

THE RELATIONSHIP BETWEEN TEACHERS' TRAINING TRANSFER
AND THEIR PERCEPTIONS OF PRINCIPAL LEADERSHIP STYLE

by

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SIGNED Kevin Matthew Stoltzfus

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TABLE OF CONTENTS

LIST OF TABLES	10
LIST OF ILLUSTRATIONS	12
ABSTRACT	13
CHAPTER 1. INTRODUCTION	15
Background	16
Professional Significance of the Problem	20
Problem Statement	22
<i>Research Questions and Hypotheses</i>	23
<i>Question 1</i>	23
<i>Question 2</i>	23
<i>Question 3</i>	23
Overview of the Methodology	24
Limitations	28
Definitions of Key Terms	29
Summary	31
CHAPTER 2. REVIEW OF THE LITERATURE	33
Training Transfer and Individual Learner Characteristics	37
<i>Individual Learner Characteristics related to Teachers' Training Transfer</i>	40
Training Transfer and Intervention Design and Delivery	44
<i>Professional Development in Public Education</i>	45
<i>Attributes of effective professional development</i>	46
<i>Outcomes of effective professional development</i>	51
<i>New teacher induction</i>	63

TABLE OF CONTENTS – *Continued*

<i>Instructional practices emphasized in new teacher induction</i>	66
<i>Summary of research on teacher professional development</i>	68
Training Transfer and Work Environment Influences	69
<i>Instructional Leadership</i>	72
<i>Studies examining instructional leadership and teacher professional growth</i>	75
<i>The Full Range Leadership Model</i>	81
Summary	93
CHAPTER 3. METHOD	96
Context and Participants	97
Instruments	100
<i>Training Transfer Questionnaire</i>	100
<i>Validity and Reliability of the TTQ</i>	102
<i>Self-Assessment section of the TTQ</i>	102
<i>Principal's Influence section of the TTQ</i>	106
<i>Multifactor Leadership Questionnaire</i>	107
Procedures	109
Data Analysis	112
<i>Scoring the MLQ</i>	113
<i>Preliminary Analyses</i>	119
<i>Analysis of Research Questions</i>	119
<i>Research question 1</i>	120
<i>Research question 2</i>	120
<i>Research question 3</i>	121
Limitations	124
Summary	125

TABLE OF CONTENTS – *Continued*

CHAPTER 4. DATA ANALYSIS AND RESULTS	126
Research Question 1	126
<i>Non-parametric Analysis regarding Leadership Style</i>	127
<i>Parametric Analysis regarding Leadership Style</i>	128
Research Question 2	129
<i>Gender, Leadership Style, and TT Score</i>	130
<i>Race/ethnicity, Leadership Style, and TT Score</i>	132
<i>Experience Level, Leadership Style, and TT Score</i>	133
<i>Grade Level, Leadership Style, and TT Score</i>	135
Research Question 3	136
<i>Analysis of Demographic Differences</i>	137
<i>Analysis of Differences in Supervisory Conditions</i>	139
<i>Analysis of Differences in Perceived Leadership Style</i>	140
<i>Analysis of Differences in Mean Principal's Influence Scores</i>	142
<i>Grounded Theory Analysis</i>	142
<i>Promotion of a culture of accountability</i>	144
<i>Formal observations</i>	144
<i>Direct feedback</i>	144
<i>Promotion of a culture of professional learning</i>	145
<i>Meaning and purpose</i>	146
<i>Reinforcement and teaching</i>	146
<i>The importance of both categories rather than either/or</i>	147
<i>Summary of findings for research question 3</i>	148
Summary	149
CHAPTER 5. SUMMARY AND DISCUSSION	150
Problem Statement	151
<i>Research Question 1</i>	151
<i>Research Question 2</i>	151
<i>Research Question 3</i>	152

TABLE OF CONTENTS – *Continued*

Review of Methodology	152
Summary of Results	155
<i>Research Question 1</i>	155
<i>Research Question 2</i>	156
<i>Research Question 3</i>	158
Discussion of Results	160
<i>Interpretation of Findings and Relationship to Previous Research</i> . . .	160
<i>Explanation of Unanticipated Findings</i>	168
<i>Recommendations for School Leaders</i>	170
<i>Suggestions for Future Research</i>	173
Summary	174
APPENDIX A: OVERVIEWS AND DAILY AGENDAS OF DUSD’S	
NEW TEACHER INDUCTION	176
APPENDIX B: TRAINING TRANSFER QUESTIONNAIRE	184
APPENDIX C: PERMISSION TO USE MLQ	186
APPENDIX D: SAMPLE MLQ ITEMS	187
APPENDIX E: MLQ SCORING KEY	188
APPENDIX F: LETTER GRANTING PERMISSION TO CONDUCT	
RESEARCH IN DUSD	190
APPENDIX G: APPROVAL FROM HUMAN SUBJECTS	
PROTECTION PROGRAM	191
APPENDIX H: SUBJECT DISCLOSURE FORM	192
REFERENCES	193

LIST OF TABLES

Table 1. Participant Demographic Information	98
Table 2. Parallel Analysis Results	104
Table 3. Summary of Results: One-Factor PCA of Self-Assessment Items on TTQ . .	105
Table 4. Summary of Results: One-Factor PCA of Principal's Influence Items on TTQ	106
Table 5. Reliability of MLQ Factors	109
Table 6. Example Composite Leadership Style Scores	114
Table 7. Leadership Profiles	116
Table 8. Mean Ranks of TT Scores Grouped by Principal Leadership Style	127
Table 9. Means and Standard Deviations of TT Scores Grouped by Principal Leadership Style	128
Table 10. ANOVA Table: TT Scores Grouped by Gender and Leadership Style	131
Table 11. ANOVA Table: TT Scores Grouped by Race/ethnicity and Leadership Style	132
Table 12. ANOVA Table: TT Scores Grouped by Experience and Leadership Style	134
Table 13. ANOVA Table: TT Scores Grouped by Grade Level and Leadership Style	135
Table 14. Comparison of Demographic Variables: High-TT and Lower-TT Groups	138

LIST OF TABLES - *Continued*

Table 15. Comparison of Supervisory Conditions:

High-TT and Lower-TT Groups 139

Table 16. Comparison of Principal Leadership Style:

High-TT and Lower-TT Groups 141

LIST OF ILLUSTRATIONS

Figure 1. Conceptual model of variables related to training transfer	36
Figure 2. Criteria used to categorize the principal's composite leadership style scores	115
Figure 3. Mean TT scores based on perceived principal leadership style	129
Figure 4. Mean TT scores grouped by gender and principal leadership style	131
Figure 5. Mean TT scores grouped by race/ethnicity and principal leadership style . .	133
Figure 6. Mean TT scores grouped by experience and principal leadership style	134
Figure 7. Mean TT scores grouped by grade level and principal leadership style	136
Figure 8. Principal behaviors that promoted teacher training transfer	143
Figure 9. Leadership style in conjunction with principal behaviors	163
Figure 10. Mean TT scores grouped by gender and principal leadership style	165
Figure 11. Mean TT scores grouped by grade level and principal leadership style . . .	166

ABSTRACT

Training transfer is the implementation of knowledge and skills from a professional development activity into actual classroom practice. Burke and Hutchins (2007) identified work environment influences as one set of variables related to training transfer. The school principal has the potential to impact these work environment influences and thus, to influence teacher training transfer. This study sought to identify specific leadership styles and behaviors that were related to teacher training transfer.

To assess the relationship between teacher training transfer and perceived principal leadership, the researcher studied participants in one district's new teacher induction program. Participants provided data in three ways: through an assessment of their own implementation of skills acquired from their induction training; through an assessment of their respective principal's leadership style; and through responses to questions regarding principal actions that had promoted training transfer. Perceived principal leadership style was assessed according to Bass and Avolio's (2004) full range leadership model, which includes the styles of passive/avoidant, transactional, and transformational leadership. A mixed-methods design was used to analyze the data. Statistical analyses tested for relationships between training transfer outcomes and perceived principal leadership style. Additionally, a qualitative analysis was conducted to identify principal behaviors that impacted teacher training transfer.

The study revealed that the teachers who reported significantly higher training transfer scores also reported significantly greater use of specific behaviors on the part of their principals. The principal behaviors that contributed to teacher training transfer were

categorized as promotion of a culture of accountability and promotion of a culture of professional learning. Additionally, these teachers were more likely to perceive their principals as higher for transactional and transformational leadership styles.

Additionally, the differences in training transfer scores among groups of participants suggested trends regarding perceptions of principal leadership style, as well as the interaction of leadership style with the demographic variables of gender and grade level. However, these differences were not statistically significant. The small sample size of the current study warrants further investigation in future studies to clarify these relationships.

CHAPTER 1

INTRODUCTION

The accountability era of American public education unofficially began with the publication of *A Nation at Risk* by the National Commission on Excellence in Education (1983) and culminated in the passage of the No Child Left Behind Act (2001). This has resulted in mandated student achievement gains that are linked directly to labels of school and teacher quality. In response, reform initiatives from the local, state, and federal level have swept through public schools. Many of these school improvement initiatives share two central components: professional development of teachers and leadership of principals to ensure effective teaching and learning (Guskey, 1994; Marzano, Waters, & McNulty, 2005). In spite of the importance of professional development and principal leadership to reform efforts, relatively little is known about their interaction. The question remains: How do principals effectively promote the professional development of their teachers?

This question can be asked more precisely as follows: How do principals promote the training transfer of their teachers? Training transfer, the extent to which professional development training is implemented in the classroom with students, is the intended outcome of professional development; indeed, for a professional development initiative to be effective, training transfer must occur. This study explored teachers' training transfer in relation to their principals' leadership style to ascertain whether certain leadership styles were associated with greater teacher training transfer and to identify specific principal behaviors that supported training transfer.

The full range leadership model (Bass & Avolio, 2004), which consists of a continuum of leadership styles ranging from passive/avoidant to transactional to transformational, provided a schema by which participants classified the leadership style of their principal. Passive/avoidant leadership was described by Bass and Avolio as ineffective leadership based on reactive responses to problems and avoidance of decision making. Transactional Leadership involves setting goals, providing recognition, and monitoring for mistakes. Transformational leadership builds on transactional leadership to inspire innovation, growth, and achievement among followers. No research has been conducted to determine which style or combination of styles most strongly promotes teacher training transfer. The current study sought to address this gap in the literature.

The research problem is introduced in more detail in the following sections of this chapter, beginning with a brief background of the problem and the professional significance of the dissertation. The problem statement, research hypotheses, and an overview of the methodology then are provided. This chapter concludes with a discussion of limitations and definitions of key terms.

Background

School improvement efforts that successfully boost student achievement depend on a variety of factors, with principal leadership and professional development of teachers among the most important (Guskey, 1994; Marzano et al., 2005). Consequently, it is worthwhile to situate this dissertation in the context of what is known about leadership and professional development. This section provides a brief background regarding these areas in order to justify the research questions.

Professional development is a broad term with a variety of interpretations. For the purposes of this dissertation, professional development refers to training related to a curricular or instructional innovation aimed at improving student achievement; as Guskey (2002) described it: “Professional development programs are systematic efforts to bring about change in the classroom practices of teachers, in their attitudes and beliefs, and in the learning outcomes of students” (p. 381). This view is supported by Elmore and Burney’s (1999) contention that professional development in effective schools is the primary means to achieve instructional improvement. Additionally, this definition is grounded in teachers’ values: from professional development, teachers want specific, practical ideas that are relevant to their daily work (Fullan & Miles, 1992).

Although teacher professional development is emphasized in many reform initiatives, its effectiveness in achieving better teaching and increased student achievement varies widely. Assuming accurate diagnosis of the educational problem and an appropriately chosen intervention, the initiative still may fail due to inadequate training transfer—the degree to which an individual applies the training in an authentic work setting (Burke & Hutchins, 2007; Joyce, 2002). Sparks and Hirsh (1997) summarized the problem as follows:

Too often organizational constraints make it difficult for individuals to consistently apply over time the understandings and skills they have acquired. Teachers may learn a new instructional skill but find that their use of it gradually diminishes because no one else in the school is using it or because their principals do not support the practice. (p. 17)

Joyce (2002) estimated that appropriate training methods and follow-up support will yield effective transfer in 95% of teacher participants, but without these variables,

few if any teachers will apply the training in their classroom. In spite of its commonly recognized value, professional development fails to achieve its goals if training transfer does not occur.

