to nine literacy strategies. They include preteaching vocabulary (r = -.257), establishing a purpose for reading (r = .150), evaluating and purposely building background knowledge (r = .162), modeling a think-aloud (r = .188), using text features (r = -.081), using text structures (r = .148), modeling fix-up strategies (r = .239), using note taking and summarizing (r = -.015), and reflecting on a meeting the purpose for reading (r = .266). The Null Hypothesis 3 was accepted and Alternate Hypothesis 3 was rejected in this specific relationship. See Table 12 for a complete summary of all relationships associated to Hypothesis 3.

Table 12

Summary of Relationship Between Type of Professional Development and Confidence With Daily Literacy Strategy Inclusion in Lesson Design

	Post Grad	Mand WS	Self-Sel. WS	PLC	LIT Coach	Mentor	Ind Study	Other	*N*
Before Reading Strategies									
PV	.098	.085	-.093	-.066	-.449**	-.260	.224	-.257	46
PUR	.198	.231	.155	.026	.216	-.070	-.140	.150	42
BK	.110	.215	.080	.060	.188	.163	.139	.162	43
During Reading Strategies									
TA	.279	-.113	.346*	-.139	.168	.103	.322*	.188	44
MSTP	.286	.153	.276	.297*	.104	.277	.482**	.314*	44
TF	.131	-.009	-.146	.138	-.124	.127	.070	-.081	44
TS	.071	.135	.246	-.083	.196	.132	.207	.148	44
FUS	.085	.249	.366*	.167	.326*	.238	.387*	.239	43
After Reading Strategies									
NS	.198	-051	-.024	.028	.156	-.101	.226	-.015	45
ROP	.101	.242	.113	.393*	.232	.200	.223	.266	43
CEA	.214	.207	.457**	.349*	.384*	.418**	.318*	.304*	43

Note. PV = Preteaching vocabulary, PUR = Establish Purpose for Reading, BK = Analyze & Purposely Build Background Knowledge, TA = Modeling a Think Aloud, MSTP = Modeling a Multi-Step Thinking Process, TF = Using Text Features, TS = Applying Text Structures, FUS = Modeling Fix-up Strategies, NS = Utilizing Note-taking and Summarizing, ROP = Reflect on Meeting the Purpose for Reading, CEA = Connecting, Evaluating, or Analyzing Information

*p < .05, two tailed. **p < .01, two-tailed.

I expected that the types of professional development that would correlate positively to confidence with literacy strategy use would be those that incorporated modeling (Ross & Bruce, 2007; Roe, 2004), coaching (Boyer et al., 2004; Zwart et al., 2008), and collaboration (Dufour et al., 2005) as these types of professional development model characteristics of mastery experiences. Mastery experiences are those identified as increasing teacher's perception of efficacy (Labone, 2004; Tschannen-Moran et al., 1998). My expectation was based on the information found in the literature review. I did not confirm this expection through the findings of this study. The trait associated with the type of professional development that most positively correlated with confidence in literacy strategy use was some element of self-selection in that self-selected workshop, independent study, and "other" professional development most frequently correlated to confidence in literacy strategy use. Researchers Reed (2009) and Hall and Hord (2006) found results that agree with the findings of this study. In their research, teachers must perceive a need for the professional development or the professional development will not impact their teaching practice nor student achievement. Teachers will not select a workshop, study independently, or spend time in "other" types of professional development without first perceiving a need.

Two types of professional development did not positively correlate to confidence with use of any literacy strategy. These two types of professional development were postgraduate studies and district-mandated workshops. I did expect that mandated

workshops would not correlate to confidence because of the research findings regarding passive, one-shot professional development (Darling-Hammond et al. 2009; Deshler, 2004). I had not anticipated that postgraduate studies would not correlate to increased confidence. This relationship was not addressed in the literature review. Because the sample size of teachers participating in post-graduate studies was relatively small in this study, I would recommend further research to clarify this finding. Further research should be conducted to clarify this finding, as many states are requiring additional coursework and degrees for literacy specialists.

I also had not expected the high negative correlation between time spent with a literacy coach and confidence in preteaching vocabulary ($r = -.449$, $n = 46$, $p < .01$, two-tailed). Research supports collaborating with a literacy coach (Lockwood et al., 2010) as a type of professional development likely to change teaching practice. One possible reason for this negative trend is that teachers perceived no need to be told how to preteach vocabulary. The descriptive statistics indicated that teachers in this sample frequently use the literacy strategy of preteaching vocabulary and are confident in the use of this strategy. If the literacy coach was attempting to change the method the teacher used to preteach vocabulary, the teacher may feel a lack of confidence. Because of the small sample size and the small number of teachers who had worked with literacy coaches, future research should clarify this finding.

In conclusion, through the survey results, I gained insight into Research Question 3. Through the study, I identified types of professional development that related positively with confidence in literacy strategy use. In general, mandatory workshops,

self-selected workshops, time with a literacy coach, time with a respected mentor, independent study, and "other" professional development correlated with frequency of use of multiple literacy strategies. All types of professional development associated with use of activities that connect, evaluate, and analyze information. As school districts invest professional development resources, they would be wise to invest in professional development that indicates positively correlations between type of professional development and use of literacy strategies.

Research Question 4 and Related Hypotheses

4. What is the relationship between time in systematic content area literacy professional development and confidence with literacy strategy inclusion in daily lesson design?

$H_0$4: There is no association between time spent in systematic professional development in content area literacy strategies and confidence with content area literacy strategy inclusion in daily lesson design.

$H_0$4: $\bullet = 0$

$H_1$4: There is an association between time spent in systematic content area literacy professional development and confidence with content area literacy strategy inclusion in daily lesson design.

$H_1$4 $\bullet \neq 0$

This research question is important because as districts provide professional development for their teachers, the district assumes that the new learning will impact confidence in using content area literacy strategies. As confidence increases, teachers are more likely

to use strategies with which they are confident. To what extent this relationship occurs in the teachers of this research sample can better clarify the validity of this assumption. Ultimately, the answer to this question will better guide school districts in their professional development decisions.

The variables for this research question are time spent in professional development and confidence in literacy strategy inclusion. The variable time spent in professional development was assessed with two factual questions (Questions 3 and 4). Question 3 measures the total time spent in content area literacy during the last three years. Question 4 measures the amount of time spent in specific types of literacy professional development. See Table 7 for analysis of descriptive statistics related to time spent in professional development. The variable confidence with content area literacy strategy inclusion was measured with 11 questions asking participants to determine how confident they felt when using a specific literacy strategy. See Table 10 for a descriptive summary of results related to the variable confidence in literacy strategy use.

The relationship between the variables time spent in professional development and confidence in literacy strategy use was measured with the Spearman Rho correlation coefficient calculation. The Spearman correlation measures the consistency in the relationship between these two variables. Through the results of this study, I found a significant, positive correlation between confidence in five literacy strategies and total time in professional development. Those five literacy strategies are preteaching vocabulary ($r = .324$, $n = 46$, $p < .05$, two-tailed), purposely evaluating and building

background knowledge ($r = .303$, $n = 45$, $p < .05$, two-tailed), using a multistep literacy strategy ($r = .371$, $n = 44$, $p < .05$, two-tailed), using text features($r = .448$, $n = 44$, $p < .01$, two-tailed), and modeling fix-up strategies ($r = .415$, $n = 45$, $p < .05$, two-tailed). Therefore, the Null Hypothesis 4 was rejected and Alternate Hypothesis 4 was retained in these specific relationships.

In addition, time spent in specific types of professional development also indicated several significant positive correlations. Time spent in self-selected workshops indicated positive correlations with modeling a think aloud ($r = .418$, $n = 44$, $p < .01$, two-tailed), using a multistep literacy strategy ($r = .364$, $n = 44$, $p < .05$, two-tailed), and modeling fix-up strategies ($r = .517$, $n = 45$, $p < .01$, two-tailed). Likewise, time spent in a PLC indicated significant positive correlations with three literacy strategies. These strategies include establishing a purpose for reading ($r = .358$, $n = 46$, $p < .05$, two-tailed), purposely evaluating and building background knowledge ($r = .300$, $n = 45$, $p < .05$, two-tailed), modeling fix-up strategies ($r = .311$, $n = 45$, $p < .05$, two-tailed). Additionally, time spent with a literacy coach indicated a significant positive correlation with two literacy strategies. They included using a multi-step literacy strategy ($r = .378$, $n = 44$, $p < .05$, two-tailed) and modeling fix-up strategies ($r = .366$, $n = 45$, $p < .05$, two-tailed). Similarly, time spent with a trusted mentor related positively to confidence in modeling fix-up strategies ($r = .414$, $n = 45$, $p < .01$, two-tailed). Finally, time spent in independent study indicated significant positive correlations with four literacy strategies. They included establishing a purpose for reading ($r = .306$, $n = 46$, $p < .05$, two-tailed), using a multistep literacy strategy ($r = .313$, $n = 44$, $p < .05$, two-tailed), using text

features (r = .382, n = 44, p < .01, two-tailed), and modeling fix-up strategies (r = .387, n = 45, p < .01, two-tailed). Therefore, the Null Hypothesis 4 was rejected and Alternate Hypothesis 4 was retained in these specific relationships.

One type of professional development indicated a significant negative correlation between time in professional development and confidence in literacy strategy use. That type of professional development was time in post-graduate coursework. This type of professional development correlated in a significant negative correlation to establishing a purpose for reading (r = -.322, n = 46, p < .05, two-tailed). Therefore, the Null Hypothesis 4 was accepted and Alternate Hypothesis 4 was rejected in this specific relationships.

Several types of professional development indicated no correlation with literacy strategy use. Neither mandatory workshops nor "other" types of professional development correlated significantly to confidence with any literacy strategy. See Table 13 for specific coefficients related to these types of professional development. Total time in professional development indicated neutral correlations with six literacy strategies. They included establishing a purpose for reading (r = .118), modeling a think aloud (r = .134), using text structures (r = .103), note-taking and summarizing (r = .019), reflecting on meeting the purpose for reading (r = -.002), and using activities that connect, evaluate, and analyze information (r = -.053). Therefore, the Null Hypothesis 4 was accepted and Alternate Hypothesis 4 was rejected in this specific relationships. In addition to having no correlation with total time in professional development, time in several types of professional development, I also found no correlation with some literacy strategies. I

found no correlation between postgraduate studies indicated with ten literacy strategies. They included preteaching vocabulary (r = -.072), evaluating and purposely building background knowledge (r = -.131), modeling a think aloud (r = .068), using a multistep literacy strategy (r = .226), using text features (r = -.061), using text structures (r = .030), modeling fix-up strategies (r = .012), use of note-taking and summarizing (r = .197), reflecting on meeting the purpose of reading (r = -.154), and using activities that connect, evaluate, and analyze information (r = .022). Moreover, time in self-selected workshops indicated no correlation with eight literacy strategies. They included preteaching vocabulary (r = -.101), establishing a purpose for reading (r = .166), evaluating and purposely building background knowledge (r = .265), using text features (r = .076), using text structures (r = .235), using note-taking and summarizing (r = .172), reflecting on meeting the purpose of reading (r = .039), and using activities that connect, evaluate, and analyze information (r = .161). Therefore, the Null Hypothesis 4 was accepted and Alternate Hypothesis 4 was rejected in these specific relationships.

As types of professional development with no correlation to literacy strategy use are considered, time spent in a PLC indicated no significant correlation with eight literacy strategies. They included preteaching vocabulary (r = -.013), modeling a think aloud (r = .106), using a multistep literacy strategy (r = .197), using text features (r = -.197), using text structures (r = .233), use of note-taking and summarizing (r = -.003), reflecting on meeting the purpose of reading (r = .202), and using activities that connect, evaluate, and analyze information (r = .216). Similarly, time spent with a literacy coach indicated no correlation with confidence in nine literacy strategies. These strategies included

preteaching vocabulary (r = -.013), establishing a purpose for reading (r = -.120), evaluating and purposely building background knowledge (r = .270), modeling a think aloud (r = .235), using text features (r = .174), using text structures (r = .158), use of note-taking and summarizing (r = -.009), reflecting on meeting the purpose of reading (r = -.050), and using activities that connect, evaluate, and analyze information (r = .016). Null Hypothesis 4 was accepted and Alternate Hypothesis 4 was rejected in these specific relationships.

I found an additional neutral correlation between time with a trusted mentor and ten literacy strategies. These literacy strategies included preteaching vocabulary (r = -.162), establishing a purpose for reading (r = .240), evaluating and purposely building background knowledge (r = .115), modeling a think aloud (r = .182), modeling a multi-step thinking strategy (r = .278), using text features (r = .092), using text structures (r = .102), using note-taking and summarizing (r = -.056), reflecting on meeting the purpose of reading (r = .032), and using activities that connect, evaluate, and analyze information (r = .137). Finally, I found no significant correlation between time in independent study and confidence in using seven literacy strategies. These strategies included preteaching vocabulary (r = .031), evaluating and purposely building background knowledge (r = .172), modeling a think aloud (r = .218), using text structures (r = .230), using note-taking and summarizing (r = -154), reflecting on meeting the purpose of reading (r = .081), and using activities that connect, evaluate, and analyze information (r = .174). Thus, Null Hypothesis 4 was accepted and Alternate Hypothesis 4 was rejected in these

specific relationships. See Table 13 for a summary of all relationships related to Research Questions 4.

Table 13

Summary of Relationship Between Time Spent in Professional Development and Confidence With Daily Literacy Strategy Inclusion in Lesson Design

	Post Grad	Mand WS	Self-Sel. WS	PLC	LIT Coach	Mentor	Ind Study	Other	Total Time	*N*
Before Reading Strategies										
PV	-.072	.012	-.101	.086	-.013	-.162	.031	-.053	.324*	46
PUR	-.322*	-.100	.166	.358*	-.120	.240	.306*	-.135	.118	46
BK	-.131	.128	.265	.300*	.207	.115	.174	.089	.303*	45
During Reading Strategies										
TA	.068	.111	.418**	.106	.235	.182	.218	.270	.134	44
MSTP	.226	.056	.364*	.197	.378*	.278	.313*	.186	.371*	44
TF	-.061	.025	.076	.197	.174	.092	.382**	.129	.448**	44
TS	.030	-.022	.235	.233	.158	.102	.230	.069	.103	44
FUS	.012	.155	.517**	.311*	.366*	.414**	.387**	.206	.415**	45
After Reading Strategies										
NS	.197	-.106	.172	-.003	-.009	-.056	.154	.111	.019	45
ROP	-.154	-.064	.039	.202	-.050	.032	.081	.088	-.002	44
CEA	.022	-.055	.161	.216	.016	.137	.174	.181	-.053	45

Note. PV = Preteaching vocabulary, PUR = Establish Purpose for Reading, BK = Analyze & Purposely Build Background Knowledge, TA = Modeling a Think Aloud, MSTP = Modeling a Multi-Step Thinking Process, TF = Using Text Features, TS = Applying Text Structures, FUS = Modeling Fix-up Strategies, NS = Utilizing Note-taking and Summarizing, ROP = Reflect on Meeting the Purpose for Reading, CEA = Connecting, Evaluating, or Analyzing Information *$*p < .05$, two tailed. **$p < .01$, two-tailed*

Through the results of this study, I expected to find a relationship between time spent in professional development and confidence in literacy strategy inclusion in daily lesson design because of the research base indicating the relationship between adequate, systematic professional development and increased efficacy (Davis & Sumara, 1997). In addition, I expected time in specific types of professional development that utilize effective models (Roe, 2004; Ross & Bruce, 2007) and coaching (Boyer et al., 2004; Zwart et al., 2008) to correlate most often with confidence with strategy use. My expectations were partially confirmed. Time in professional development was positively related to confidence in five literacy strategies. I concluded that the identified relationship supported the findings of the literature review. However, based on the literature review, I expected time with a literacy coach to have a positive relationship with confidence in several literacy strategies. With a positive relationship with only two literacy strategies, my expectations were not confirmed.

I had not expected the high number of relationships between time in various types of professional development and confidence in several during-reading strategies. Equally, the lack of relationships between time in various types of professional development and confidence in after-reading strategies was also not anticipated. The researchers summarized in the literature review do not address professional development and confidence in use of specific literacy strategies. The researchers addressed professional development from a more general slant. Future research is recommended to clarify this issue.

In conclusion, throughout the results of the survey, I gained insight into Research Question 4. I identified the relationship between time spent in professional development and confidence in use of various literacy strategies. In general, total time in professional development, time in self-selected workshops, time with a PLC, time with a literacy coach, time with a respected mentor, and independent study, correlated with confidence in use of multiple literacy strategies. As school districts invest professional development resources, they would be wise to invest in professional development that indicates positive correlations between time spent in professional development and confidence in use of literacy strategies.