The literature on training transfer supports Joyce's (2002) hypothesis, as well as Sparks and Hirsh's (1997) observation. Specifically, the literature contends that transfer is affected by three categories of variables: learner characteristics, design and delivery of the intervention (training), and work environment influences (Baldwin & Ford, 1988; Burke & Hutchins, 2007; Ford & Weissbein, 1997).

Of these broad categories of variables affecting transfer, the category of work environment influences is most subject to influence by the school principal. Work environment influences include coherence between professional development initiatives and strategic goals, the climate and culture of the organization, supervisory and peer support, opportunities to use the desired knowledge or skills, and accountability for this use (Burke & Hutchins, 2007). A recent study analyzing training professionals' perceptions of best practices also suggested that the leader's role in the context of the actual work setting may be the most important variable in promoting training transfer (Burke & Hutchins, 2008). The implication for principals is that their leadership influences teachers' training transfer. However, supervisory support activities are under-researched in general (Burke & Hutchins, 2008), with even less research regarding principal leadership styles and actions that support teachers' training transfer.

Like leaders in general, not all principals are equally effective in promoting the instructional excellence of their teachers. Notions regarding effective principalship have

evolved over time, but many discussions of the principal's role now focus on instructional leadership. The concept of instructional leadership describes the manner in which principals maintain their instructional supervision responsibilities while influencing their teachers' professional growth, the quality of teaching, and thus, student achievement (Blase & Blase, 1999; Bredeson & Johansson, 2000; Glickman, Gordon, & Ross-Gordon, 1995; Hallinger, Murphy, Weil, Mesa, & Mitman, 1983; Smith & Andrews, 1989). These practitioners and scholars commonly agree that the principal is responsible for influencing teacher quality and student achievement; indeed, based on a meta-analysis of literature regarding effective principals, Marzano et al. (2005) concluded: "A highly effective school leader can have a dramatic influence on the overall academic achievement of students" (p. 10), and "an administrator's ability and willingness to provide input regarding classroom practices [is] one of the most highly valued characteristics reported by teachers" (National Institute on Educational Governance, Finance, Policymaking, and Management, as cited in Marzano et al., 2005, pp. 53-54).

As important as a principal's instructional leadership is, few if any principals are capable of exercising expertise in all areas of curriculum, instruction, and assessment; rather, principals should use their leadership to develop this expertise and leadership among teachers (Leithwood, 1994; Marks & Printy, 2003). Transformational leadership (Bass & Avolio, 2004), which focuses on developing growth, innovation, and commitment among followers, has been identified as a necessary "condition for shared instructional leadership" (Marks & Printy, 2003, p. 385). Although the general research

suggests that transformational leadership is a stronger indicator of leader effectiveness and follower satisfaction than transactional leadership (Bass & Avolio, 2004), some ambiguity exists in the context of schools given the additional demands of instructional leadership (Leithwood, 1994; Marks & Printy, 2003). For example, Leithwood contended that transactional leadership on the whole is ineffective in schools, although some of its components, such as rewards that are contingent on meeting specified goals, are effective and may even be demonstrated in a transformational manner.

Clearly, more research is needed regarding principal leadership style, especially relative to teacher training transfer. The complex relationship between principal leadership and training transfer is vitally important to the realm of education and is discussed in greater detail in the following section.

Professional Significance of the Problem

There is an intricate relationship between a principal's leadership and the effectiveness of a given professional development initiative (Barnett & McCormick, 2004; Blase & Blase, 1999; Bredeson & Johansson, 2000; Drago-Severson, 2007; Youngs, 2007). Although acknowledged in the literature, this relationship is under-researched, perhaps due to the potential for confounding variables to cloud the outcomes. In spite of the emphasis placed on leadership in this era of school reform and the consensus that failure of training transfer threatens the success of every professional development initiative, there is a gap in the literature regarding how a principal ought to ensure training transfer. This dissertation sought to bridge this gap by identifying principal leadership styles and behaviors that were positively related to teacher training

transfer. The findings should be of interest to principals as they strive to support their teachers and propel their students toward higher achievement, as well as to future researchers as they develop refined models of leadership for training transfer, an area that currently is informed by little empirical evidence.

Although there is little research specific to the topic of principal leadership for teacher training transfer, the general research on training transfer can be extrapolated to the realm of public education. Additionally, educational research *has* identified trends that seem likely to influence teacher training transfer. By starting with the three categories of variables affecting training transfer identified by Baldwin and Ford (1988), Burke and Hutchins (2007), and Ford and Weissbein (1997) and narrowing these to the context of public education, one can make inferences about practices that should yield increased teacher training transfer.

For the categories of individual learner characteristics and intervention design and delivery (Baldwin & Ford, 1988; Burke & Hutchins, 2007; Ford & Weissbein, 1997), there is a growing body of literature regarding these variables in schools. For example, research on novice teachers and stages of teacher development provides insights regarding the needs of individual teachers based on their career stage (Danielson, 2007; Huberman, 1989; Moir & Gless, 2001). Relative to intervention design and delivery (Baldwin & Ford, 1988; Burke & Hutchins, 2007; Ford & Weissbein, 1997), research has identified attributes of effective professional development in public education (Cohen & Hill, 2000, 2001; Corcoran, Fuhrman, & Belcher, 2001; Fullan, 2001b; Garet, Porter, Desimone, Birman, & Yoon, 2001; Guskey, 2003; Hawley & Valli, 1999; Kennedy,

1998; Pritchard & Marshall, 2002; Tallericco, 2007). Additionally, research relating to school culture and instructional leadership has suggested the school principal has the ability to influence many of the variables in the broad category of work environment influences (Blase & Blase, 1999; Bredeson & Johansson, 2000; Fullan, 2001a; Glickman et al., 1995; Hallinger et al., 1983; Marzano et al., 2005; Senge et al., 2000; Smith & Andrews, 1989; Youngs, 2007).

Collectively, the literature alludes to relationships between teacher training transfer, principal leadership, and workplace and training conditions. By examining how perceived principal leadership style is related to teachers' training transfer, this dissertation sought to inform the practices of principals and other educational leaders as they consider how to maximize teachers' training transfer from professional development initiatives.