Contingencies During This Study

Throughout any study, obstacles impact the direction and outcome of the study. In this study contingencies prevented meeting an adequate sample size. In the original research proposal, over 700 surveys were to be disseminated with an anticipated sample size of 379. I contacted 10 randomly-selected districts early in the research process requesting permission to survey their staff, following the predetermined protocol of e-mail contact followed by scripted telephone contact. Essentially, an electronic wall surrounded all districts. No one responded to the e-mail or the phone messages. I contacted the same district through a cover letter sent by my school superintendent. No district responded.

I then switched to a convenience sample, altering my proposal. I contacted the schools of my friends to ensure a sample size. I did gain two district consents to survey their staff through this procedure. In addition, I continued to e-mail schools requesting

consent. Of the schools that declined to participate, some reported having their own surveying system. Others reported having done no staff development in this area so did not want to be part of the survey. Most districts, however, did not respond to the request.

My colleagues also made requests of their district contacts. I contacted the president of the Minnesota Secondary School Principal Association requesting that she forward information to school principals. I contacted the Walden participant pool asking how many members of the pool were Minnesota secondary school teachers. Since Walden had no way of knowing the specific information regarding their participant pool, the option was not considered viable. Every effort was made to secure an adequate sample, however, the ideal sample size was not achieved.

A second contingency regarding this study was the number of teachers who began but did not finish the survey. Sixty-two teachers began the survey, and 42 teachers completed the survey, indicating a 34% drop-off rate while completing the survey. The research on survey completion did not address a drop-off or drop out rate. Because the Spearman coefficient requires two rank-ordered pairs to make the calculation, teachers had to answer questions related to both variables or their responses were not used in the analysis. Therefore, the lower rates of response were the actual numbers used for this study's results.

Summary and Conclusion

This cross-section correlation survey research study was designed to investigate the relationship of time spent in systematic professional development, type of professional development, rate of literacy strategy inclusion, and confidence in literacy

strategy inclusion in daily lesson design. To assess these specific relationships *The Survey of Professional Development and Literacy Strategy Use* was administered to four school districts. Data from these districts tested four hypotheses utilizing the Spearman Rho inferential statistic calculation. Significant statistical results are summarized in Tables 7, 9, 12, and 13, respectively. Through the tables, I communicated the relationships for which null hypotheses were rejected and alternative hypotheses retained.

Section 5 provides an overview of the study. Section 5 also presents a summary of the significant findings, interprets the findings, offers suggestions for application of findings, discusses implications for social change, and indicates areas for future research. Finally, Section 5 summarizes the entire study.

Section 5: Discussion, Conclusions, and Recommendations

Section 5 provides a brief overview of the goals, rationale, and summary of how this study was conducted. The findings reported in Section 4 are also summarized. Interpretations and conclusion of the study are presented as they related to the theoretical framework and literature review. The implications for social change, significance of findings, and recommendations for further research are presented. Section 5 ends with a summary of the research problem and goals. I address how this research addresses the problem and answers the research questions.

Overview of the Study

The purpose of this cross-section, correlation survey research study was to investigate the relationship of time spent in systematic professional development, type of professional development, rate of literacy strategy inclusion, and confidence in literacy strategy inclusion in daily lesson design. The study was designed to analyze how professional development related to teacher use of literacy strategies in daily lesson design. This study was designed to answer the following research questions: (a) What is the relationship between time spent in systematic content area literacy strategy professional development and rate of literacy strategies inclusion in daily lesson design? (b) What is the relationship between the type of professional development in content literacy strategy instruction and the rate of content area strategy implementation in daily lesson design? (c) What is the relationship between type of systematic content area literacy professional development and confidence with literacy strategy inclusion in daily lesson design? and (d) What is the relationship between time spent in systematic

professional development and confidence with literacy strategy inclusion in daily lesson design? These findings guide the implications for social change, application of research results, and recommendations for further research.

The Survey of Professional Development and Literacy Strategy Use provided data to address the research questions. Sixty-two web-based surveys collected from four Minnesota school districts provided the data for this research analysis. In the Spearman Rho correlation calculation, I found several areas of significance in relation to the study's research questions. These significant research findings form the basis for the research recommendations and discussion.

Overview of Findings

The significant findings of this research study provided answers to the study's research questions. Correlations do not prove causation; however, the strength of a correlation and the number of correlations associated with a literacy strategy can provide insights that address the research questions. A strong Spearman correlation means that if one variable is ranked high, there is a strong probability that the second variable would also be ranked high in the research sample. Likewise, when a single type of professional development related significantly to multiple literacy strategies, that type of professional development is one that is more likely to impact teaching practice in the research sample. To that end, each of the research questions is analyzed in light of the strength of the Spearman coefficient correlation and the number of significant positive relationships between variables.

The first research question that guided this research study was (a) What is the relationship between time spent in systematic content area literacy strategy professional development and rate of literacy strategy inclusion in daily lesson design? To answer Research Question 1, I first considered the three strongest correlations. The strongest positive correlation was between time in self-selected workshops and frequency of applying text structures ($r = .519$, $n = 46$, $p < .01$, two-tailed). The second strongest positive correlation was between time spent with a literacy coach and use of a multistep literacy strategy such as reciprocal teaching ($r = .504$, $n = 51$, $p < .01$, two-tailed). The correlation that exhibited the third strongest positive correlation was between time spent with a trusted mentor and use of a multistep literacy strategy such as reciprocal teaching ($r = .432$, $n = 51$, $p < .01$, two-tailed).

When these three correlations are considered, all three related time in professional development to a frequency of a specific literacy strategy occurring during reading, as opposed to before or after reading. While researchers have not addressed specific types of strategies as they relate to professional development, I found that during-reading strategies tended to have the lowest overall perceived confidence (See Table 10 in Section 4). This lack of perceived confidence may spur on a perceived need for assistance, which motivates teachers to seek out professional development answering this need. A second consideration is the self-selected nature of all three types of professional development relating at highest levels of significance. By definition, a self-selected workshop is self-selected, but teachers would also select to seek counsel from a literacy coach or mentor. Therefore, time with a literacy coach and mentor are also self-selected

types of professional development. Researchers have substantiated the success of self-selected professional development (Hall & Hord, 2006; Reed, 2009). Teachers must perceive a need and seek assistance (Hall & Hord, 2006; Reed, 2009) in order for professional development to be effective. Teachers must perceive a need for the professional development before it impacts teaching practice.

In addition, I considered the frequency of significant positive correlations between time in professional development and frequency of literacy strategy use. Time in four types of professional development related significantly to literacy strategies with correlations above the $p < .01$ threshold. The first of the four types was the self-selected workshop. I found that time in self-selected workshops had a significant positive correlation with evaluating and purposely building background knowledge ($r = .419$, $n = 51$, $p < .01$, two-tailed), modeling a think aloud, ($r = .359$, $n = 51$, $p < .01$, two-tailed), and applying text structures ($r = .519$, $n = 46$, $p < .01$, two-tailed). The second of the four types was time spent with a respected mentor. I found that time in this type of professional development had a significant positive correlation above the $p < .01$ threshold for evaluating and purposely building background knowledge ($r = .378$, $n = 51$, $p < .01$, two-tailed), using a multistep thinking process ($r = .432$, $n = 51$, $p < .01$, two-tailed), and applying text structures ($r = .404$, $n = 46$, $p < .01$, two-tailed). The third type of professional development in which three positive correlations above the $p < .01$ threshold were identified was time spent in the "other" types of professional development. This class of professional development included webinars, reading and writing, and primary source documents. The literacy strategies associated with "other"

types of professional development were using a multistep thinking process ($r = .369$, $n = 51$, $p < .01$, two-tailed), identifying text features ($r = .345$, $n = 50$, $p < .01$, two-tailed), applying text structures ($r = .429$, $n = 46$, $p < .01$, two-tailed). The majority of the four types of professional development relating most strongly to frequency of strategy use were self-selected types of professional development.

As these types of professional development were analyzed, I found some interesting trends. The majority of literacy strategies associated with lower amounts of confidence was during-reading strategies. The types of professional development that had a significant correlation with increased confidence in during-reading strategy use included an element of self-selection. Because teachers indicated the least amount of confidence in during-reading strategies (See Table 10 in Section 4), they likely perceive a need for professional development. Teacher's perception of a need is a trait of professional development that impacts a change in teaching practice (Hall & Hord, 2006; Reed, 2009). Therefore, I confirmed that teacher's perception of need is a precursor related to self-selected professional development and confidence in literacy strategy use.

The second research question that guided this research study was the following: What is the relationship between the type of professional development in content literacy strategy instruction and the rate of content area strategy implementation in daily lesson design? To answer Research Question 2, I first considered the three strongest correlations. The strongest correlations between type of professional development and frequency of literacy strategy use were between independent study and use of activities that that connect, evaluate, and analyze information ($r = .606$, $n = 45$, $p < .01$, two-

tailed). The second strongest correlation was between time spent with a trusted mentor and use of activities that that connect, evaluate, and analyze information ($r = .586$, $n = 45$, $p < .01$, two-tailed). In the third type of professional development, I found a strong correlation between time spent in a PLC and use of activities that connect, evaluate, and analyze information ($r = .558$, $n = 45$, $p < .01$, two-tailed).

As trends in the three strongest correlations were considered, two traits stood out. The first was that the three types of professional development correlated with the same category of after-reading strategies. Researchers have not provided insight into the relationship between professional development and specific reading strategies, but future researchers may answer this specific issue. A second noticeable trend in the three strongest correlations was the self-directed nature of each of type of professional development. This finding is similar to other findings from researchers who have supported motivating self-selection as a precursor to effective professional development (Hall & Hord, 2006; Reed, 2009).

In addition to strength of correlation, I analyzed the number of correlations above the $p < .01$ threshold for a specific type of professional development. Two types of professional development had correlations with four literacy strategies over the $p < .01$. The first was the mandated workshop. The four literacy strategies over the $p < .01$ threshold were modeling a think aloud ($r = .367$, $n = 40$, $p < .01$, two-tailed), modeling fix-up strategies ($r = .443$, $n = 47$, $p < .01$, two-tailed), reflecting on meeting the purpose for reading ($r = .545$, $n = 47$, $p < .01$, two-tailed), and using activities that connect, evaluate, and analyze information ($r = .473$, $n = 45$, $p < .01$, two-tailed). The second

type of professional development with four correlations over the $p < .01$ was independent study. Independent study correlated with purposely building background knowledge ($r = .410$, $n = 51$, $p < .01$, two-tailed), using text structures ($r = .412$, $n = 46$, $p < .01$, two-tailed), reflecting on meeting the purpose for reading ($r = .425$, $n = 47$, $p < .01$, two-tailed), and using activities that connect, evaluate, and analyze information ($r = .606$, $n = 45$, $p < .01$, two-tailed). I stopped reviewing here. Please go through the rest of your section and look for the patterns I pointed out to you. I will now look at your references.

While independent study does continue the trend of types of professional development with traits of self-selection and is supported by literature, the mandated workshop conflicts with research recommendations. Researchers suggested that one-shot professional development experiences that rely on presenting information rather than collaborating are not effective in changing teacher practice (Darling-Hammond et al., 2009; Deshler, 2004). The mandated workshop was the most predominate type of professional development among teachers in this study (See Table 8 in Section 4). If teachers had a limited number of exposures to other types of professional development, they may have been more likely to select mandated workshop because of their limited exposure. In addition, when correlations answering the first two research questions are analyzed together, mandated workshops as a type of professional development related to frequency of strategy use but time spent in mandated workshops did not relate. From this analysis, I concluded that mandated workshops may be effective in terms of increasing initial awareness of literacy strategy need but honing and perfecting literacy strategies

may best be achieved through time in professional development that is more self-selected in nature. Further research should clarify this issue.

The third research question related to this study was (c) What is the relationship between type of systematic content area literacy professional development and confidence with literacy strategy inclusion in daily lesson design? To answer this research question, I first reviewed the three correlations with the strongest relationships. The strongest correlation was between independent study and confidence in modeling a multistep thinking strategy ($r = .482$, $n = 44$, $p < .01$, two-tailed). The second strongest correlation was between the self-selected workshop and confidence in after reading strategies that connect, evaluate and analyze information ($r = .457$, $n = 43$, $p < .01$, two-tailed). The third strongest correlation was between working with a trusted mentor and confidence in utilizing after reading strategies that connect, evaluate and analyze information ($r = .418$, $n = 43$, $p < .01$, two-tailed).

The three types of professional development that related significantly to confidence in strategy use continue to support the self-selected nature of professional development. Independent study, self-selected workshops, and work with a mentor all include some elements of self-selection. In addition, these same types of professional development follow the theoretical model that mastery experiences, critical reflection, and collaboration support efficacy and transformational professional development (Brown, 2006; Labone, 2004; Tschannen-Moran et al., 1998). Self-selected workshops and impendent study imply mastery regarding application of specific literacy strategies. If teachers seek out these professional development experiences, they desire deeper

understanding and mastery regarding the literacy strategy. Likewise, time with a respected mentor would facilitate critical reflection and collaboration.

In addition to strength of relationship, I also investigated the number of correlations between a type of professional development and confidence in strategy use. While no type of professional development had multiple positive correlations between the type of professional development and confidence in literacy strategy use at the $p < .01$ threshold, independent study did have multiple correlations at the $p < .05$ threshold. They were modeling a think aloud ($r = .322$, $n = 44$, $p < .05$, two-tailed), modeling a multi-step thinking strategy ($r = .482$, $n = 44$, $p < .01$, two-tailed), modeling a fix-up strategy ($r = .387$, $n = 43$, $p < .05$, two-tailed), and applied after reading strategies that connect, evaluate and analyze information ($r = .318$, $n = 43$, $p < .05$, two-tailed).

The type of professional development with the greatest number of significant correlations continued to support the self-selected trend apparent in this study. However, the number of significant correlations at the $p < .01$ threshold are fewer when compared with correlation charts for research questions 1 and 2 (See Tables 7, 9, and 12 in Section 4). In addition, the number of correlations above the $p < .01$ threshold are fewer than other correlation charts that answer the study's research questions. This general trend toward fewer positive, significant correlations may indicate that time rather than type of professional development is more important for impacting efficacy. This question is not addressed in the research and may be a topic for future research studies.

The fourth research question related to this study was (d) What is the relationship between time spent in systematic professional development and confidence with literacy

strategy inclusion in daily lesson design? To answer this research question, I first reviewed the three correlations with the strongest relationships. The strongest correlation between time in professional development and confidence in literacy strategy use occurred between the self-selected workshops and modeling a fix-up strategy ($r = .517$, $n = 44$, $p < .01$, two-tailed). The second strongest correlation between time in professional development and confidence in literacy strategy use was between total number of hours in professional development and use of text features ($r = .448$, $n = 44$, $p < .01$, two-tailed). Three correlations were so closely related in their strength, that I considered all as the third strongest correlation. The three correlations are self-selected workshops and modeling a think-aloud ($r = .418$, $n = 44$, $p < .01$, two-tailed), total time in professional development and modeling a fix-up strategy ($r = .415$, $n = 45$, $p < .05$, two-tailed), and spending time with a trusted mentor and modeling a fix-up strategy ($r = .414$, $n = 45$, $p < .01$, two-tailed).

The strongest relationships between time in professional development and confidence in literacy strategy use were all related to various during-reading strategies. Research supports that teachers often assign use of during-reading strategies but may not model how to use literacy strategies (Ness, 2009). Confidence in how to use literacy strategies must precede teaching of these strategies. The trend that time in professional development correlated most strongly with during-reading strategies and that teachers indicated the least amount of confidence in during-reading strategies, does logically relate to one another. An addition trend in the types of professional development with strongest

correlations between professional development and confidence in literacy strategy use supports the self-selected trend noted earlier in this study.

In addition to the strength of the relationships identified in this study, the number of correlations between time in professional development and confidence in literacy strategy use illuminates the relationships in this study. Total time in professional development produced the greatest number of significant correlations with confidence in literacy strategy use. Five literacy strategies related significantly with total time in professional development. One was above the $p < .01$ threshold and four were above the $p < .05$ threshold. They included preteaching vocabulary ($r = .324$, $n = 46$, $p < .05$, two-tailed), purposely evaluating and building background knowledge ($r = .303$, $n = 45$, $p < .05$, two-tailed), using a multi-step literacy strategy ($r = .371$, $n = 44$, $p < .05$, two-tailed), using text features($r = .448$, $n = 44$, $p < .01$, two-tailed), and modeling fix-up strategies ($r = .415$, $n = 45$, $p < .05$, two-tailed).

From this finding, total time in professional development may be more significant than any single type of professional development in terms of impacting efficacy of strategy use. While researchers did not address this distinction, it does address the need for adequate, systematic professional development and increased efficacy (Davis & Sumara, 1997). Specific time demarcations as it impacts confidence are not addressed specifically in the research. Research does support findings that professional development utilizing effective models (Roe, 2004; Ross & Bruce, 2007) and coaching (Boyer, et al, 2004; Zwart et al., 2008) correlate most often with confidence with strategy

use. In this research project, total time was a greater factor than type of professional development.