Problem Statement

A review of the literature suggests a relationship between the school principal's leadership and teachers' training transfer (Barnett & McCormick, 2004; Blase & Blase, 1999; Bredeson & Johansson, 2000; Burke & Hutchins, 2007; Drago-Severson, 2007; Fullan, 2001a; Senge et al., 2000; Youngs, 2007). However, little research addresses this relationship specifically. This dissertation explored this relationship between principal leadership and teacher training transfer, in the context of one district's new teacher induction program, to determine whether and how principal leadership style relates to teacher training transfer.

Research Questions and Hypotheses

Question 1. What is the relationship between teachers' self-reported training transfer scores and teachers' perceptions of their principal's leadership style? The null hypothesis is that there is no statistically significant difference in training transfer scores between teachers who perceive their principal as passive/avoidant, transactional, or transformational on the Multifactor Leadership Questionnaire (MLQ; Bass & Avolio, 2004).

Question 2. What factors interact with the relationship between teachers' training transfer and their perceptions of principal leadership style? The null hypothesis is that there are no statistically significant interaction effects between demographic variables (gender, race/ethnicity, experience level, and grade level) on the relationship between teachers' training transfer scores and their perception of their principal's leadership style.

Question 3. What do principals do to promote teacher training transfer? This question was analyzed qualitatively using participants' reporting of principal behaviors. Participants indicated how frequently their principal exhibited certain actions (provided by the researcher) and provided a written response to explain any other principal actions that impacted their training transfer. The analysis focused on the responses of those teachers whose training transfer score was highest. Quantitative tests were used preliminarily to analyze for differences between the high- and lower-training transfer groups.

Findings from these research questions shed light on the relationships between teachers' perceptions of principal leadership style, relevant personal characteristics of the

teacher, and training transfer outcomes. The methodology by which these questions were explored is discussed in the following section.

Overview of the Methodology

A mixed-methods design was used to explore the relationship between teacher training transfer, principal leadership style, and other teacher characteristics; an overview of this design is provided in the current section, with a more in-depth explanation included in Chapter 3. The quantitative analysis allowed the identification of statistically significant relationships between variables, and these relationships were further explored in the qualitative analysis.

Training transfer is inherently complex given the many variables that influence it. This dissertation employed several strategies to mitigate this complexity. First, by studying participants from one district's new teacher induction program, potentially confounding variables related to the training were controlled. Although this district's induction program covers an array of topics, the researcher assessed training transfer only of a subset of instructional skills prioritized by the district administration. Specifically, the instructional skills of teaching to an objective and eliciting student active participation were examined; objectives and active participation are fundamental components of the Essential Elements of Instruction (EEI) framework (Gentile, 1993), and have been widely endorsed by a variety of researchers and experts (Danielson, 2007; Glaser, 1984; Hunter, 1967, 1982; Mager, 1962; Piaget, 1970; Saphier, Haley-Speca, & Gower, 2008). Additionally, the main effects and interaction effects of demographic variables, including gender, race/ethnicity, experience level, and grade level, were studied in relation to

participants' perceptions of their principals' leadership style and their training transfer score. Also, the qualitative analysis focused on patterns of principal behaviors identified by teachers who scored the highest on the training transfer instrument.

Prior to gathering the data, the researcher acquired approval from the participating district and the Human Subjects Protection Program at the University of Arizona. The study was conducted with new teacher induction participants from Desert Unified School District (DUSD, a pseudonym), a mid-sized rural and suburban school district. A cohort of 72 teachers who participated in DUSD's 2008-2009 new teacher induction was recruited. The cohort of participants included male and female teachers of various races and ethnicities, various years of experience, and from various grade levels.

DUSD's new teacher induction program focuses on instructional skills, classroom management skills, organization of curriculum and assessments, and district culture (Cloud, personal communication, July 27, 2009). Four days of the program occur prior to the start of the school year, with three additional days occurring throughout the year (see Appendix A for an overview of topics covered and specific daily agendas).

Data were gathered using a combination of surveys. The Training Transfer Questionnaire (TTQ; Appendix B), a 30-item survey designed by the researcher, elicited the following data from each participant: demographic information (7 items); a self-assessment of training transfer of instructional skills learned during new teacher induction (11 items); and an explanation of principal actions that impacted the teacher's training transfer (12 items). The items focused on training transfer were designed specifically for the content of DUSD's new teacher induction program. To enhance the

validity and reliability of the instrument, the researcher relied on feedback from a variety of sources. The staff development director from DUSD reviewed two drafts of the TTQ and provided written and verbal feedback. Additional feedback was provided by the researcher's doctoral committee and by an administrator in the researcher's own school district. The researcher also piloted the TTQ with six second-year teachers in his own district; after completion of the TTQ, these pilot respondents participated in a focus group to provide revision suggestions. Significant revisions occurred with each step in the process. Finally, once data were gathered with the given sample, the researcher conducted exploratory factor analysis to identify the most appropriate factor structure. Coupled with reliability tests, the factor analysis results led the researcher to eliminate problematic items from the TTQ to enhance the validity and reliability.

Participants also completed the Multifactor Leadership Questionnaire (MLQ) Form 5x-Short (Bass & Avolio, 2004; see Appendix D for five sample items). The MLQ was employed to determine teachers' perceptions of principal leadership style. The MLQ 5x-short, which consists of 45 items, is the product of revisions to earlier versions of the MLQ, and has been thoroughly tested, revised, and re-tested to enhance its validity and reliability (Bass & Avolio, 2004).

To gather the data, the researcher met with the potential participants and provided them with informed consent materials, the TTQ, and the MLQ (Bass & Avolio, 2004). Of the 72 possible participants, 62 completed useable surveys for a response rate of 86%. The data were analyzed in phases, starting with the quantitative analyses. All MLQ surveys were scored to determine mean scores for each leadership style

(passive/avoidant: PA; transactional: TA; and transformational leadership: TF). By comparing the mean scores to the five-point Likert scale of the MLQ items, the researcher categorized each principal as high, medium, or low for each leadership style. These categories established a leadership profile for each principal. For example, a principal's profile could be "Low-PA/Medium-TA/High-TF" or "Medium-PA/Medium-TA/Medium-TF," etc. Additionally, each participant's composite training transfer score was calculated. Data were entered into the statistical software package SPSS Statistics GradPack, version 17.0, with training transfer scores serving as the dependent variable.