Analysis Regarding Professional Development and Each Literacy Strategy

While strength of relationship and frequency of significant relationships are two means to analyze the data from this study, a third analysis method sheds additional light on the research questions. Combining data addressing all four research questions regarding each literacy strategy provides a deeper understanding of the relationships between that literacy strategy, professional development, and the research questions. While correlations do not prove causation, examining relationship patterns can indicate the types of professional development likely to related to literacy strategy use within a teaching staff. Placing energy and resources in the professional development that relates to both frequency of strategy use and confidence in strategy use may more likely produce desired literacy strategy outcomes. Investing resources in types of professional development with multiple correlations is prudent.

In this study, I organized literacy strategies into before, during, and after reading strategies. This organizational structure continues to guide analysis of strategies. Examination of before reading strategies as they related to the four questions indicated several significant relationship combinations. Total time in professional development was the only significantly related element to preteaching vocabulary in terms of frequency of strategy use ($r = .380$, $n = 56$, $p < .05$, two-tailed) and confidence in strategy use ($r = .324$, $n = 46$, $p < .05$, two-tailed). The literacy strategy establishing a purpose for reading was related to independent study in terms of frequency of use ($r =$

.276, $n = 56$, $p < .05$, two-tailed) and confidence in strategy use ($r = .306$, $n = 46$, $p < .05$, two-tailed). While some types of professional development produced confidence in establishing a purpose for reading, there was no correlation with frequency of use. The literacy strategy analyzing and purposely building background knowledge was related to total time in professional development both in terms of frequency of strategy use ($r = .304$, $n = 51$, $p < .05$, two-tailed) and confidence in strategy use ($r = .303$, $n = 45$, $p < .05$, two-tailed). In general, total time in professional development related highly to both frequency of before reading strategies and confidence in use of before reading strategies.

Researchers supported the need for adequate duration of professional development for confidence in literacy strategy use (Davis & Sumara, 1997) and frequency of strategy use (Darling- Hammond et al., 2009; Timperley & Phillips, 2003; Yoon et al., 2007). While in this study, I did not determine how much time in professional development was needed for both relationships influencing frequency of strategy use and confidence in strategy use, the positive relationship was confirmed through this study. Future researchers should clarify this issue.

Examination of during reading strategies as they related to the four research questions indicated several significant correlations. Correlations regarding modeling a think aloud, correlated significantly to self-selected workshops in all four relationships (see Appendix F). Relationships regarding application of a multistep thinking process correlated with self-selected workshop in terms of time in professional development and frequency of use ($r = .350$, $n = 51$, $p < .05$, two-tailed), type of professional development and frequency of strategy use ($r = .316$, $n = 51$, $p < .05$, two-tailed), and time in

professional development and confidence in strategy use ($r = .364$, $n = 44$, $p < .05$, two-tailed). In addition, application of a multi-step thinking process correlated with time spent with a literature coach in terms of time and frequency of strategy use ($r = .504$, $n = 51$, $p < .01$, two-tailed), type of professional development and frequency of strategy use ($r = .287$, $n = 51$, $p < .05$, two-tailed), and time in professional development and confidence in strategy use ($r = .378$, $n = 44$, $p < .05$, two-tailed). Independent study correlated to confidence in use of a multistep thinking strategy both in terms of type of professional development ($r = .482$, $n = 44$, $p < .01$, two-tailed) and time in ($r = .313$, $n = 44$, $p < .05$, two-tailed) independent study, but did not produce significant correlations in terms of frequency of strategy use. The category of "other" types of professional development indicated correlations regarding multi-step thinking process use in terms of time spent in professional development and frequency of strategy use ($r = .369$, $n = 51$, $p < .01$, two-tailed), type of professional development and frequency of strategy use ($r = .283$, $n = 51$, $p < .05$, two-tailed), and type of professional development and confidence in strategy use ($r = .314$, $n = 44$, $p < .05$, two-tailed). In addition, total time in professional development related significantly in terms of frequency of strategy use ($r = .398$, $n = 51$, $p < .01$, two-tailed) and confidence in strategy use ($r = .371$, $n = 44$, $p < .05$, two-tailed) to use of a multi-step thinking process.

While multistep thinking strategies indicated a number of correlations, other during-reading strategies did not indicate multiple correlations. Some types of professional development produced confidence in use of text structures or frequency of strategy use, no type of professional development related significantly in both aspects.

Likewise, several types of professional development related significantly in terms of frequency of strategy use; no professional development method related significantly to confidence in use of text structures. Neither use of text features or text structures had multiple significant, positive correlations.

In contrast, several types of professional development indicated significant correlations regarding use of fix-up strategies. Self-selected workshop correlated in terms of type of professional development and frequency of strategy use ($r = .406$, $n = 47$, $p < .01$, two-tailed), type of professional development and confidence in strategy use ($r = .366$, $n = 43$, $p < .05$, two-tailed), and time spent in professional development and confidence in strategy use ($r = .517$, $n = 45$, $p < .01$, two-tailed). Time spent with a respected mentor related to frequency of strategy use ($r = .312$, $n = 47$, $p < .05$, two-tailed) and confidence in strategy use ($r = .414$, $n = 45$, $p < .01$, two-tailed). Independent study related to type of professional development and frequency of strategy use ($r = .349$, $n = 47$, $p < .05$, two-tailed), time spent in professional development and confidence in strategy use ($r = .387$, $n = 45$, $p < .01$, two-tailed), and type of professional development and confidence in strategy use ($r = .387$, $n = 43$, $p < .05$, two-tailed). Time spent with a literacy coach related significantly to confidence both in terms of type of professional development ($r = .326$, $n = 43$, $p < .05$, two-tailed) and time spent in professional development ($r = .366$, $n = 45$, $p < .05$, two-tailed) but did not relate significantly to frequency of strategy use. Finally, time spent in professional development related positively to both frequency of fix-up strategy use ($r = .332$, $n = 47$, $p < .01$, two-tailed) and confidence in use of fix-up strategies ($r = .415$, $n = 45$, $p < .01$, two-tailed).

In general, professional development that related most significantly to during reading strategy use and confidence in literacy strategy use included an element of self-selection. Through this study, I supported Reed's (2009) and Hall and Hord's (2006) findings that teachers must perceive a need before professional develop will impact their instruction. A second finding related to adequate duration of professional development. Time in professional development indicated relationships with frequency of use and confidence in strategy use for several during-reading strategies. I confirmed findings in the literature that duration of professional development impacts a change in teaching practice (Darling- Hammond et al., 2009; Davis & Sumara, 1997; Timperley & Phillips, 2003; Yoon et al., 2007).

Examination of postreading strategies in terms of frequency of strategy use and confidence in strategy use indicated several correlations. However, no type of professional development related significantly to both frequency of strategy use and confidence in use of note taking and summarizing. Multiple types of professional development correlated to the after-reading strategy, reflecting on meeting the purpose for reading. One type of professional development correlated to confidence in strategy use. No type of professional development related to both frequency of use and confidence in use. Finally, every type of professional development related significantly to post-reading strategies supporting analysis, synthesis, and connections to text. All but two types of professional development, postgraduate college course and mandated workshop, correlated to confidence in use if reading strategies that build analysis, synthesis, and connections to information from text (see Appendix F).

When trends in after-reading strategies were analyzed, the number of significant correlations to literacy activities that connect, evaluate and analyze information was noteworthy. Traditional types of professional development commonly address activities that connect, evaluate, and analyze information. All but two types of professional development, postgraduate studies and mandatory workshops, were correlated with both frequency of literacy strategy use and confidence in literacy strategy use. These two types of professional development traditionally are less likely to embody the practices supported by transformational learning theory (Mezirow, 2000) and structured teaching (Fisher & Frey, 2008a, 2008b, 2009). While they were associated with frequency of use, they were the only type of professional development not associated with confidence in use of literacy strategies that promote connections, evaluation, and analysis of information. All other types of professional development related with both confidence and frequency of strategy use.

Results in Light of Conceptual Framework

The goal of this study was to analyze professional development impacting implementation of content area literacy strategy in lesson design. Five theoretical frameworks guided the research study. Complexity theory, efficacy theory, structured teaching, transformational learning theory, and constructivist theory present frameworks from which content area literacy professional development was analyzed. Because Minnesota secondary schools have adopted the Common Core State Literacy Standards (Common Core State Standards Initiative, 2011), the new standards likely produce feelings of apprehension (Arena, 2009; Hargreaves, 2004), inefficaciousness, and lack of

confidence (Cantrell & Callaway, 2008; Ross & Bruce, 2007) for secondary content area teachers.

Through this study, I found that total time in professional development significantly related to confidence in several literacy strategies. Time in professional development related significantly to preteaching vocabulary ($r = .324$, $n = 46$, $p < .05$, two-tailed), analyzing and purposely building background knowledge ($r = .303$, $n = 45$, $p < .05$, two-tailed), utilizing a multi-step thinking strategy ($r = .371$, $n = 44$, $p < .05$, two-tailed), using text features ($r = .448$, $n = 44$, $p < .01$, two-tailed), and modeling fix-up strategies ($r = .415$, $n = 45$ $p < .01$, two-tailed). In addition, several types of professional development significantly related to implementation of during reading strategies and after reading strategies but none to before reading strategies (see Appendix F for specific types of professional development).

Transformational learning theory (Mezirow, 2000) and structured teaching (Fisher & Frey, 2008a, 2008b, 2009) provided insights into the characteristics of lasting and meaningful professional development guiding this study. Both theories describe traits of professional learning environments in which lasting change occurs. High quality professional development must possess experiential learning (Taylor, 2000), experiences that allow the professional development to feel, see, or live a situation. In addition, self-reflection, or comparing oneself to a standard, and rationale discourse (Brown, 2006), discussing the reasons behind a decision, should exemplify all stages of professional development. The stages of structured teaching (Fisher & Frey, 2008a, 2008b, 2009) define the process of professional development in which new teaching practices are

internalized. In effective professional development, an expert models the intended behavior or target. The behavior is practiced with guidance from the expert. The behavior is practiced or implemented with peer collaboration generally in a PLC or coaching setting, and finally, the strategy is applied independently. Moving through the stages of structured teaching with supportive professional development that exemplifies characteristics of transformational learning theory, will lead to the outcome of the theoretical model, construction of new learning, and efficacy in the application of the learning.

When the theoretical model is applied to types of professional development, all types of professional development have the potential to meet the criteria described by the theoretical framework. However, two types of professional development traditionally are less likely to embody the practices supported by transformational learning theory (Mezirow, 2000) and structured teaching (Fisher & Frey, 2008a, 2008b, 2009). These two types are postgraduate courses and mandated workshops. Post-graduate studies correlated significantly to one type of literacy strategy–an activity that promotes connections, synthesis, and analysis of text ($r = .418$, $n = 45$, $p < .01$, two-tailed). Mandated workshops related significantly to frequency of strategy inclusion for modeling a think aloud ($r = .367$, $n = 40$, $p < .01$, two-tailed), modeling a multi-step thinking strategy ($r = .283$, $n = 51$, $p < .05$, two-tailed), use of text features ($r = .357$, $n = 50$, $p < .05$, two-tailed), modeling fix-up strategies ($r = .443$, $n = 47$, $p < .01$, two-tailed), reflecting on purpose of reading ($r = .545$, $n = 47$, $p < .01$, two-tailed) and strategy inclusion that promotes connections, synthesis, and analysis of text ($r = .473$, $n = 45$,

$p < .01$, two-tailed). Interestingly, however, post graduation studies and mandated workshops related to confidence in literacy strategy use less frequently than other types of professional development. Postgraduate classes did not relate significantly to confidence in any literacy strategies. Mandated workshops did not relate positively to confidence in any type of literacy strategy.

The implication of this finding may be that while teachers learn rudimentary skills in literacy strategy inclusion through post-graduate courses and mandated workshops, they may lack the coaching, interaction, and expert guidance of other types of professional development to internalize the literacy strategy. All other types of professional development related to confidence in strategy utilization for multiple types of literacy strategies (see Appendix F) with self-selected workshop significantly relating most frequently. Through the findings, I supported Reed's (2009) research that teacher perceived need is an important element of effective professional development. Without perceiving a need, a teacher would not elect to attend a self-selected workshop. While I did not ask participants about a perceived need, the study's findings may partially contradict Guskey's (2002) research findings. Guskey pointed out that changes in belief followed changes in student achievement. Without an observed change in student achievement, teachers would not perceive a need for the literacy strategy and therefore would not seek to learn more about the strategy. Because no question explicitly asked about a perceived need the support for Guskey's findings are inconclusive.

Finally the theory of constructivism influenced the theoretical framework shaping this study. As teachers build greater understanding of content area literacy strategy use,

they develop deeper cognitive structures regarding content area literacy strategy inclusion in daily lesson design (Darling-Hammond et al., 2009; Ross & Bruce, 2007). The frequent application of learning from professional development experiences is an expected outcome of constructing new understanding. Therefore, if the strategies are present in daily lesson design, construction of understanding has preceded the presence of the strategies. All types of professional development related to inclusion of at least one frequency of strategy inclusion in content area lessons with self-selected workshop significantly relating most frequently to strategy inclusion (see Appendix F).

In conclusion, I substantiated the theoretical framework through the results of this study. However, I confirmed two elements that were not considered in the theoretical framework. The first was the amount of time required to both build confidence in strategy use and influence frequency of strategy use. While the elements of the transformational learning theory and structured teaching imply the need for time in professional development, time was not specifically addressed in the theoretical framework. In addition, the self-selected nature of professional development that changed teaching practice was not addressed in the theoretical framework. Through this study, I found an element of self-selection to be a key element in the types of professional development that influenced both frequency of strategy use and confidence in strategy use.

Implications for Social Change

Greater literacy achievement is the pinnacle of social change because it results in greater college and career options for Minnesota students. To further literacy

achievement, this study investigated the relationship of time spent in systematic professional development, type of professional development, rate of literacy strategy inclusion, and confidence in literacy strategy inclusion in daily lesson design as they relate to inclusion of literacy strategies in content area classrooms. This research study was conducted to further understand the research gap that exists regarding professional development and teacher application of literacy strategies in classroom instruction. As district leaders determine resource allocations for various types of professional development, they would do well to invest in types of professional development that correlate highly with the literacy strategies they desire to have teachers incorporate in content area lessons. In times of tight resources, investing in professional development that produces both frequency of strategy use and confidence in strategy use is prudent.

Through this study, I found that the self-selected workshop was frequently associated with both frequency of strategy use and confidence in strategy use. A district may do well to organize a professional development team that can poll teachers to determine their needs through a self-selection process. In addition, school districts may wish to invest in programs that provide on-demand professional development through internet-based workshops. A wide variety of professional opportunities can easily facilitate the findings of this study regarding self-selection.

As district leaders invest in professional development that significantly relates to confidence and frequency of strategy use, more literacy strategies will be applied in the classroom. As more literacy strategies are incorporated effectively into classrooms across the state, more students will apply the strategies to their own reading. As more

apply literacy strategies in their own reading, the likelihood of greater literacy achievement may be realized. Social change is facilitated through greater literacy readiness as students move into college and career opportunities.

This study contributes to the current body of knowledge by investigating the relationships between professional development and relationship of time spent in systematic professional development, type of professional development, rate of literacy strategy inclusion, and confidence in literacy strategy inclusion in daily lesson design. Several studies focused on teacher comfort (Hall, 2005) and attitudes (Cantrell et al., 2009; Fisher & Frey, 2008c) regarding content literacy strategies. Other studies measure the effectiveness of various content reading strategies (Radcliffe et al., 2008) on student achievement (O'Reilly & McNamara, 2007). Additional scholars investigated the characteristics of teachers who implemented content literacy strategies in their daily lesson design (Cantrell & Callaway, 2008). Through this study, I addressed the research gap that exists regarding the relationship between systematic professional development, type of professional development, frequency of content area strategy inclusion in lesson design, and teacher confidence in literacy strategy inclusion in daily lesson design. While I sought to clarify the relationships between the identified variables, the limitations regarding sample size prevented the findings from being generalizable without replication to the study's population, the state of Minnesota.

Recommendations for Future Research

While through this study I addressed specific research questions, many more questions regarding the topic of this study still exist. Replication of this study with a

larger sample size would allow for more accurate interpretation and application of results to Minnesota schools. Because the sample size of this study did not meet the 95% margin of confidence, application to all Minnesota schools is not a prudent statistical inference. However, some of the statistical results were significant enough to conservatively infer that these types of professional development likely have a relationship to literacy strategy inclusion in lesson design within the population of Minnesota schools.