An analysis of the training transfer scores grouped according to perceived leadership style indicated two normal and one non-normal distributions, although variances between groups were equal. Consequently, the researcher conducted both non-parametric (Kruskal-Wallis) and parametric (one-way ANOVA) tests to explore the first research question regarding the relationship between training transfer scores and perceptions of principal leadership style. A significance level of $p < .05$ was chosen for all analyses.

To assess the second research question regarding the interaction of various demographic variables with the relationship between training transfer scores and perceived leadership style, the researcher relied on independent factorial ANOVAs, with Hochberg's GT2 post-hoc test used to compare means of specific groups. The researcher opted to use these parametric tests for three reasons: first, no non-parametric equivalent was readily accessible; second, the earlier comparisons between parametric and non-parametric tests yielded similar results; and third, these tests (ANOVA and Hochberg's

GT2) are relatively robust regarding violations of the assumption of normality (Field, 2009).

The next phase of the data analysis consisted of a qualitative exploration for themes regarding the actions of principals that impact teacher training transfer. The researcher identified a sub-group of participants with the highest composite training transfer scores. The researcher first used chi-square tests and *t*-tests to analyze for differences between this high-training transfer group and the other participants. Next, the researcher used grounded theory procedures (Corbin & Strauss, 1990) to analyze the written responses of the members in the high-training transfer group, as well as their frequency ratings of various principal actions, for themes regarding principal leadership that promoted these teachers' training transfer.

Limitations

Although further research must be conducted to confirm or refute the findings and to enhance generalizability, this study provides a starting point for principals as they consider the relationship between their leadership and their teachers' training transfer. The context of this study's findings will be helpful in shaping future research and in providing considerations by which to weigh the findings. The limitations that follow provide this context.

1. The TTQ was created by the researcher expressly for the proposed study. Efforts were taken to enhance the validity and reliability of this instrument, including a previous pilot study, several sources of feedback, a pilot of the revised instrument with six teachers, and exploratory factor analysis. The researcher developed the

TTQ out of necessity; because training transfer outcomes depend on the specific training, no universal assessments of training transfer exist.

2. Participants derived entirely from one school district's new teacher induction program. Although this allowed for control of potentially confounding variables, it also limited generalizability.
3. The relatively small sample size of 62 participants limits statistical power. However, the researcher decided against recruiting participants from other districts because of potential error that could derive from confounding variables associated with training design and delivery and district-level culture.
4. Perception data were used to assess principal leadership style and participants' training transfer outcomes; although the intent of the study was to examine the relationship between these perceptions, the validity of the findings depends upon honest and accurate responses from participants.

Definitions of Key Terms

1. Active Participation: The instructional strategy of engaging all students in frequent participation opportunities consistently throughout the lesson (Danielson, 2007; Gentile, 1993; Glaser, 1984; Hunter, 1967; Piaget, 1970; Saphier et al., 2008).
2. Essential Elements of Instruction (EEI): An instructional framework with a repertoire of strategies a teacher may implement to maximize student learning. EEI has been described as a decision-making model with the goal of helping teachers decide on instructional interventions that will make the greatest

difference for students in the given situation (Gentile, 1993). Two fundamental strategies are teaching to an objective and eliciting student active participation.

3. New Teacher Induction: A district-sponsored training program for new or newly hired teachers typically focusing on instructional and classroom management skills, as well as district culture (Breux & Wong, 2003).
4. Passive/Avoidant (PA) Leadership (Bass & Avolio, 2004): Ineffective leadership behaviors based on reactive responses to problems and avoidance of decision making. PA leadership consists of the sub-styles of management-by-exception-passive (MBEP) and laissez-faire (LF) leadership.
5. Teaching to an Objective: The instructional strategy of anchoring a lesson to an observable or measurable outcome to be demonstrated by each student at the end of the lesson as evidence of their degree of learning (Danielson, 2007; Hunter, 1982; Mager, 1962; Saphier et al., 2008).
6. Training Transfer: The extent to which knowledge and skills from a training situation are implemented into the trainee's actual work.
7. Transactional (TA) Leadership (Bass & Avolio, 2004): Leadership behaviors based on constructive and corrective transactions with followers; consists of contingent reward (CR) behaviors, which involve setting goals and providing recognition for achievement, and management-by-exception-active (MBEA) behaviors, which involve monitoring followers' work for mistakes.
8. Transformational (TF) Leadership (Bass & Avolio, 2004): Leadership that seeks to "optimize individual, group, and organizational development and innovation,

not just achieve performance ‘at expectations’” (Bass & Avolio, 2004, p. 96). TF leaders “convince their associates to strive for higher levels of potential as well as higher levels of moral and ethical standards” (Bass & Avolio, 2004, p. 96). The contributing factors are idealized influence attributed (IIA) and idealized influence behavior (IIB), which relate to respect and modeling; inspirational motivation (IM); intellectual stimulation (IS); and individualized consideration (IC).

Summary

Teacher training transfer is crucial for professional development to achieve the intended impact on student achievement. A growing body of literature suggests that principal leadership is related to teacher training transfer (Barnett & McCormick, 2004; Blase & Blase, 1999; Bredeson & Johansson, 2000; Burke & Hutchins, 2007; Desimone, 2009; Drago-Severson, 2007; Fullan, 2001a; Senge et al., 2000; Youngs, 2007), although this relationship has not been studied directly. This dissertation intended to help close this gap by analyzing the relationship between training transfer, perceived principal leadership, and other demographic variables among participants in a new teacher induction program. This study’s findings also provide insights into principal behaviors that promoted teachers’ training transfer.

In the following chapter, the theory and research regarding principal leadership and teacher training transfer are dissected. The literature review first explores the categories of variables related to training transfer and the nature of these variables as they pertain to education. Additionally, principal leadership is explored, with a focus on the

continuum of styles within Bass and Avolio's (2004) full range leadership model. The third chapter describes the methodology, including the research site, participants, instruments, procedures, and analysis techniques. The fourth chapter describes the study's results, and the fifth chapter summarizes the results and discusses the findings.

CHAPTER 2

REVIEW OF THE LITERATURE

Organizational change, such as that which is expected of schools in the accountability era, depends upon the ability of individuals within the organization to change. However, this change can be elusive. For example, Georgenson (1982) and Saks (2002) contend that 40 to 90% of trainees fail to implement new skills in their workplace, with results worsening over time. Specific to professional development in the context of schools, it is estimated that up to 95% of teachers in a given training will fail to implement the desired knowledge and skills in their classrooms unless rigorous follow-up measures are enacted (Joyce, 2002). Guskey (2002) contends that the failure of professional development programs can be attributed to inadequate knowledge both of teachers' motivations to participate and the processes of teacher change. All hope need not be abandoned, however; the research on training transfer identifies specific categories of variables that increase the likelihood of transfer actually occurring (Baldwin & Ford, 1988; Burke & Hutchins, 2007; Ford & Weissbein, 1997).

The training transfer literature provides the foundation for this dissertation's research questions regarding the relationship between teacher training transfer and principal leadership style. A general model of training transfer consists of three categories of variables: individual characteristics of the learner; intervention design and delivery; and work environment influences (Baldwin & Ford, 1988; Burke & Hutchins, 2007; Ford & Weissbein, 1997). Baldwin and Ford first proposed this model and then used it as a framework to organize the literature on training transfer. Their literature

review focused on 70 empirical studies within the realm of organizational training. Although Baldwin and Ford established an organizational framework for the variables affecting training transfer, they acknowledged that no research had yet been conducted to test all three variables in a single study. Additionally, they did not include research from other fields, such as education, counseling, or psychology.

Ford and Weissbein (1997), in their re-examination of the training transfer literature, included an additional 20 empirical studies in their review while maintaining the same framework of variables originally adopted by Baldwin and Ford (1988). Burke and Hutchins (2007) also maintained the same training transfer model, consisting of individual learner characteristics, intervention design and delivery, and work environment influences, in their literature review of 170 empirical studies. Burke and Hutchins' analysis extended beyond the organizational training literature to include research from the fields of management, human resources, training, adult learning, performance improvement, and psychology. In their review, Burke and Hutchins narrowed each category into relevant factors and then drew conclusions (which will be discussed in the following sections of this chapter); they also critiqued the transfer literature. Major weaknesses identified by Burke and Hutchins included over-reliance on measures of learning rather than measures of performance and an overly simplistic or linear view of the relationship of transfer variables.

The three categories (individual learner characteristics, intervention design and delivery, and work environment influences) identified by Baldwin and Ford (1988), Ford and Weissbein (1997), and Burke and Hutchins (2007) provide the organizational schema

for this chapter. It should be acknowledged, however, that none of these researchers reviewed literature related to teacher training transfer, and although a few of the studies in their reviews examine the interplay of two or more variables related to transfer outcomes, none does so in the context of public schools. This alludes to a limitation of all training transfer research: the contextual nature complicates generalizability. In spite of these weaknesses, the three-category model provides a relevant starting point to organize the training-transfer-related literature in the field of education for two reasons: first, the breadth of Burke and Hutchins' literature review, with conclusions drawn across 170 studies conducted in a variety of settings, suggests possible applicability to education; second, no other framework specific to the field of education has been identified or tested as of yet.

Figure 1 provides a visual model of the author's conceptualization of the variables impacting teacher training transfer in public education. The outer circles represent the categories of variables identified by Baldwin and Ford (1988), Ford and Weissbein (1997), and Burke and Hutchins (2007). Given the current study's focus on teacher training transfer, the author chose to narrow the general set of variables known as individual learner characteristics down to teacher characteristics. Similarly, the category of intervention design and delivery was narrowed to focus on the attributes and outcomes of teacher professional development. The category of work environment influences consists of several variables, including coherence with organizational goals, a supportive climate, supervisory and peer support, opportunities to use knowledge and skills, and accountability for this use (Baldwin & Ford, 1988; Burke & Hutchins, 2007; Ford &

Weissbein, 1997). Although these variables are the product of many factors, in the public school setting the principal has the potential to influence these variables (Barnett & McCormick, 2004; Blase & Blase, 1999; Bredeson & Johansson, 2000; Burke & Hutchins, 2008; Desimone, 2009; Drago-Severson, 2007; Fullan, 2001a; Youngs, 2007), and thus, to impact teacher training transfer. Consequently, the author chose to narrow work environment influences to focus specifically on principal leadership. In Figure 1, principal leadership is represented with a smaller circle in acknowledgement of the other factors that also impact the work environment.