In addition, causal studies should be conducted to determine the link between time spent in each type of systematic professional development, rate of literacy strategy inclusion, and confidence in literacy strategy inclusion in daily lesson design. Likewise, studies regarding efficacy of strategy inclusion based on type of professional development would be valuable. While through this study, I confirmed the link between total time in professional development and confidence, or efficacy, in strategy inclusion, more information regarding the link between type of professional development and confidence would be beneficial. Additionally, how various types of professional development combine to create a professional development plan may be a useful topic for future research. If districts are looking to provide ongoing professional development related to their district goals, understanding how types of professional development related to form a cohesive plan would be helpful to district policy makers. Finally, the relationship between quality strategy inclusion in lesson design and student literacy achievement may also provide effective information to better understand the problem this study addresses.

Recommendations for Further Action

Because this study did not achieve the minimum sample size required to generalize the results to the State of Minnesota, the findings cannot guide action for the entire state. Replication of the study with a larger sample size would be required to generalize findings to the larger population. However, the districts from which data were collected can generalize the results of this study to their local settings. Recommendations for action for the local districts based on the findings of this study include the following:

- Use mandated workshops only to introduce strategies to staff. Provide a menu of self-selected alternatives to deepen and apply literacy strategies to specific disciplines.
- Collect continuous data to determine impact of professional development on both frequency of strategy use, confidence in strategy use, and type of desired professional development based on perceived need.
- Begin professional development to gain understanding and confidence in during-reading strategy use, as that group of strategies indicated the least confidence and least frequency of use.

Section Summary

In light of Minnesota's adoption of the Common Core State Standards, content area teachers are asked to implement literacy strategies to unlock content through appropriate application of literacy strategies in content area lessons. Through this study, I intended to analyze professional development impacting the implementation of content

area literacy strategy inclusion in lesson design in light of five theoretical frameworks. Complexity theory, efficacy theory, structured teaching, transformational learning theory, and constructivist theory presented frameworks that guided this cross-section correlation survey research study.

Through the results of this study, I confirmed significant relationships between several types of professional development, time in professional development, confidence in strategy inclusion, and frequency of strategy inclusion in lesson design. Appendix F summarizes these significant relationships. Here is a list of the most significant conclusions from this study:

- Time spent in types of self-selected professional development related significantly to both frequency of strategy use and confidence in strategy use. These types included self-selected workshops, working with a coach or trusted mentor, independent study, and "other" types of professional development.
- Total time spent in professional development increased efficacy of strategy use more than any specific type of professional development.
- Time in professional development correlated most strongly with frequency of during-reading strategy use and efficacy of strategy use.
- While the mandated workshop related as a type of professional development to frequency of strategy use for several literacy strategies, it did not relate to confidence in strategy use for any type of literacy strategy.

As district leaders review the results of this study and apply the findings to professional development decisions, targeted or customized professional development may result. With more targeted decision-making regarding professional development, district policy makers are more likely to select types of professional development to meet desired goals. As literacy strategy instruction improves as a result of customized professional development, student application of literacy strategies will be a likely outcome. As students increase in their literacy skill, they will likely become informed decision-makers who value the power of literacy. Well-informed, empowered, literate adults will then continue to model those same literacy skills for the next generation.

References

Abadiano, H., & Turner, J. (2004). Professional staff development: What works? *New England Reading Association Journal, 40*(2), 87-91. Retrieved from http://search.proquest.com/docview/207966178?accountid=14872

Afflerbach, P. Pearson, P.D., & Paris, S. (2008). Clarifying differences between reading skills and reading strategies. *The Reading Teacher*, *61*(5), 364-373. doi: 10.1598/RT.61.5.1

Alger, C. (2009). Content area reading strategy knowledge transfer from preservice to first-year teaching. *Journal of Adolescent & Adult Literacy*, *5*3(1), 60-69. doi:10.1598/JAAL.53.1.6

Akyol, H., & Ulusoy, M. (2010). Pre-service teachers' use of reading strategies in their own readings and future classrooms. *Teaching and Teacher Education*, *26*, 878-884. doi:10.1016/j.tate.2009.10.026

Andreski, A. (1972). *Social sciences as sorcery*. New York, NY: St. Martins's Press.

Arena, M. (2009). Understanding large group intervention processes: A complexity theory perspective. *Organization Development Journal*, *27*(1), 49-64.

Bandura, A. (1965). Influence of models' reinforcement contingencies on the acquisition of imitative responses. *Journal of Personality and Social Psychology*, *1*(6), 549-595. Retrieved from http://www.uky.edu/~eushe2/Bandura/Bandura1965JPSP.pdf

Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory.* Englewood cliffs, NJ: Prentice-Hall.

Barry, A. (2002). Reading strategies teachers say they use. *Journal of Adolescent & Adult Literacy, 46*(2), 132-141. Retrieved from http://moormangb.ced.appstate.edu/5534_f07/unit2/barry_strategies.pdf

Biancarosa, G., & Snow, E. (2004). *Reading next – A vision for action and research in middle and high school literacy: A report to Carnegie corporation of New York.* Washington D.C.: Alliance for Excellent Education.

BiFuh Ambe, E. (2007). Inviting reluctant adolescent readers into the literacy club: Some comprehension strategies to tutor individuals or small groups of reluctant readers. *Journal of Adolescent & Adult Literacy*, *50*(8), 632-639. doi:10.1598/JAAL.50.8.2

Boyer, I., Maney, B., Kamler, B., & Comber, B. (2004). Reciprocal mentoring across generations: Sustaining professional development for English teacher. *English Teaching: Practice and Critique, 3*(2), 139-150. Retrieved from http://education.waikato.ac.nz/research/files/etpc/2004v3n2narl.pdf

Brown, K. (2006). Leadership for social justice and equity: Evaluating a transformative framework and andragogy. *Educational Administration Quarterly, 42*(5), 700-745.

Bryant, D.P., Vaughn, S., Linan-Thompson, S., Ugel, N., Hamff, A., & Hougen, M. (2000). Reading outcomes for students with and without reading disabilities in general education middle-school content area classes. *Learning Disabilities Quarterly, 23*(4), 251-264.

Butler, D. L. (2002). Individualizing instruction self-regulated learning. *Theory Into Practice, 41*(2), 81-92. *I stopped reviewing here. Please go through the rest of your references and look for the patterns I pointed out to you.*

Butler, D. L., Lauscher, H. N., Jarvis-Selinger, S., & Beckingham, B. (2004). Collaboration and self-regulation in teachers' professional development. *20*, 435-455. doi:10.1016/j.tate.2004.04.003

Calkins, M. (*n.d.*). *Cognitive Coaching Content Memory Mat*. (Available from Center for Cognitive Coaching, PO Box 630860, Highlands Ranch, CO 80163).

Cantrell, S., Burns, L., Callaway, P. (2009). Middle- and high –school content area teachers' perceptions about literacy teaching and learning. *Literacy Research and Instruction 48*(1), 79-94. doi: 10.1080/19388070802434899

Cantrell, S. & Callaway, P. (2008). High and low implementers of content literacy instruction: Portraits of teacher efficacy. *Teaching and Teacher Education*, *24*, 1739-1750. doi: 10.1016/j.tat.2008.02.020

Cantrell, S. & Carter J. (2009). Relationships among learner characteristics and adolescents' perceptions about reading strategy use. *Reading Psychology*, *30*, 195-224. doi: 10.1080/2702710802275397

Carnegie Council on Advancing Adolescent Literacy. (2010). *Time to act: An agenda for advancing adolescent literacy for college and career success.* New York, NY: Carnegie Corporation of New York. Retrieved: http://www.nwp.org/cs/public/print/resource/3019

Chiu, M.M., Chow, B,W., & Mcbride-Chang, C. (2007). Universals and specifics in learning strategies: Explaining adolescent mathematics, science, and reading achievement across 34 countries. *Learning and Individual Differences*, *17*, 344-365. doi:10.1016/j.lindif.2007.03.007

Clemmitt, M. (2008). Reading crisis? Do today's youth read less than past generations? *CQ Researcher. 18*(8), 1-10. Retrieved from http://library.cqpress.com/cqresearcher/

Coborn, C. E., Bae, S. & Turner, E. O. (2008). Authority, status, and the dynamics of insider-outsider partnerships at the district level. *Peabody Journal of Education*, *83*, 364-399. doi:10.1080/01619560802222350

Common Core Standards Initiative (2011). The standards. Retrieved from http://www.corestandards.org/the-standards

Conley, M. (2008). Cognitive strategy instruction for adolescents: What we know about the promise, what we don't know about the potential. *Harvard Educational Review*, *78*(1), 84-106. Retrieved from http://search.proquest.com.library.capella.edu/docview/212262155?accountid=27965

Conley, M. (2007). Reconsidering adolescent literacy: From competing agendas to shared commitment, (p. 77-97). In Pressley, M. (ed.). *Shaping literacy achievement: Research we have research we need.* New York, NY: Guilford Press.

Correnti, R. & Rowan, B. (2007). Opening up the black box: Literacy instruction in schools participating in three comprehensive school reform programs. *American Education Research Journal,* 44, 298-338.

Creative Research Systems (2010) Sample size calculator. Retrieved from http://www.surveysystem.com/sscalc.htm

Creswell, J. W. (2003). *Research design: Qualitative, quantitative, and mixed methods approaches* (2nd ed.). Thousand Oaks, CA: Sage Publications.

Cromley, J. G., Snyder-Hogan, L. E., & Luciw-Dubas, U. A. (2010). Reading comprehension of scientific text: A domain-specific test of the direct and inferential mediation model of reading comprehension. *Journal of Educational Psychology*, *102*(3), 687-700. doi:10.1037/a0019452

Daggott, W. R. & Hasselbring, T. S. (2007). What we know about adolescent reading. Retrieved from http://www.leadered.com/whitepapers.html

Danielson, C. (2002*). Enhancing student achievement: A framework for school improvemen*t. Alexandria, VA: Association for Supervision and Curriculum Development.

Darling-Hammond, L., Wei, R. C., Andre, A., Richardson, N., & Orphanos, S., (2009). *Professional learning in the learning profession: A status report on teacher development in the United States and abroad.* Dallas, TX: National Staff Development Council.

Davis, B. & Sumara, D. (1997). Cognition, complexity, and teacher education. *Harvard Educational Review*, *67*(1), 105-125. Retrieved from

http://search.proquest.com.library.capella.edu/docview/212252964?accountid=27965

Deshler, D. (2004). *The scaling of innovations: Factors to consider beyond professional development.* Presentation to the International Dyslexia Association, Chicago, IL. Retried from: http://www.nrcld.org/about/presentations/2004/IDA_Chicago_Dec2004.ppt

Dewey, J. (1981). Experience and thinking, In McDermott (Ed.), *The philosophy of John Dewey: Two volumes in one 1 the structure of experience 2 the lived experience.* Chicago: The University of Chicago Press.

Draper, R. (2008). Redefining content area literacy teacher education; Finding my voice through collaboration. *Harvard Educational Review*, *78*(1), 60-80. Retrieved from http://search.proquest.com.library.capella.edu/docview/212342398?accountid=27965

DuFour, R., Eaker, R., & DuFour, R. (Eds.). (2004). *On common ground: The power of professional learning communities*. Bloomington, Indiana: Solution Tree.

Early, (1977). What does reading research reveal about successful reading programs? In M. A. Gunn et al. (Eds.). *What we know about high school reading.* Champaign, IL: National Council of Teachers of Reading.

EducationBug (2012). Minnesota school district statistics. Retrieved from http://minnesota.educationbug.org/school-districts/

Ellery, V. (2009). *Creating strategic readers: Techniques for developing competency in phonemic awareness, phonics, fluency, vocabulary, and comprehension* (2nd ed.). Newark, DE: International Reading Association.

Ellery, V. & Rosenboom, J. L. (2011). *Sustaining strategic readers: Techniques for supporting content literacy in grades 6-12.* Newark, DE: International Reading Association.

Fairmont Area Schools. (2012). Educational improvement plan MCA data. Retrieved from https://docs.google.com/a/apps.fairmont.k12.mn.us/spreadsheet/ccc?key=0Aj2l1Dpm5F2XdG54c1NxTGZnMTF2NE5VZDJMRzRXUkE&authkey=CN-PqWI&hl=en&authkey=CN-PqWI#gid=0

Fang, Z. (2006). The language demands of science reading in middle school. *International Journal of Science Education. 28*(5), 491-520. doi: 10.1080/09500690500339092

Fink, A. (2006). *How to conduct surveys: A step-by-step guide*. Thousand Oaks, CA: Sage Publications.

Fisher, F., & Frey, N. (2007). A tale of two middle schools: The differences in structure and instruction. *Journal of Adolescent & Adult Literacy, 51*(3), 204-211. doi: 10.1598/JAAL.51.3.1

Fisher, D. & Frey, N. (2008a). *Better learning through structured teaching: A framework for the gradual release of responsibility.* Alexandria, VA: Association for Supervision and Curriculum Development.

Fisher, D. & Frey, N. (2008b). Homework and the gradual release of responsibility: Making "responsibility" possible. *English Journal*, *98*(2), 40-45. Retrieved from http://www.jstor.org/stable/40503381

Fisher, D. & Frey, N. (2008c). Student and teacher perspectives on the usefulness of content literacy strategies. *Literacy Research and Instruction 47*, 246-263. doi: 10.1080/19388070802300330

Fisher, D. & Johnson, C. (2006). Analyzing student work. *Principal Leadership, 7*(2), 27-31. Retrieved from http://search.proquest.com.library.capella.edu/docview/233340513?accountid=27965

Fisher, R. (2006). Plus co change: Change and continuity in literacy teaching. *Teaching and Teacher Education*, *22*, 424-436. doi:10.1016/j.tate.2005.11.014

Frey, N. & Fisher, D. (2009). The release of learning. *Principal Leadership*. *9*(6), 18-22. Retrieved from http://search.proquest.com.library.capella.edu/docview/233317860?accountid=27965

Garet, M.S., Porter, A.C., Desimone, L. Birman, B. R., & Yoon, K.S. (2001). What makes professional development effective? Results from a national sample of teachers. *American Educational Research Journal*, *38*(4), 915-945. doi: 10.3102/00028312038004915

Gliem, J. A. & Gliem, R. R., (2003). Calculating, interpreting, and reporting Cronbach's alpha reliability coefficient for Likert-type scales. Paper presented at the 2003

Midwest Research to Practice Conference in Adult, Continuing, and Community Education conference, Columbus, OH.

Goddard, R., Hoy, W., & Hoy, A. (2000). Collective teacher efficacy: Its meaning, measure, and impact on student achievement. *American Educational Research Journal*, *37*(2), 479-507. doi:10.3102/00028312037002479

Graham, S., & Hebert, M. A. (2010). *Writing to read: Evidence for how writing can improve reading. A Carnegie Corporation Time To Act Report*. Washington, DC: Alliance for Excellent Education.

Gravetter, F. J. & Wallnau, L. B. (2008). *Essentials of statistics for the behavioral sciences* (6th ed.). Belmont, CA: Wadsworth.

Griffin, T.D., Wiley, J., & Thiede, K. (2008). Individual differences, rereading, and self-explanation: Concurrent processing and cue validity as constraints on metacomprehesion accuracy. *Memory & Cognition*, *31*(1), 93-103. doi:10.3758/MC.36.1.93

Gross, P. A., (2010). Not another trend: Secondary-level literacy coaching. *The Clearing House*. *80*, 133-137. doi:1080/00098651003774844

Gunn, T. M., (2008). The effects of questioning on text processing. *Reading Psychology*, *29*, 405-442. doi:10.1080/02702710802165374

Guskey, R.G., (2002). Professional development and teacher change. *Teaching and Teacher: Theory and Practice*, *8*(3/4), 381-391. doi:10.1080/135406002100000512

Hall, L. (2005). Teachers and content area reading: Attitudes, beliefs and change. *Teaching and Teacher Education*. *21*, 403-414. doi:10.1016/j.tate.2005.01.009

Hall, G. E. & Hord, S. M. (2006). *Implementing change: Patterns, principles, and potholes*. New York, NY: Pearson.

Hargreaves, A. (2004). Inclusive and exclusive educational change: Emotional responses of teachers and implications for leadership. *School Leadership & Management*, *24*(2), 287-309. doi:10.1080/1363243042000266936

Herber, H. L. & Sanders, P. L.(Eds.) (1969). *Research in reading in the content areas: First year report.* Washington, D.C.: Bureau of Research.

Heller R. & Greenleaf, C. (2007). *Literacy instruction in the content areas: Getting to the core of middle and high school improvement*. Washington D.E.: Alliance for Excellent Education.