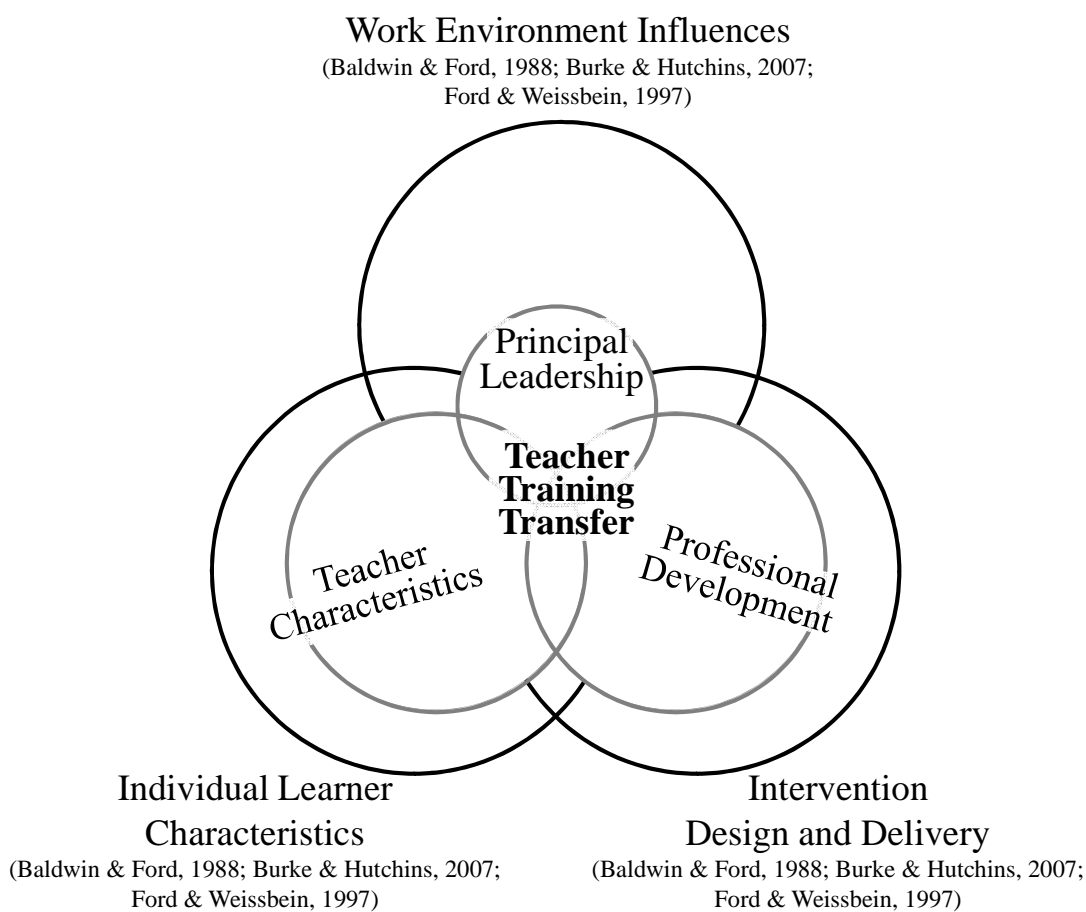


Figure 1. Conceptual model of variables related to training transfer

This chapter is organized according to this conceptual framework, with each broad training transfer category introduced and then narrowed to focus specifically on education-related literature. The category of work environment influences is narrowed further still, focusing on the instructional leadership literature and the full range leadership model (Bass & Avolio, 2004) for insights regarding the principal's role in promoting teacher training transfer. The chapter culminates with a hypothesis regarding the relationship between teacher training transfer and the perceived leadership style of the principal.

Training Transfer and Individual Learner Characteristics

The obvious conclusion that different people learn differently is validated by the training transfer research. Burke and Hutchins' (2007) review of the literature cites correlations between trainees' individual characteristics and their transfer outcomes. For example, a significant amount of variance in participants' training transfer can be attributed to their cognitive ability. Additionally, openness to the training experience, perception of the training as useful, extent of career planning, and organizational commitment all positively correlate with training transfer; similarly, participants' self-efficacy correlates with transfer outcomes, and transfer outcomes can be increased by intentionally focusing on improving trainees' self efficacy (Burke & Hutchins, 2007).

Research also has suggested a positive relationship between motivation and training transfer. Kontoghiorghes (2001), in a study in which 264 employees were surveyed regarding their use of a new technology in their workplace, found positive

relationships between implicit factors, such as a sense of recognition, and employee training transfer. Although implicit factors are related to training transfer, they seem to be less significant than external variables such as extrinsic motivation and supervisory support. The Kontoghiorghes study showed a stronger correlation between supervisory support and training retention ($r = 0.577$), as well as the climate of the organization and training retention ($r = 0.614$), than intrinsic factors and training retention ($r = 0.344$). In a meta-analysis of the literature regarding motivation and training transfer, Taylor, Russ-Eft, & Chan (2005) also found a stronger relationship between explicit factors, such as supervisor evaluations, and motivation and transfer. Although individual differences certainly affect transfer, it seems that these are moderated by external variables such as the climate of the organization and the extent of supervisory support.

Literature regarding adult growth and development supports the transfer literature's findings. Two fundamental tenets of developmental theories are as follows: growth occurs differently for different individuals; and certain facilitating conditions are necessary for individuals to progress (Bandura, 1993; Drago-Severson, 2007; Kegan, 1982; Kegan & Lahey, 1984; Mezirow, 1994, 2000).

Constructive-Developmental Theory (Kegan, 1982; Kegan & Lahey, 1984) posits that adults function in developmental stages, with graduation from one stage to the next marked by a broadening perspective—a more sophisticated ability to view the various facets of oneself with objectivity. This connects with Mezirow's (1994, 2000) ideas about transformational learning, which Drago-Severson (2007) summarized as “the process of changing our taken-for-granted mindsets and frames of reference—which do

not adequately explain a new experience—by making them more open, inclusive, reflective, and integrated” (pp. 75-76).

Bandura’s (1993) Social-Cognitive Theory also has contributed to an understanding of growth and development. Bandura contended that “Ability is not a fixed attribute residing in one’s behavioral repertoire” (p. 118). Thus, social comparisons and feedback influence cognitive processes contributing to efficacy development. Bandura explained that “Most human motivation is cognitively generated” (p. 128). People develop beliefs about their abilities and anticipate various outcomes; they set goals and plan courses of actions. It is this process of setting goals and working toward them that governs most purposeful, intentional behavior (Bandura, 1993).

In her review of adult learning literature, Drago-Severson (2007) discussed criteria for promoting adult learning that have emerged from the various contributing authors. These criteria include respect of the diversity of the adult participants and the fact that this diversity influences needs and perspectives; a strong sense of purpose embedded into the learning process; awareness and support of adults’ physical and psychological changes while learning; acknowledgment of social context and culture; and experiential, problem-solving-based learning opportunities (Drago-Severson, 2007).

Collectively, theories on adult development posit that individuals advance through phases or stages of growth (Bandura, 1993; Drago-Severson, 2007; Kegan, 1982; Kegan & Lahey, 1984; Mezirow, 1994, 2000). The training transfer literature suggests that different transfer outcomes can be expected from trainees who occupy different developmental phases. Although there is a gap in the training literature regarding the

effect of a participant's prior experiences on his or her transfer (Burke & Hutchins, 2007), one logical conclusion is that experience does influence training transfer due to the relationship between experience and developmental level. This implication is explored in greater detail in the following section, which focuses on individual learner characteristics related to teachers' training transfer.

Individual Learner Characteristics related to Teachers' Training Transfer

Although there is little direct research investigating the impact of individual learner characteristics on teachers' training transfer, it is logical that the broader training transfer research would be generalizable to the field of education. Educational research tends to cluster participants according to variables such as grade level, content area, and experience level. Although these have not been linked directly to training transfer outcomes, these characteristics can be assumed to be responsible for some variance in teachers' training transfer.