Heron-Hruby, A., Hagood, M. C., & Alvermann, D. E. (2008). Switching places and looking to adolescents for the practices that shape school literacies. *Reading & Writing Quarterly*, *24*, 311-334. doi:10-1080/10573560802004258

Honig, B., Diamond, L., & Gutlohn, L. (2008). *Teaching reading sourcebook* (2nd ed.). Novato, CA: Arena Press.

Huey, E.B. (1968). *The psychology and pedagogy of reading.* Cambridge, MA: MIT Press.

Hyerle, D. (2009). *Visual tools for transforming information into knowledge* (2nd ed.). Thousand Oaks, CA: Corwin Press.

iSeek Solutions. (*n.d.*). High school teachers. Retrieved from http://www.iseek.org/careers/careerDetail?id=1&oc=100096

Jacobs, V.A. (2008). Adolescent literacy: Putting the crisis in context. *Harvard Educational Review, 78*(1), 7-39. Retrieved from http://search.proquest.com.library.capella.edu/docview/212342486?accountid=27965

Kamil, M., Borman, G., Dole, J., Kral, C., Salinger, T., & Torgersen, J. (2008). *Improving adolescent literacy: Effective classroom and intervention practices: A practice guide (NCEE* No. 2008-4027). Washington, DC: National Center for Education Evaluation and Regional Assistance, Institute of Education Sciences, U.S. Department of Education. Retrieved from http://ies.ed.gov/ncee/wwc

Keene, E. (2010). To understand: The small changes that make a big difference. In Ganske K. & Fisher, D. (Eds), *Comprehension across the curriculum: Perspectives and practices K-12.* (p. 7-22). New York, NY: The Guilford Press.

Labone, E. (2004). Teacher efficacy: maturing the construct through research in alternative paradigms. *Teaching and Teacher Education, 20*, 341-359. doi:10.1016/j.tate.2004.02.013

Lam, W. S. (2009). Multiliteracies on instant messaging in negotiating local, translocal, and transnational affiliations: A case of an adolescent immigrant. *Reading Research Quarterly*, *44*(4), 377-397. doi:dx.doi.org/10.1598/RRQ.44.4.5

Lapp, D. & Fisher, D. (2009). *Essential reading on comprehension*. Newark, DE: International Reading Association.

Leroy, N., Bressoux, P., Sarrazin, P., & Trouilloud D. (2007). Impact of teacher's implicit theories and perceived pressures on the establishment of an autonomy supportive climate. *European Journal of Psychology of Education*, *23*(4), 529-545. doi:10.1007/BF03173470

Lesley, M., Watson, P., & Elliot, S. (2007). "School" reading and multiple texts: Examining the metacognitive development of secondary-level preservice teachers. *Journal of Adolescent & Adult Literacy*, *51*(2), 150-16. doi:10.1598/JAAL.51.2.6

Lockwood, J. R., Sloan McCombs, J., & Marsh, J. (2010). Linking reading coaches and student achievement: Evidence from Florida middle schools. Educational Evaluation and Policy Analysis, *32*(3), 372-388. doi:10.31-2/0162373710373388

Lovett, M. W., Lacerenza, L., De Palma, M., Benson, N. J., Steinbeck, K. A., & Frijters, J. C. (2008). Preparing teachers to remediate reading disabilities in high school: What is needed for effective professional development? *Teaching and Teacher Education 24*, 1083-1097. doi:10.1016/jtate.2007.10.005

MacGillivray, L. & Curwen, M. S. (2007). Tagging as a social literacy practice. *Journal of Adolescent & Adult Literacy, 50*(5), 354-369. doi:10.1598/JAAL.50.5.3

McConachie, S., Hall, M., Resnick, L., Ravi, A., Bill, V., & Taylor, J. (2006). Task, text, and talk. *Educational Leadership, 64*, 8-14. Retrieved from http://www.innovationlabs.com/newhighschool/2006/reading%20materials/literacy.pdf

McCoss-Yergian, T. & Krepps, L. (2010). Do teachers' attitudes impact literacy strategy implementation in content area classrooms? *Journal of Instructional Pedagogies, 4*,1-18. Retrieved from http://www.w.aabri.com/manuscripts/10519.pdf

McKeown, M. G., Beck, I. S., & Blake R. G. (2009). Rethinking reading comprehension instruction: A comparison of instruction for strategies and content approaches. *Reading Research Quarterly*, *44*(3), 218-253. doi:dx.doi.org/10.1598/RRQ.44.3.1

Marzano, R. (2003). *What works in schools: Translating research into practice.* Alexandria, VA: Association for Supervision and Curriculum Development.

Marzano, R. (2004). *Building background knowledge for academic achievement: Research on what works in schools*. Alexandria, VA: Association for Supervision and Curriculum Development.

Marzano, R. (2007). *The art and science of teaching: A comprehensive framework for effective instruction*. Alexandria, VA: Association for Supervision and Curriculum Development.

May, S. (2007). Sustaining effective literacy practices over time in secondary schools: School organizational and change issues. *Language and Education: An International Journal*, *21*(5), 287-405. doi: 10.2167/le799.0

Meier, K. J. & Brudney J. L. (2002). *Applied statistics for public administration* (5th ed.). Belmont, CA: Wadsworth.

Meneghetti, C., Carretti, B., & De Beni, R. (2006). Components of reading comprehension and scholastic achievement. *Learning and Individual Differences*, *16*, 291-301. doi: 10.1016/j.lindif.2006.11.001

Merriam, S. B. (2008). Adult learning theory for the twenty-first century. *New Directions for Adult and Continuing Education 119*, 93-98. doi:10.1002/ace.309

Meyer, B. J. & Poon, L. W. (2001). Effects of structure strategy training and signaling on recall of text. *Journal of Educational Psychology*, *93*(1), 141-159. doi:10.1037//0022-0663.93.1.141

Mezirow, J. (Ed.). (2000). *Learning as transformation: Critical perspectives on a theory in progress.* San Francisco: Jossey-Bass.

Minnesota Board of Teaching (n.d.) *Handbook for Minnesota teacher licensure examinations.* Retrieved from http://ed.mnsu.edu/professionaled/september_8_handbook.doc

Minnesota Department of Education. (2011a). Data reports and analytics. Retrieved from http://www.education.state.mn.us/MDE/Data/index.html

Minnesota Department of Education (2011b). Minnesota K-12 academic Standards – English language arts. Retrieved from http://education.state.mn.us/MDE/Academic_Excellence/Academic_Standards/index.html.

Minnesota Department of Education (2011c). *An updated model plan for adolescent reading intervention and development.* Retrieved from http://education.state.mn.us/mdeprod/idcplg?IdcService=GET_FILE&dDocName=042194&RevisionSelectionMethod=latestReleased&Rendition=primary.

Minnesota Department of Education (2012). Minnesota education statistics summary. Retrieved from http://w20.education.state.mn.us/MDEAnalytics/Summary.jsp.

Mojo, A. B. (2010). Comprehending in the subject areas: The challenges of comprehension, grades 7-12, and what to do about them. In Ganske K. & Fisher, D. (Eds), *Comprehension across the curriculum: Perspectives and practices K-12.* (p. 7-22). New York, NY: The Guilford Press.

Monte-Sano, C. & Cochran, M. (2009). Attention to learners, subject, or teaching: What takes precedence as preservice candidates learn to teach historical thinking and reading? *Theory and Research in Social Education*, *37*(1), 101-135.

Mourshed, M., Chijioke, C., & Barber, M. (2010). How the world's most improved school systems keep getting better. A report for McKinsey & Company. Retrieved from http://www.mckinsey.com/clientservice/social_sector/our_practices/education/knowledge_highlights/how%20school%20systems%20get%20better.aspx

Murphy, P. K., Wilkinson, I. A., Soter, A. O., Hennessey, M. N., & Alexander, J. F. (2009). Examining the effects of classroom discussion on students' comprehension of a text: A meta-analysis. *Journal of Educational Psychology*, *101*(3), 740-764 doi: 10.1037/a0015576.

National Center for Educational Statistics, (2009a). Summary of findings. Retrieved from: http://nationsreportcard.gov/reading_2009/summary_g12.asp.

National Center for Educational Statistics, (2009b). Reading 2009 state snapshot report. National Center for Educational Statistics. Retrieved from: http://nces.ed.gov/nationsreportcard/states/.

National Center for Education Statistics, (2011). Reading 2011 state snapshot report. National Center for Educational Statistics. Retrieved from: *nces.ed.gov/nationsreportcard/pdf/stt**2011**/2012454MN8.pdf*

Ness, M. (2009). Reading comprehension strategies in secondary content area classrooms: Teacher use of and attitudes towards reading comprehension instruction. *Reading Horizons*, *49*(2). 143-166.

Nicolaides, A. & Yorks, L. (2008). Complexity and philosophy: An epistemology of learning through. *Emergence: Complexity and Organization*, *10*(1), 50-61. Retrieved from http://go.galegroup.com.ezp.waldenulibrary.org/ps/i.do?id=GALE%7CA178673903&v=2.1&u=minn4020&it=r&p=EAIM&sw=w

Nielsen, D., Barry, A., & Staab, P. (2008). Teachers' reflections of professional change during a literacy-reform initiative. *Teaching and Teacher Education*, *24*, 1288-1303. doi:10.1016/j.tate.2007.01.015

O'Reilly, T. & McNamara, D. S. (2007). The impact of science knowledge, reading skill, and reading strategy knowledge on more traditional "high-stakes" measures of high school students' science achievement. *American Education Research Journal, 44*, 161-196. doi: 10.3102/0002831206298171

OSEP. (2010). Positive behavioral interventions & supports. Retrieved from http://www.pbis.org/default.aspx.

Otaiba, S., Hosp, J. L., Smartt, S., & Dole, J. (2008). The challenging role of a reading coach, a cautionary tale. *Educational and Psychological Consultation, 18*,124-155. doi:10.1080/10474410802022423

Palincsar, A. S. & Brown, A. L. (1984). Reciprocal teaching of comprehension-fostering and comprehension-monitoring activities. *Cognition and Instruction*, *1*(2), 117-175. doi:10.1207/s1532690xci0102_1

Parr, G. (2004). Professional learning, professional knowledge and professional identity: A bleak view, but oh the possibilities. *English Teaching: Practice and Critique*, *3*(2), 21-47. Retrieved from http://education.waikato.ac.nz/research/files/etpc/2004v3n2art2.pd

Peterson, D. S., Taylor, B. M., Burnham, B., & Schock, R. (2009). Reflective coaching conversations: A missing piece. *The Reading Teacher*, *62*(6), 500-509, doi:10.1598/RT.62.6.4

Piaget, J. (1952). *The origins of intelligence in children*, New York: WW Norton & Co.

Pressley, M. & Afflerbach, P. (1995). *Verbal protocols of reading: The nature of constructively responsive reading.* Hillsdale, NJ: Erlbaum.

Putnam, S. M., Smith, L, L., & Cassady, J. C. (2009). Promoting change through professional development: The place of teacher intentionality in reading instruction. *Literacy Research and Instruction*, 48(3), 207-220. doi: 10.1080/19388070802251988

Radcliffe, R., Caverly, D., Hand, J., & Franke, D. (2008). Improving reading in a middle school science classroom. *Journal of Adolescent & Adult Literacy*, *51*(5), 398-408. doi: 10.1598/JAAL.51.5.3

Raphael, T. E. & Au, K. H. (2009). QAR: Enhancing comprehension and test taking across grades and content areas. In Lapp, D. & Fisher, D. (Eds), *Essential readings on comprehension* (pp. 12-27). Newark, DE: International Reading Association.

Raphael, T. E., Highfield, K., & Au, K. (2006). QAR now: A powerful and practical framework that develops comprehension and higher-level thinking in all students. Broadway, NY: Scholastic.

Ray, A. (2006). Typical response rates. Query Group. Retrieved http://www.practicalsurveys.com/respondents/typicalresponserates.php.

Reed, D.K. (2009). A synthesis of professional development on the implementation of literacy strategies for middle school content area teachers. *Research in Middle Level Education*, *22*(10), 1-12. Retrieved from http://www.amle.org/portals/0/pdf/publications/RMLE/rmle_vol32_no10.pdf

Reeves, D. (2006). *The learning leader: How to focus school improvement for better results.* Alexandria, VA: Association for Supervision and Curriculum Development.

Reeves, D. (2009). Change leadership in action: Motivating teams and organizations for positive change. systems [Webinar November 5, 2009]. (Transcript available from The Learning And Leading Center) http://www.leadandlearn.com/webinars.

Renner, T. (1988). *Statistics unraveled: A practical guide to using data in decision making.* Washington D. C.: International City Management Association.

Richardson, J. S., Morgan, R. F., & Fleener, C. E. (2009). *Reading to learn in the content areas*. Belmont, CA: Wadsworth Cengage Learning.

Roe, M. (2004). Professional learning catalysts: Unveiling the influences on one teacher's literacy practices. *Reading Research and Instruction*, *44*(1), 32-62. doi: 10.1080/19388070409558420

Ross, B., (1992). Teacher efficacy and the effects of coaching on student achievement. *Canadian Journal of Education*, *17*(1), 51-65. Retrieved from http://www.jstor.org/stable/1495395

Ross, J. & Bruce, C. (2007). Professional development effects on teacher efficacy; Results of randomized field trial. *The Journal of Educational Research, 101*(1), 50-60. doi:10.3200/JOER.101.1.50-60

Rotter, J. (1966). Generalized expectancies for internal versus external control of reinforcement. *Psychological Monographs, 80*, 1-28. doi:10.1037/h0092976

Sanchez, R. P., Lorch, E. P., & Lorch R. F. (2001). Effects of heading on text processing strategies. *Contemporary Educational Psychology*, *26*, 418-428. doi: 10.1006/ceps.2000.1056

Schmoker, M. (1996*). Results: The key to continuous improvement*. Alexandria, VA: Association for Supervision and Curriculum Development.

Schmoker, M. (2001). *The results fieldbook: Practical strategies from dramatically improved schools*. Alexandria, VA: Association for Supervision and Curriculum Development.

Schmoker, M. (2006). *Results now: How we can achieve unprecedented improvements in teaching and learning.* Alexandria, VA: Association for Supervision and Curriculum Development.

Siebert, D. & Draper, R., (2008). Why content-area literacy messages do not speak to mathematics teachers: A critical content analysis. *Literacy Research and Instruction. 47*(4), 229-245. doi:10.1080/19388070802300314

Shanahan, T. & Shanahan, C. (2008). Teaching disciplinary literacy to adolescents: Rethinking content-area literacy. *Harvard Educational Review*, *78*(1), 40-59. Retrieved from http://search.proquest.com.library.capella.edu/docview/212267873?accountid=27965.

Soter, A. O., Wilkinson, I. A., Murphy, P. K., Rudge, L., Rinninger, K., & Edwards, M. (2008). What the discourse tells us: Talk and indicators of high-level comprehension. *International Journal of Educational Research*, *47*, 372-391. doi:10.1016/j.ijer.2009.01.001

Sporer, N. & Brunstein, J. C. (2009). Fostering the reading comprehension of secondary school students through peer-assisted learning: Effects on strategy knowledge, strategy use, and task performance. *Contemporary Educational Psychology,* In Press. doi:10.1016/j.cedpsych.2009.06.004

Sporer, N. Brunstein J. C. & Kieschke, U. (2009). Improving students' reading comprehension skills: Effects of strategy instruction and reciprocal teaching. *Learning and Instruction*, *29*, 272-286. doi:10.1016/j.learninstruc.2008.05.003

SPSS Inc. (2009). PASW statistics gradpack base 18 (18.0.0) [MAC]. Chicago, IL: SPSS, Inc.

SurveyMonkey, (2011). SurveyMonkey: Create your own online surveys for free. Retrieved from http://try.surveymonkey.com/?gclid=CM__5IiUlawCFcEBQAodwHadpA.

Taylor, E. (2000). Analyzing research on transformative learning theory, In Mezirow, J. (Ed.), *Learning as transformation: Critical perspectives on a theory in progress.* (pp. 285-328). San Francisco: Jossey-Bass.

Timperley, H.S. & Phillips, G. (2003). Changing and sustaining teachers' expectations through professional development in literacy. *Teaching and Teacher Education*, *19*, 627-641. doi:10.1016/S0742-051X(03)00058-1

The Education Alliance. (2004). *Breaking ranks II: Strategies for leading high school reform.* Reston, VA, National Association of Secondary School Principals.

The National Council of Teachers of English. (2007). *Adolescent literacy: A policy research brief produced by the national council of teachers of English.* Urbana, IL: author.

Tovani, C. (2004). *Do I really have to teacher reading? Content comprehension, grades 6-12.* Portland, Maine: Stenhouse Publishers.

Tochim, W. M. (2006a). Idea of construct validity. Retrieved from: http://www.socialresearchmethods.net/kb/considea.php.

Trochim, W. M. (2006b). Levels of measurement. Retrieved from: http://www.socialresearchmethods.net/kb/measlevl.php

Trochim, W. M. (2006c). Designing designs for research. Retrieved from: http://www.socialresearchmethods.net/kb/desdes.php.

Tschannen-Moran, M. & Barr, M. (2004). Fostering student learning: The relationship of collective teacher efficacy and student achievement. *Leadership and Policy in Schools, 3*(3), 189-209. doi:10.1080/15700760490503706

Tschannen-Moran, N., Hoy, A., & Hoy W. (1998). Teacher efficacy: Its meaning and measure. *Review of Educational Research*. *68*(2), 202-248. doi:10.3102/00346543068002202

Veenman, S. & Denessen E., (2001). The coaching of teachers: Results of five training studies. *Educational Research and Evaluation. 7*(4), 385-417. doi:10.1076/edre.7.4.385.8936

Vygotsky, L.S. (1987). Thought and Word. In Rieber, R. W. & Carton, A. S. (Eds), *The collected works of L. S. Vygotsky volume I problems of general psychology includes the volume thinking and speech.* New York, NY: Plenum Press.

Walker, D. (2002). Constructivist leadership: Standards, equity, and learning – weaving whole cloth from multiple strands in Lamber, L. et.al. (Eds), *The Constructivist Leader* (2nd ed.). New York, NY: Teachers College Press.

Wood, D., Bruner, J., & Ross, G. (1976). The role of tutoring and problem solving. *Journal of Child Psychology and Psychiatry, 17*, 89-100. doi:10.1111/j.1469-7610.1976.tb00381.x

Wilson, N.S., Grisham, D.L., & Smetana, L. (2009). Investigating content area teachers' understanding of a content literacy framework: A yearlong professional development initiative. *Journal of Adolescent & Adult Literacy, 52*(8), 708-718. doi:10.1598/JAAL.52.8.6

Wolfe, M. B. (2005). Memory for narrative and expository text: Independent influences of semantic association and text organization. 31(2), 350-364. doi: 1037/0278-7393.31.3.359

Yoon, K., S., Duncan, T., Lee, S. W.-Y., Scarloss, B., & Shapely, K. (2007). *Reviewing the evidence on how teacher professional development affects student achievement* (Issues & Answers Report, REL 2007-No.033). Washington, DC: U.S. Department of Education, Institute of Education Sciences, National Center for Education Evaluation and Regional Assistance, Regional Education Laboratory Southwest. Retrieved from http://ies.ed.gov/ncee/edlabs

York, L. & Marsick V. (2000). Organizational learning and transformation, In Mezirow, J. (Ed), *Learning as transformation: Critical perspectives on a theory in progress.* (pp. 253-281). San Francisco: Jossey-Bass.

Zellermayer, M. & Margolin, I. (2005). Teacher educators' professional learning described through the lens of complexity theory. *Teachers College Record,*

107(6), 1275-1304. Retrieved from http://www.tcrecord.org/library ID Number: 11911

Zwart, R. C., Wubbels, T., Bergen, T. C., & Bolhuis, S. (2007). Experienced teacher learning within the context of reciprocal peer coaching. *Teachers and Teaching: theory and practice, 13*(2), 165-187. doi:10.1080/13540600601152520

Zwart, R. C., Wubbels, T., Bergen, T. C., & Bolhuis, S. (2009). Which characteristics of a reciprocal peer coaching context affect teacher learning as perceived by teachers and their students? *Journal of Teacher Education, 30*(3), 243-257. doi:10.1177/0022487109336968

Zwart, R. C., Wubbels, T., Bolhuis, S., & Bergen, T. C. (2008). Teacher learning through reciprocal peer coaching: An analysis of activity sequence. *Teaching and Teacher Education, 24*, 982-1002. doi:10.1016/j.tate.2007.11.003

Appendix A

Letter to Superintendents Requesting Permission to Survey

Dear [Name of Superintendent]:

As you are aware, adoption of the Common Core State Standards push Minnesota schools to embed literacy standards in all content area classrooms by 2012-2013 school year. This shift in standards asks content area teachers to make significant changes in their teaching practice. Professional development is key to making a successful shift to the Common Core State Standards.

I am a doctoral candidate from Walden University, studying the professional development needed to successfully embed the Common Core State Literacy Standards in content area lesson design. Your school district is invited to participate in the study. If you accept, the following steps will take place:

- I will request email addresses for all your secondary teachers for whom the Common Core State Literacy Standards apply. These would include: English, science, social studies and technical subjects.
- I will select a number of teachers to whom I will send an introductory letter with a Survey Monkey link embedded in the email. The letter to your staff will indicate your approval and that the results are confidential and voluntary.

I have included a link to a survey in this email for your review. Link to survey: https://www.surveymonkey.com/s/52SL3SL The survey contains 50 questions. The estimated time of completion is 30-45 minutes. Participants' names will be separated from the data collected. I will share the results of the entire study with you to guide your professional development decisions regarding implementation of the Common Core State Standards

If you have questions regarding participation, I would be happy to answer them via phone (507-236-8362) or email.

Please reply to this email with your permission.

Sincerely,
Jodi Owens-Kristenson
Walden University

Appendix B

Follow-up Phone Conversation Script to be Used With Superintendent

I am a doctoral candidate from Walden University. I am studying the professional development needed to successfully embed the Common Core State literacy Standards in content area lesson design. I sent an earlier email to you regarding my study. Your school district is invited to participate in the study.

The Common Core State Standards push Minnesota schools to embed literacy standards in all content area classrooms by the 2012-2013 school year. This shift in standards asks content area teachers to make significant changes in their teaching practice. Professional development is key to making a successful shift to the Common Core State Standards.

If you agree, the following steps will take place:

- I will request email addresses for all your secondary teachers for whom the Common Core State Literacy Standards apply. These would include: English, science, social studies and technical subjects.
- I will select a number of teachers to whom I will send an introductory letter with a Survey Monkey link embedded in the email. The letter to your staff will indicate your approval and that the results are confidential and voluntary.

I can send you a link to a sample of the survey in this email for your information. The survey contains 50 questions. The estimated time of completion is 30-45 minutes. Participants' names will be separated from the data collected. I will share the results of the entire study with you to guide your professional development decisions regarding implementation of the Common Core State Standards

May I count on your district to be part of my study?

Appendix C

Email Informing Participants of the Study and Link to Survey

Dear Secondary Teacher:

I would like to invite you to participate in a study on content area literacy strategies in your content area classroom. As you are well aware, Minnesota has adopted content area literacy standards for science, social studies, and technical subjects. You have been invited to participate in this study because you teach one of these subjects to which the Common Core State Standards apply. This study investigates the current use of literacy strategies and professional development supporting literacy strategy use. Since the Common Core State Literacy Standards will be mandated in the State of Minnesota this year, the information will be valuable to your district's professional development plan. Your district superintendent has approved participation in this study.

I am a Walden doctoral student conducting this survey to complete my research study. I do appreciate your participation, as education relies on sound research to promote effective methods and procedures. Through your participation in this survey, your collective voice will be heard regarding professional development needs surrounding the your district's implementation of the Common Core State Standards.

Please find a link to a Survey Monkey survey below containing 50 questions. This survey is confidential and voluntary. It will take 30-45 minutes of your time. Your personal responses will not be associated with your name. You may discontinue participation at any time.

You may ask any questions you have now through email. Or, if you have questions later, you may contact me via phone: 507-236-8362. 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.

Link to survey: https://www.surveymonkey.com/s/test_spearman

Sincerely,
Jodi Owens-Kristenson
Walden University Doctoral Student

Appendix D

The Survey of Professional Development and Literacy Strategy Use

Consent to Participate

The following will be the first question on my web-based survey.

You are invited to participate in a research project investigating the relationship between literacy strategies and professional development. The study will investigate the types and amount of professional development needed to support content area teachers in their implementation of the Common Core State Literacy Standards. You have been selected to participate in this study because you teach one of the subjects to which the Common Core State Literacy Standards apply. Your district superintendent has approved participation in this study.

This study is being conducted by Jodi Owens-Kristenson who is a Walden University doctoral candidate. You may already know this researcher as the literacy coordinator and interventionist in the Fairmont Area School district. This administration of this survey is separate from that role. This research project has been approved by the Walden University Institutional Review Board.

By selecting this link, you are consenting to voluntarily participate in this survey. The anticipated time to complete this survey is 30-45 minutes. You may leave the survey and return to complete it at any time, as long as you access it through the same computer and browser. Your responses are anonymous. Your name is not associated with the answers you provide. Your responses are confidential. You should print a copy of this question to review your rights as a participant.

If you should choose to participate in the survey, the results will assist Minnesota school districts in understanding the link between content area literacy instruction and professional development. There is no penalty for not participating in this research study, and you may quit at any time. There is no compensation for participating in this research study. There are minimal risks in completing the survey.

You may ask any questions you have now. Or if you have questions later, you may contact the researcher via phone (507-236-8362) or email (jodi.owenskristenson@waldenu.edu). 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 is **IRB 08-24-12-0133617** and it expires on **August 23, 2013**.

(Button) “I agree to participate in the survey” The next screen will be question 1 of the survey.
(Button) “I do not wish to participate in this survey” The next screen will exit the survey.

1. Please indicate the amount of time you have spent in each type of content area reading or literacy professional development during the last **three** years.

a. Post-graduate college course on content area reading strategies

zero hours 1-14 hours 15-29 hours 30-45 hours more than 45 hours

b. District-mandated workshop or presentation on content area reading strategies

zero hours 1-14 hours 15-29 hours 30-45 hours more than 45 hours

c. Self-selected workshop on content area reading strategies

zero hours 1-14 hours 15-29 hours 30-45 hours more than 45 hours

d. Professional learning community (PLC) focus and/or study of content area reading strategies

zero hours 1-14 hours 15-29 hours 30-45 hours more than 45 hours

e. Collaborating with a literacy coach on the topic of content area reading

zero hours 1-14 hours 15-29 hours 30-45 hours more than 45 hours

f. Collaborating with a respected mentor addressing content area reading

zero hours 1-14 hours 15-29 hours 30-45 hours more than 45 hours

g. Independent study, personal reading, or personal research

zero hours 1-14 hours 15-29 hours 30-45 hours more than 45 hours

h. Other professional development in content literacy strategies. Please list the type:

_____

zero hours 1-14 hours 11-29 hours 30-45 hours more than 45 hours

2. Please select the types of materials that you assign to your students to read in your content area course. You may select all that apply.

a. textbook
b. photocopied handouts
c. web sites
d. directions for assignments and tests
e. no reading is done in my course
f. other: Please specify:
_____

3. How often do you assign each type of text in your classroom:

a. textbook

do not use one to two times per month once per week more than once a week

b. photocopied handouts

do not use one to two times per month once per week more than once a week

c. web sites

do not use one to two times per month once per week more than once a week

d. directions for assignments and tests

do not use one to two times per month once per week more than once a week

e. other: Please specify:
_____

do not use one to two times per month once per week more than once a week

4. Combining all of your professional development in content area reading strategies over the last three years, please estimate the total amount of time you have participated in professional development on this topic. **Please select only one response**.

a. 0 hours
b. 1-10 hours
c. 11-25 hours

d. 26-40 hours
e. 45-60 hours
f. over 60 hours

Please select the response that best describes your **frequency of strategy use** when you assign reading as part of your daily lessons.

Pre-reading Strategy Support

5. Preteach vocabulary the students will encounter in their reading before they read their text.

Never use Use less than half the time Use more than half the time Use nearly every time

Briefly describe a common instructional strategy you use to preteach vocabulary:

6. Please rank the types of professional development experienced from least helpful (0) to most helpful (8) in preparing you to pre-teach vocabulary. If two types of professional development are tied in terms of helpfulness, give them the same number and skip the next number. If you have not experienced a certain type of professional development addressing this topic, insert a zero in the blank. Click here for an example. (Example included at the end of the survey)

____a. Post-graduate college course on content area reading strategies

____b. Mandated workshop or presentation on content area reading strategies

____c. Self-selected workshop on content area reading strategies

____d. Professional learning community (PLC) focus and/or study on content area reading strategies

____e. Collaborating with a literacy coach on the topic of content area reading

____f. Collaborating with a respected mentor addressing content area reading

____g. Independent study, personal reading, or personal research

____h. Other professional development in content literacy strategies. Please list the type: _____

7. Establish a purpose for reading a text by telling students what they need to understand from the reading and do after reading.

Never use Use less than half the time Use more than half the time Use nearly every time

Briefly describe a lesson in which you established a purpose for reading:

8. Please rank the types of professional development experienced from least helpful (0) to most helpful (8) in preparing you to establish a purpose for reading. If two types of professional development are tied in terms of helpfulness, give them the same number and skip the next number. If you have not experienced a certain type of professional development addressing this topic, insert a zero in the blank.

____a. Post-graduate college course on content area reading strategies

____b. Mandated workshop or presentation on content area reading strategies

____c. Self-selected workshop on content area reading strategies

____d. Professional learning community (PLC) focus and/or study on content area reading strategies

____e. Collaborating with a literacy coach on the topic of content area reading

____f. Collaborating with a respected mentor addressing content area reading

____g. Independent study, personal reading, or personal research

____h. Other professional development in content literacy strategies. Please list the type: _____

9. Analyze and purposefully build background knowledge for students prior to reading text. (Examples may include: anticipation guides or previewing text with discussion about current student understanding.)

Never use Use less than half the time Use more than half the time Use nearly every time

Briefly describe a lesson in which you purposefully built student background knowledge:

10. Please rank the types of professional development experienced from least helpful (0) to most helpful (8) in preparing you to build background knowledge. If two types of professional development are tied in terms of helpfulness, give them the same number and skip the next number. If you have not experienced a certain type of professional development addressing this topic, insert a zero in the blank.

____a. Post-graduate college course on content area reading strategies

____b. Mandated workshop or presentation on content area reading strategies

____c. Self-selected workshop on content area reading strategies

____d. Professional learning community (PLC) focus and/or study on content area reading strategies

____e. Collaborating with a literacy coach on the topic of content area reading

____f. Collaborating with a respected mentor addressing content area reading

____g. Independent study, personal reading, or personal research

____h. Other professional development in content literacy strategies. Please list the type: _____

Please select the response that best describes your **frequency of strategy use** when you assign reading as part of your daily lessons.

During Reading Strategy Support

11.Model a "think aloud" to demonstrate a comprehension process students are to use during their reading. (An example includes: Demonstrating how you create a visual image of a process or problem described in your text.)

Never use Use less than half the time Use more than half the time Use nearly every time

Briefly describe a lesson in which you used a "think aloud" to teach content:

12. Please rank the types of professional development experienced from least helpful (0) to most helpful (8) in preparing you to model a "think aloud." If two

types of professional development are tied in terms of helpfulness, give them the same number and skip the next number. If you have not experienced a certain type of professional development addressing this topic, insert a zero in the blank.

____a. Post-graduate college course on content area reading strategies

____b. Mandated workshop or presentation on content area reading strategies

____c. Self-selected workshop on content area reading strategies

____d. Professional learning community (PLC) focus and/or study on content area reading strategies

____e. Collaborating with a literacy coach on the topic of content area reading

____f. Collaborating with a respected mentor addressing content area reading

____g. Independent study, personal reading, or personal research

____h. Other professional development in content literacy strategies. Please list the type: _____

13. Use a multiple step thinking process while reading (Examples include: SQ3R, PQRST, KWL, or reciprocal teaching)

Never use Use less than half the time Use more than half the time Use nearly every time

Briefly describe a lesson during which you required your students to use a multiple step thinking process to read content:

14. Please rank the types of professional development experienced from least helpful (0) to most helpful (8) in preparing you to use a multiple step thinking process. If two types of professional development are tied in terms of helpfulness, give them the same number and skip the next number. If you have not experienced a certain type of professional development addressing this topic, insert a zero in the blank.

____a. Post-graduate college course on content area reading strategies

____b. Mandated workshop or presentation on content area reading strategies

____c. Self-selected workshop on content area reading strategies

____d. Professional learning community (PLC) focus and/or study on content area reading strategies

____e. Collaborating with a literacy coach on the topic of content area reading

____f. Collaborating with a respected mentor addressing content area reading

____g. Independent study, personal reading, or personal research

____h. Other professional development in content literacy strategies. Please list the type: _____

15. Explain or point out supportive features of text (Examples include: different heading types, explanations of words, objectives or goals, captions under diagrams)

Never use Use less than half the time Use more than half the time Use nearly every time

Briefly describe a lesson during which you required students to focus on organizational features of text:

16. Please rank the types of professional development experienced from least helpful (0) to most helpful (8) in preparing you to explain or point out supportive features of text. If two types of professional development are tied in terms of helpfulness, give them the same number and skip the next number. If you have not experienced a certain type of professional development addressing this topic, insert a zero in the blank.

____a. Post-graduate college course on content area reading strategies

____b. Mandated workshop or presentation on content area reading strategies

____c. Self-selected workshop on content area reading strategies

____d. Professional learning community (PLC) focus and/or study on content area reading strategies

____e. Collaborating with a literacy coach on the topic of content area reading

____f. Collaborating with a respected mentor addressing content area reading

____g. Independent study, personal reading, or personal research

____h. Other professional development in content literacy strategies. Please list the type: _____

17. Explain or points out how text is organized and how the author gives clues to the reader of that organizational structure. (example: When the author tells how two things are the same or different, he or she organizes the text in a comparison and contrast structure. Dates or steps in a process indicate a chronological, time-order or sequence structure.)

Never use Use less than half the time Use more than half the time Use nearly every time

Briefly describe a lesson in which you pointed out signal words indicating how text is structured:

18. Please rank the types of professional development experienced from least helpful (0) to most helpful (8) in preparing you to explain or point out how text is organized and how the author gives clues to the reader of that organizational structure. If two types of professional development are tied in terms of helpfulness, give them the same number and skip the next number. If you have not experienced a certain type of professional development addressing this topic, insert a zero in the blank.

____a. Post-graduate college course on content area reading strategies

____b. Mandated workshop or presentation on content area reading strategies

____c. Self-selected workshop on content area reading strategies

____d. Professional learning community (PLC) focus and/or study on content area reading strategies

____e. Collaborating with a literacy coach on the topic of content area reading

____f. Collaborating with a respected mentor addressing content area reading

____g. Independent study, personal reading, or personal research

____h. Other professional development in content literacy strategies. Please list the type: _____

19. Demonstrate "fix-up" strategies, specific thinking a reader can do to figure out a problem in the reading. (Examples include – using context or word parts to make an educated guess as to the meaning of a word and rereading to fix a breakdown in understanding)

Never use Use less than half the time Use more than half the time Use nearly every time

Briefly describe a lesson in which you demonstrated a "fix-up" strategy during content area reading:

20. Please rank the types of professional development experienced from least helpful (0) to most helpful (8) in preparing you to demonstrate "fix-up" strategies. If two types of professional development are tied in terms of helpfulness, give them the same number and skip the next number. If you have not experienced a certain type of professional development addressing this topic, insert a zero in the blank.

____a. Post-graduate college course on content area reading strategies

____b. Mandated workshop or presentation on content area reading strategies

____c. Self-selected workshop on content area reading strategies

____d. Professional learning community (PLC) focus and/or study on content area reading strategies

____e. Collaborating with a literacy coach on the topic of content area reading

____f. Collaborating with a respected mentor addressing content area reading

____g. Independent study, personal reading, or personal research

____h. Other professional development in content literacy strategies. Please list the type: _____

Please select the response that best describes your **frequency of strategy use** when you assign reading as part of your daily lessons.

Post Reading Strategy Support

21. Require note-taking and/ or summarizing during or following reading.

Never use Use less than half the time Use more than half the time Use nearly every time

Briefly describe a lesson in which you required your students to use note-taking and/or summarizing during or following reading:

22. Please rank the types of professional development experienced from least helpful (0) to most helpful (8) in preparing you to teach note-taking and/or summarizing. If two types of professional development are tied in terms of helpfulness, give them the same number and skip the next number. If you have not experienced a certain type of professional development addressing this topic, insert a zero in the blank.

____a. Post-graduate college course on content area reading strategies

____b. Mandated workshop or presentation on content area reading strategies

____c. Self-selected workshop on content area reading strategies

____d. Professional learning community (PLC) focus and/or study on content area reading strategies

____e. Collaborating with a literacy coach on the topic of content area reading

____f. Collaborating with a respected mentor addressing content area reading

____g. Independent study, personal reading, or personal research

____h. Other professional development in content literacy strategies. Please list the type: _____

23. Guide students to reflect on their own success at meeting their purpose for reading.

Never use Use less than half the time Use more than half the time Use nearly every time

Briefly describe a lesson during which you guided students to reflect on their success at meeting their purpose for reading:

24. Please rank the types of professional development experienced from least helpful (0) to most helpful (8) in preparing you to guide students in reflecting on their own success at meeting their purpose for reading. If two types of professional development are tied in terms of helpfulness, give them the same number and skip the next number. If you have not experienced a certain type of professional development addressing this topic, insert a zero in the blank.

____a. Post-graduate college course on content area reading strategies

____b. Mandated workshop or presentation on content area reading strategies

____c. Self-selected workshop on content area reading strategies

____d. Professional learning community (PLC) focus and/or study on content area reading strategies

____e. Collaborating with a literacy coach on the topic of content area reading

____f. Collaborating with a respected mentor addressing content area reading

____g. Independent study, personal reading, or personal research

____h. Other professional development in content literacy strategies. Please list the type: _____

25. Connecting, evaluating, and synthesizing activities to integrated information from text. (Examples include: A nonfiction writing task requiring students to justify positions with evidence from the text. A

debate or discussion requiring students to use text to justify their answers to questions)

Never use Use less than half the time Use more than half the time Use nearly every time

Briefly describe a lesson in which you required students to connect, evaluate, or synthesize information from text:

26. Please rank the types of professional development experienced from least helpful (0) to most helpful (8) in preparing you to prepare activities that connect, evaluate, and synthesize information from a text. If two types of professional development are tied in terms of helpfulness, give them the same number and skip the next number. If you have not experienced a certain type of professional development addressing this topic, insert a zero in the blank.

____a. Post-graduate college course on content area reading strategies

____b. Mandated workshop or presentation on content area reading strategies

____c. Self-selected workshop on content area reading strategies

____d. Professional learning community (PLC) focus and/or study on content area reading strategies

____e. Collaborating with a literacy coach on the topic of content area reading

____f. Collaborating with a respected mentor addressing content area reading

____g. Independent study, personal reading, or personal research

____h. Other professional development in content literacy strategies. Please list the type: _____

Please select the response that best describes your **level of confidence with teaching** each of the following reading strategies as part of your content lessons.

Pre-reading Strategy Support

27. Pre-teaching vocabulary the students will encounter in their reading before they read their text.

Not confident somewhat confident reasonably confident exceptionally confident

28. Please rank the types of professional development from least helpful (0) to most helpful (8) in building your confidence to teach preteach vocabulary. If two types of professional development are tied in terms of helpfulness, give them the same number and skip the next number. If you have not experienced a certain type of professional development addressing this topic, insert a zero in the blank.

____a. Post-graduate college course on content area reading strategies

____b. Mandated workshop or presentation on content area reading strategies

____c. Self-selected workshop on content area reading strategies

____d. Professional learning community (PLC) focus and/or study on content area reading strategies

____e. Collaborating with a literacy coach on the topic of content area reading

____f. Collaborating with a respected mentor addressing content area reading

____g. Independent study, personal reading, or personal research

____h. Other professional development in content literacy strategies. Please list the type: _____

29. Establishing a purpose for reading the text by telling students what they need to understand and do after reading.

Not confident somewhat confident reasonably confident exceptionally confident

30. Please rank the types of professional development from least helpful (0) to most helpful (8) in building your confidence in establishing a purpose for reading. If two types of professional development are tied in terms of helpfulness, give them the same number and skip the next number. If you have not experienced a certain type of professional development addressing this topic, insert a zero in the blank.

____a. Post-graduate college course on content area reading strategies

____b. Mandated workshop or presentation on content area reading strategies

____c. Self-selected workshop on content area reading strategies

____d. Professional learning community (PLC) focus and/or study on content area reading strategies

____e. Collaborating with a literacy coach on the topic of content area reading

____f. Collaborating with a respected mentor addressing content area reading

____g. Independent study, personal reading, or personal research

____h. Other professional development in content literacy strategies. Please list the type: _____

31. Analyzing and purposefully building background knowledge for students prior to reading text.

Not confident somewhat confident reasonably confident exceptionally confident

32. Please rank the types of professional development from least helpful (0) to most helpful (8) in building your confidence in building student background knowledge. If two types of professional development are tied in terms of helpfulness, give them the same number and skip the next number. If you have not experienced a certain type of professional development addressing this topic, insert a zero in the blank.

____a. Post-graduate college course on content area reading strategies

____b. Mandated workshop or presentation on content area reading strategies

____c. Self-selected workshop on content area reading strategies

____d. Professional learning community (PLC) focus and/or study on content area reading strategies

____e. Collaborating with a literacy coach on the topic of content area reading

____f. Collaborating with a respected mentor addressing content area reading

____g. Independent study, personal reading, or personal research

____h. Other professional development in content literacy strategies. Please list the type: _____

Please select the response that best describes your **level of confidence with teaching** each of the following reading strategies as part of your content lessons.

During Reading Strategy Support

33. Modeling a "think aloud" to demonstrate a comprehension process students are to use during their reading. (An example includes: Demonstrating the thought process required to create a visual image of a process or problem described in text.)

Not confident somewhat confident reasonably confident exceptionally confident

34. Please rank the types of professional development from least helpful (0) to most helpful (8) in building your confidence of modeling a "think aloud." If two types of professional development are tied in terms of helpfulness, give them the same number and skip the next number. If you have not experienced a certain type of professional development addressing this topic, insert a zero in the blank.

____a. Post-graduate college course on content area reading strategies

____b. Mandated workshop or presentation on content area reading strategies

____c. Self-selected workshop on content area reading strategies

____d. Professional learning community (PLC) focus and/or study on content area reading strategies

____e. Collaborating with a literacy coach on the topic of content area reading

____f. Collaborating with a respected mentor addressing content area reading

____g. Independent study, personal reading, or personal research

____h. Other professional development in content literacy strategies. Please list the type: _____

35. Using a multiple step thinking process while reading (example: SQ3R, PQRST, KWL)

Not confident somewhat confident reasonably confident exceptionally confident

36. Please rank the types of professional development from least helpful (0) to most helpful (8) in building your confidence of using a multiple step thinking process while reading. If two types of professional development are tied in terms of helpfulness, give them the same number and skip the next number. If you have not experienced a certain type of professional development addressing this topic, insert a zero in the blank.

____a. Post-graduate college course on content area reading strategies

____b. Mandated workshop or presentation on content area reading strategies

____c. Self-selected workshop on content area reading strategies

____d. Professional learning community (PLC) focus and/or study on content area reading strategies

____e. Collaborating with a literacy coach on the topic of content area reading

____f. Collaborating with a respected mentor addressing content area reading

____g. Independent study, personal reading, or personal research

____h. Other professional development in content literacy strategies. Please list the type: _____

37. Explaining or pointing out organizational features of the text (Examples include: different heading types, explanations of words, objectives or goals)

Not confident somewhat confident reasonably confident exceptionally confident

38. Please rank the types of professional development from least helpful (0) to most helpful (8) in building your confidence of explaining or pointing out organizational features of the text. If two types of professional development are tied in terms of helpfulness, give them the same number and skip the next number. If you have not experienced a certain type of professional development addressing this topic, insert a zero in the blank.

____a. Post-graduate college course on content area reading strategies

____b. Mandated workshop or presentation on content area reading strategies

____c. Self-selected workshop on content area reading strategies

____d. Professional learning community (PLC) focus and/or study on content area reading strategies

____e. Collaborating with a literacy coach on the topic of content area reading

____f. Collaborating with a respected mentor addressing content area reading

____g. Independent study, personal reading, or personal research

____h. Other professional development in content literacy strategies. Please list the type: _____

39. Explaining or pointing out signal words that indicate how text is structured (example: comparison and contrast, problem solution, chronological order)

Not confident somewhat confident reasonably confident exceptionally confident

40. Please rank the types of professional development from least helpful (0) to most helpful (8) in building your confidence in explaining or pointing out signal words that indicate how text is structured. If two types of professional development are tied in terms of helpfulness, give them the same number and skip the next number. If you have not experienced a certain type of professional development addressing this topic, insert a zero in the blank.

____a. Post-graduate college course on content area reading strategies

____b. Mandated workshop or presentation on content area reading strategies

____c. Self-selected workshop on content area reading strategies

____d. Professional learning community (PLC) focus and/or study on content area reading strategies

____e. Collaborating with a literacy coach on the topic of content area reading

____f. Collaborating with a respected mentor addressing content area reading

____g. Independent study, personal reading, or personal research

____h. Other professional development in content literacy strategies. Please list the type: _____

41. Demonstrating "fix-up" strategies, specific thinking a reader can do to figure out a problem in the reading. (Examples include – using context or word parts to make an educated guess on the meaning of a word and rereading to fix a breakdown in understanding.)

Not confident somewhat confident reasonably confident exceptionally confident

42. Please rank the types of professional development from least helpful (0) to most helpful (8) in building your confidence in demonstrating a "fix-up" strategy. If two types of professional development are tied in terms of helpfulness, give them the same number and skip the next number. If you have not experienced a certain type of professional development addressing this topic, insert a zero in the blank.

____a. Post-graduate college course on content area reading strategies

____b. Mandated workshop or presentation on content area reading strategies

____c. Self-selected workshop on content area reading strategies

____d. Professional learning community (PLC) focus and/or study on content area reading strategies

____e. Collaborating with a literacy coach on the topic of content area reading

____f. Collaborating with a respected mentor addressing content area reading

____g. Independent study, personal reading, or personal research

____h. Other professional development in content literacy strategies. Please list the type: _____

Please select the response that best describes your **level of confidence with teaching** each of the following reading strategies as part of your content lessons.

Post Reading Strategy Support

43. Requiring note-taking and/ or summarization during or following reading.

Not confident somewhat confident reasonably confident exceptionally confident

44. Please rank the types of professional development from least helpful (0) to most helpful (8) in building your confidence in teaching note-taking and/or summarizing. If two types of professional development are tied in terms of helpfulness, give them the same number and skip the next number. If you have not experienced a certain type of professional development addressing this topic, insert a zero in the blank.

____a. Post-graduate college course on content area reading strategies

____b. Mandated workshop or presentation on content area reading strategies

____c. Self-selected workshop on content area reading strategies

____d. Professional learning community (PLC) focus and/or study on content area reading strategies

____e. Collaborating with a literacy coach on the topic of content area reading

____f. Collaborating with a respected mentor addressing content area reading

____g. Independent study, personal reading, or personal research

____h. Other professional development in content literacy strategies. Please list the type: _____

45. Helping students reflect on their own success at understanding the reading and meeting their purpose.

Not confident somewhat confident reasonably confident exceptionally confident

46. Please rank the types of professional development from least helpful (0) to most helpful (8) in building your confidence in helping students reflect on their success at meeting their purpose for reading. If two types of professional development are tied in terms of helpfulness, give them the same number and skip the next number. If you have not experienced a certain type of professional development addressing this topic, insert a zero in the blank.

____a. Post-graduate college course on content area reading strategies

____b. Mandated workshop or presentation on content area reading strategies

____c. Self-selected workshop on content area reading strategies

____d. Professional learning community (PLC) focus and/or study on content area reading strategies

____e. Collaborating with a literacy coach on the topic of content area reading

____f. Collaborating with a respected mentor addressing content area reading

____g. Independent study, personal reading, or personal research

____h. Other professional development in content literacy strategies. Please list the type: _____

47. Connecting, evaluating, and synthesizing activities to integrated material from text. (Examples include: A nonfiction writing task requiring students to justify positions with evidence from the text. A debate or discussion requiring students to use text to justify their answers to questions)

Not confident somewhat confident reasonably confident exceptionally confident

48. Please rank the types of professional development from least helpful (0) to most helpful (8) in building your confidence in helping students connect, evaluate, and synthesize their understanding of a text. If two types of professional development are tied in terms of helpfulness, give them the same number and skip the next number. If you have not experienced a certain type of professional development addressing this topic, insert a zero in the blank.

____a. Post-graduate college course on content area reading strategies

____b. Mandated workshop or presentation on content area reading strategies

____c. Self-selected workshop on content area reading strategies

____d. Professional learning community (PLC) focus and/or study on content area reading strategies

____e. Collaborating with a literacy coach on the topic of content area reading

____f. Collaborating with a respected mentor addressing content area reading

____g. Independent study, personal reading, or personal research

____h. Other professional development in content literacy strategies. Please list the type: _____

49. Please indicate the grade levels you teach. You may select all that apply:

a. 7
b. 8
c. 9
d. 10
e. 11
f. 12

50. What is your content area? Please select all that apply.

a. Science
b. Social Studies
c. English/Language Arts
d. Industrial Technical Education
e. Family Consumer Science
f. Business
g. Other: Please specify _____

Appendix E

Follow-up Letter at Weeks One and Two

Dear Secondary Teacher:

This letter is a reminder regarding participation in a content area literacy and professional development study. If you have completed this survey, I thank you for your participation. If you have not, please consider participation and select the link to the survey located within this letter.

Minnesota has adopted content area literacy for science, social studies, and technical subjects. This study investigates the current use of literacy strategies and professional development supporting literacy strategy use. Since the Common Core Literacy Standards will be mandated in the State of Minnesota next year, the information will be valuable to your district's professional development plan. Your district superintendent has approved participation in this study.

Once again, I am a Walden doctoral student conducting this survey to complete my research study. I do appreciate your participation, as education relies on sound research to promote effective methods and procedures. Through your participation in this survey, your collective voice will be heard regarding professional development needs surrounding the Common Core Standards implementation process within your district.

Here is a link [insert link] to a Survey Monkey survey containing 50 questions. This survey is confidential and voluntary. It will take 15-20 minutes of your time. Thank you for your participation in the survey.

You may ask any questions through this email address or via telephone: 507-236-8362. 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.

Sincerely,
Jodi Owens-Kristenson
Walden University Doctoral Student

Appendix F

Results of Study Organized Around Literacy Strategies

Table A1

Correlations Related to Professional Development and Preteaching Vocabulary

	Time in PD and Frequency of Strategy Use	*N*	Type of PD and Frequency of Strategy Use	*N*	Type of PD and Confidence in Strategy Use	*N*	Time in PD and Confidence in Strategy Use	*N*
Post graduate course	-.063	56	-.039	56	.098	46	-.072	46
Mandated Workshop	-.176	56	-.109	56	.085	46	.012	46
Self-selected Workshop	.235	56	.112	56	-.093	46	-.101	46
Professional Learning Community	.100	56	-.028	56	-.066	46	.086	46
Literacy Coach	.152	56	-.172	56	-.449**	46	.013	46
Respected Mentor	.073	56	-.194	56	-.260	46	-.162	46
Independent Study	.004	56	.133	56	.224	46	.031	46
Other Prof. Dev.	.094	56	.144	56	-.257	46	-.053	46
Total Time in Prof. Dev.	.380*	56					.324*	46

**p < .05, two tailed. **p < .01, two-tailed.*

Table A2

Correlations Related to Professional Development and Setting A Purpose for Reading

	Time in PD and Frequency of Strategy Use	*N*	Type of PD and Frequency of Strategy Use	*N*	Type of PD and Confidence in Strategy Use	*N*	Time in PD and Confidence in Strategy Use	*N*
Post graduate course	-.369**	56	-.053	56	.198	42	-.322	46
Mandated Workshop	-.176	56	.118	56	.231	42	-.100	46
Self-selected Workshop	.181	56	.161	56	.155	42	.166	46
Professional Learning Community	.101	56	-.011	56	.026	42	.358*	46
Literacy Coach	-.022	56	.033	56	.216	42	-.128	46
Respected Mentor	.293*	56	-.138	56	-.070	42	.240	46
Independent Study	.276*	56	-.179	56	-.140	42	306*	46
Other Prof. Dev.	.019	56	-.013	56	.150	42	-.135	46
Total Time in Prof. Dev.	.220	56					.118	46

**p < .05, two tailed. **p < .01, two-tailed.*

Table A3

Correlations Related to Professional Development and Purposely Building Background Knowledge

	Time in PD and Frequency of Strategy Use	*N*	Type of PD and Frequency of Strategy Use	*N*	Type of PD and Confidence in Strategy Use	*N*	Time in PD and Confidence in Strategy Use	*N*
Post graduate course	-.154	51	.088	51	.110	43	-.131	45
Mandated Workshop	.097	51	-.390**	51	.215	43	.128	45
Self-selected Workshop	.419**	51	.217	51	.080	43	.265	45
Professional Learning Community	.231	51	-.196	51	.060	43	.300*	45
Literacy Coach	.246	51	-.012	51	.188	43	.207	45
Respected Mentor	.378**	51	.074	51	.163	43	.115	45
Independent Study	.248	51	.410**	51	.139	43	.174	45
Other Prof. Dev.	.219	51	.207	51	.162	43	.089	45
Total Time in Prof. Dev.	.304*	51					.303*	45

**p < .05, two tailed. **p < .01, two-tailed.*

Table A4

Correlationship Related to Professional Development and Modeling a Think Aloud

	Time in PD and Frequency of Strategy Use	*N*	Type of PD and Frequency of Strategy Use	*N*	Type of PD and Confidence in Strategy Use	*N*	Time in PD and Confidence in Strategy Use	*N*
Post graduate course	.003	40	.134	40	.279	44	.068	44
Mandated Workshop	.081	40	.367**	40	-.113	44	.111	44
Self-selected Workshop	.359**	40	.294*	40	.346*	44	.418**	44
Professional Learning Community	.179	40	.230	40	-.136	44	.106	44
Literacy Coach	.124	40	.065	40	.168	44	.235	44
Respected Mentor	.287*	40	.211	40	.103	44	.182	44
Independent Study	.226	40	.268	40	.322*	44	.218	44
Other Prof. Dev.	.105	40	.386**	40	.188	44	.270	44
Total Time in Prof. Dev.	.177	40					.134	44

**p < .05, two tailed. **p < .01, two-tailed.*

Table A5

Correlations Regarding Professional Development and Modeling a Multi-Step Thinking Strategy

	Time in PD and Frequency of Strategy Use	*N*	Type of PD and Frequency of Strategy Use	*N*	Type of PD and Confidence in Strategy Use	*N*	Time in PD and Confidence in Strategy Use	*N*
Post graduate course	.028	51	.245	51	.286	44	.226	44
Mandated Workshop	.034	51	.284*	51	.153	44	.056	44
Self-selected Workshop	.350*	51	.316*	51	.276	44	.364*	44
Professional Learning Community	.133	51	.181	51	.297*	44	.197	44
Literacy Coach	.504**	51	.287*	51	.104	44	.378*	44
Respected Mentor	.432**	51	.214	51	.277	44	.278	44
Independent Study	.240	51	.268	51	.482**	44	.313*	44
Other Prof. Dev.	.369**	51	.283*	51	.314*	44	.186	44
Total Time in Prof. Dev.	.398**	51					.371	44

**p < .05, two tailed. **p < .01, two-tailed.*

Table A6

Correlations Relatating Professional Development and Using Text Features

	Time in PD and Frequency of Strategy Use	*N*	Type of PD and Frequency of Strategy Use	*N*	Type of PD and Confidence in Strategy Use	*N*	Time in PD and Confidence in Strategy Use	*N*
Post graduate course	.010	50	-.142	51	.131	44	-.061	44
Mandated Workshop	.078	50	.357*	51	-.009	44	.025	44
Self-selected Workshop	.209	50	-.018	51	-.146	44	.076	44
Professional Learning Community	.221	50	.153	51	.138	44	.197	44
Literacy Coach	.120	50	.052	51	-.124	44	.174	44
Respected Mentor	.192	50	.208	51	.127	44	.092	44
Independent Study	.153	50	.187	51	.070	44	.382**	44
Other Prof. Dev.	.345**	50	.016	51	-.081	44	.129	44
Total Time in Prof. Dev.	.186	50					.448**	44

**p < .05, two tailed. **p < .01, two-tailed.*

Table A7

Correlations Regarding Professional Development and Using Text Structures

	Time in PD and Frequency of Strategy Use	*N*	Type of PD and Frequency of Strategy Use	*N*	Type of PD and Confidence in Strategy Use	*N*	Time in PD and Confidence in Strategy Use	*N*
Post graduate course	.145	46	.264	46	.071	44	.030	44
Mandated Workshop	.096	46	.218	46	.135	44	-.022	44
Self-selected Workshop	.519**	46	.361*	46	.246	44	.235	44
Professional Learning Community	.217	46	.221	46	-.083	44	.233	44
Literacy Coach	.298*	46	.105	46	.196	44	.158	44
Respected Mentor	.404**	46	.393**	46	.132	44	.102	44
Independent Study	.339*	46	.412**	46	.207	44	.230	44
Other Prof. Dev.	.429**	46	.318*	46	.148	44	.069	44
Total Time in Prof. Dev.	.271	46					.103	44

**p < .05, two tailed. **p < .01, two-tailed.*

Table A8

Correlations Regarding Professional Development and Modeling Fix-Up Strategies

	Time in PD and Frequency of Strategy Use	*N*	Type of PD and Frequency of Strategy Use	*N*	Type of PD and Confidence in Strategy Use	*N*	Time in PD and Confidence in Strategy Use	*N*
Post graduate course	-.171	47	.206	47	.085	43	.012	45
Mandated Workshop	.093	47	.443**	47	.249	43	.155	45
Self-selected Workshop	.240	47	.406**	47	.366*	43	.517**	45
Professional Learning Community	.295*	47	.197	47	.167	43	.311*	45
Literacy Coach	.266	47	.214	47	.326*	43	.366*	45
Respected Mentor	.312*	47	.130	47	.238	43	.414**	45
Independent Study	.170	47	.349*	47	.387*	43	.387**	45
Other Prof. Dev.	.261	47	.303*	47	.239	43	.206	45
Total Time in Prof. Dev.	.332**	47					415**	45

**p < .05, two tailed. **p < .01, two-tailed.*

Table A9

Correlations Regarding Professional Development and Note Taking and Summarizing

	Time in PD and Frequency of Strategy Use	*N*	Type of PD and Frequency of Strategy Use	*N*	Type of PD and Confidence in Strategy Use	*N*	Time in PD and Confidence in Strategy Use	*N*
Post graduate course	-.034	47	-.047	47	.198	45	.197	45
Mandated Workshop	.118	47	.258	47	-.051	45	-.106	45
Self-selected Workshop	.183	47	.029	47	-.024	45	.172	45
Professional Learning Community	.150	47	.136	47	.028	45	-.003	45
Literacy Coach	-.183	47	-.054	47	.156	45	-.009	45
Respected Mentor	.089	47	.059	47	-.101	45	-.056	45
Independent Study	.299*	47	.094	47	.226	45	.154	45
Other Prof. Dev.	.096	47	-.013	47	-.015	45	.111	45
Total Time in Prof. Dev.	-.031	47					.019	45

**p < .05, two tailed. **p < .01, two-tailed.*

Table A10

Correlations Regarding Professional Development and Reflecting on Purpose for Reading

	Time in PD and Frequency of Strategy Use	*N*	Type of PD and Frequency of Strategy Use	*N*	Type of PD and Confidence in Strategy Use	*N*	Time in PD and Confidence in Strategy Use	*N*
Post graduate course	-.101	47	.046	47	.101	43	-.154	44
Mandated Workshop	.097	47	.545**	47	.242	43	-.064	44
Self-selected Workshop	.212	47	.404**	47	.113	43	.039	44
Professional Learning Community	.165	47	.226	47	.393*	43	.202	44
Literacy Coach	.112	47	.102	47	.232	43	-.050	44
Respected Mentor	.304*	47	.174	47	.200	43	.032	44
Independent Study	.018	47	.425**	47	.223	43	.081	44
Other Prof. Dev.	.325*	47	.282	47	.226	43	.088	44
Total Time in Prof. Dev.	.146	47					-.022	44

**p < .05, two tailed. **p < .01, two-tailed.*

Table A11

Correlations Regarding Professional Development and Activities that Connect, Synthesize, and Analyze

	Time in PD and Frequency of Strategy Use	*N*	Type of PD and Frequency of Strategy Use	*N*	Type of PD and Confidence in Strategy Use	*N*	Time in PD and Confidence in Strategy Use	*N*
Post graduate course	.021	45	.418**	45	.214	43	.022	45
Mandated Workshop	-.050	45	.473**	45	.207	43	-.055	45
Self-selected Workshop	.331*	45	.460**	45	.457**	43	.161	45
Professional Learning Community	.278	45	.558**	45	.349*	43	.216	45
Literacy Coach	.020	45	.493**	45	.384*	43	.016	45
Respected Mentor	.280	45	.586**	45	.418**	43	.137	45
Independent Study	.101	45	.606**	45	.318*	43	.174	45
Other Prof. Dev.	.174	45	.536**	45	.304*	43	.181	45
Total Time in Prof. Dev.	.110	45					-.053	45

***p < .05, two tailed. **p < .01, two-tailed.**

Curriculum Vitae

Jodi Owens-Kristenson
352 270th Avenue
Granada, Minnesota 56039

Education and Certification

2013 currently enrolled in doctoral program through Walden University
Research focus: discipline-specific content area literacy strategy implementation
2004 Minnesota State University Mankato Master's of Science Degree in Experiential Education. Research focus: experiential literacy methodology for at-risk learners
1994 Mankato State University - Elementary Education Degree
1987 Mankato State University - Reading License
1986 Mankato State University - Middle School Endorsement
1984 University of Minnesota - Home Economics Education degree with a family life endorsement and art minor

Active Teaching Licenses

1994 Minnesota Elementary Education	Renewal date 2018
1988 Minnesota Secondary Developmental Reading	Renewal date 2018
1984 Minnesota Secondary Home Economics	Renewal date 2018
1988 Minnesota Middle School English, Language Arts	Renewal date 2018
1988 Minnesota Middle School Home Economics	Renewal date 2018
1994 Minnesota Middle School Social Studies	Renewal date 2018
1984 Minnesota High School Family Life Endorsement	Renewal date 2018

Teaching and Employment History

2007-present – Capella University Adjunct Literacy Instructor – Taught Reading Comprehension and Reading Fluency Courses, Assisted with Reading Comprehension course development, Literacy Advisory Council Member
2004-present – Literacy Coordinator and Reading Interventionist
2001-04 Reading Interventionist - Fairmont Area Schools
1998-01 Fairmont Middle School - 7th grade remedial reading
6th and 7th grade family and consumer science
1995-97 Fairmont Middle School - self contained 7th grade classroom
1986-94 Fairmont Middle School - 5-7th grade home economics
1984-86 Maynard Public School - 7-12th grade home economics and title one
1982-85 State 4-H Office - international program coordinator
1986-present - partner in Fresh Acre Farms, an organic and sustainable

agriculture farm
1999-present - officer in Border Farm Foods

Professional History: Responsibilities and Awards

2009 PALS Literacy Strategy Summer Trainer, Reading Intervention Professional Learning Community Leader, Trainer for Minnesota Learning Resource Center, High School Literacy Instructor, Taught Reading Comprehension for Capella Univeristy

2008 Content Area Literacy Presentation at Minnesota Middle Level Educators' Conference, Response to Intervention and Content Area Literacy presentation at Minnesota Reading Association Conference, Presentation for Minnesota Learning Resource Center training Jordan Elementary teachers in reading intervention strategies, Reading Intervention Professional Learning Community Leader. Quality Teaching Network member for Minnesota State Department of Education,

2007 Began coordination of Response to Intervention system for Fairmont Area Schools, Reading Intervention Professional Learning Community Leader, summer inservice trainer for various literacy intervention strategies. Taught reading comprehension for Capella University.

2004 Began Literacy Coordinator position – systematized use of data to calculated growth of literacy skills in remedial reading students.

2003 Minnesota's Family Consumer Science Teacher of the Year, Top Ten Family Consumer Science Teacher for United States, Revised *Take Charge of Your Life*, Goodheart Willcox text for family consumer science classes.

2000 Alternative Team Leader, New Teacher Inservice Leader, Community Voices and Character Education Design Team, Building Leadership Team Member, Staff Development Committee Member, Finalist Ethics in Education Award

1999 Alternative team leader, Minnesota Middle Level Education Association President, Presenter at MAMLE state conference, Minnesota Teacher of the Year Honor Roll Teacher, Author of *Career Decision Making for the Middle Level,* Author of *FACS Review Games,* Education Minnesota Grant Recipient

1998 Seventh grade team leader, MEEP building leadership team grad rule

committee member, Presenter at Midwest Regional Middle Level Tristate Conference, Presenter at Minnesota Middle Level Conference, President-elect for Minnesota Middle Level Association, Partners in Education grant recipient, Hunt Grant recipient

1997 Building and District Technology Committee member, Minnesota Middle Level Board member, Building Choices team member, Phase II Grad Rule Training participant, Peer Review committee member Presenter at North Carolina Vocational Conference

1996 Coauthor of text, *Take Charge of Your Life,* published by Goodheart Willcox, a middle school text which has embedded the management process throughout the book

1993 Sixth grade team leader

1990 Author of *Lifeskills,* published by Pineapple Appeal, a curriculum used to teach thinking skills needed for every day life

1988-1994 - Member of the district staff development committee. Presented at several district training sessions.

1989 Curriculum showcase participant at the National Home Economics Association Convention

1989 New Achiever award winner for Minnesota Home Economics Association

1988 Minnesota's Young Career Woman award winner for Business and Professional Woman's Association

1988-1992 Business and Professional Woman Local Club Member

1987 North Central Evaluation Team Member

1984-1986 Student representative on the committee to reorganize the home economics education department at the University of Minnesota. The Post-Baccalaureate Program was developed.

1990-present - member of Association for Supervision and Curriculum Development