Teachers' experience level in particular is recognized as an important distinguishing trait. Novice teachers commonly require a high degree of support and supervision to develop the autonomy of their experienced colleagues, as evidenced by the abundance of new teacher induction programs, by probationary certificates for new teachers, and by experts such as Danielson (2007), whose Framework for Teaching model has been marketed as a "roadmap for novices" (p. 11). Similarly, Moir and Gless (2001) of the Santa Cruz New Teacher Center have proposed their induction model as a support system to help new teachers who "face an overwhelming number of complex problems" as they "navigate a slow and painful learning curve" (p. 110).

Research on teacher career stages provides empirical evidence regarding the existence of differences in instructional skills between novice and more experienced teachers. Huberman (1989) analyzed the literature to identify recurring trends and consolidate these into a model of teacher career stages, which he then tested with a sample of 160 teachers from Switzerland. The sample consisted of secondary teachers from four groups: 5-10 years of experience, 11-19 years, 20-29 years, and 30-39 years. The participants from each group represented an equivalent sample compared to that group's proportion within the population. Huberman conducted interviews with each participant, gathering both qualitative and quantitative data, which he then condensed into 25-page summaries for analytical purposes. The initial interview question asked participants to describe and label the phases of their careers. Additionally, teachers were asked to select from forced-choice descriptors regarding themselves at various career phases, and to identify and situate themselves at various career phases on an attitude inventory.

Huberman (1989) identified the following stages: survival and discovery, from 1 to 3 years; stabilization, from 4 to 6 years; experimentation and activism, from 7 to 18 years; reassessment and self-doubts, also during the 7-to-18-year stage, which occurs alternatively to experimentation and activism; serenity, from 19 to 30 years; conservatism, also during the 19-to-30-years stage, which occurs alternatively to serenity; and disengagement, from 31 to 40 years. Huberman concedes that these stages should be viewed as general, with a variety of possible paths of progression. Limitations of the study included the fact that all participants derived from the Geneva school system,

which Huberman described as relatively homogenous, and that all were secondary teachers. Regardless, Huberman's study clearly identified differences in teachers at various points of their careers, especially during the first three years of teaching.

Although the relationship between years of experience in the profession and teaching effectiveness is not linear, novice teachers often are found to be less effective than their more experienced peers (Darling-Hammond, 2000). The non-linearity of the data implies a point of static or diminishing returns for veteran teachers for whom years of experience no longer correlates with teaching effectiveness and/or student achievement (Darling-Hammond, 2000).

Similarly, Tschannen-Moran and Woolfolk Hoy (2007), in a quantitative study of 255 teachers at all grade levels, found experienced teachers rated themselves significantly higher in terms of self-efficacy, instructional skills, and classroom management skills than did novice teachers (based on *t*-test results). A follow-up regression analysis indicated that the sources of self-efficacy differed substantially based on experience level, with novice teachers attributing self-efficacy to resources and interpersonal support, as opposed to experienced teachers who cited the influence of mastery experiences (Tschannen-Moran & Woolfolk Hoy, 2007). The participants in this study all were teachers pursuing graduate degrees, which may not be representative of teachers overall. Although there were no significant differences in efficacy ratings between experienced and novice teachers for the subscale of student engagement, the novice teachers' lower ratings in overall efficacy, instructional skills, and classroom management provide evidence to support teacher experience level as an important demographic variable.

Student achievement data provide additional considerations regarding the differences between novice and veteran teachers. Clotfelter, Ladd, and Vigdor (2007), in an analysis of 10 years of data from North Carolina public schools, found significant positive differences in experienced teachers over novice teachers as measured by their students' achievement in reading and math. The data set included the entire population of North Carolina's third-, fourth-, and fifth-grade students from 1995 to 2004, whose teachers of reading and math could be identified. The authors employed regression analysis to explore the relationship of fixed teacher attributes (e.g., gender), varying teacher attributes (e.g., years of experience), fixed student attributes, varying student attributes, and varying classroom attributes, on student achievement. Experienced teachers were found to have a significantly greater positive effect on student achievement in math and reading than their less-experienced colleagues. Furthermore, the design of the researchers' analysis allowed them to attribute the gains in effectiveness to the improvement of teachers over time rather than to the attrition of ineffective teachers from the pool of experienced teachers. It should be noted that some studies have found no differences in student achievement based on teacher experience level. For example, Munoz and Chang (2007) found no significant effect of teacher experience level on student achievement; however, their study analyzed data from 58 teachers of ninth-grade students in one urban school district over the course of one year. The Clotfelter et al. study, by contrast, analyzed data from thousands of teachers and hundreds of thousands of students from an entire state over the course of 10 years.

The differences in teachers' effectiveness and self-efficacy perceptions according to their years of experience indicate that novice teachers transfer training applications for different reasons and to different degrees of fidelity than do experienced teachers. Further research is needed to better understand how experience level and other individual teacher characteristics impact training transfer. Although attention to the varied needs of individual teachers may enhance their training transfer, other variables also impact transfer outcomes. The category of variables known as intervention design and delivery is explored in the following section.

Training Transfer and Intervention Design and Delivery

In addition to the attributes of individual learners, the literature on training transfer also focuses on the impact of the design and delivery of the training intervention (Baldwin & Ford, 1988; Burke & Hutchins, 2007; Ford & Weissbein, 1997). Generally, it is recommended that "training is best employed to address knowledge, skill, and ability deficits" (Burke & Hutchins, 2007, p. 272); however, the manner by which these deficits are addressed yields considerable influence over the extent to which transfer occurs.

Burke and Hutchins (2007) identified alignment between objectives and perceived needs as one attribute of effective trainings. Several studies have found positive correlations between established objectives and participants' training transfer (Brown, 2005; Kontoghiorghes, 2001; Kraiger, Salas, & Cannon-Bowers, 1995; Lee & Pucil, 1998). Additionally, the relevance or validity of the content of the training should be perceived by participants as related to their real work; transfer has been found to increase in direct relation to increased perceptions of relevance (Burke & Hutchins, 2007).

Many studies have researched various instructional strategies and their relationship to training transfer. Burke and Hutchins (2007) identified the following strategies as having been linked with increased training transfer: practice, feedback, and remediation opportunities; overlearning (extended practice beyond mastery learning); whole-to-parts instruction, in which learners first experience a demonstration of the whole process and then gradually assume full responsibility for the task; behavioral modeling, in which positive (and/or negative) models are provided with descriptions of the behaviors and rules being followed (or violated) by the model; active learning and self-monitoring strategies; and the use of technological tools for follow-up support.

Professional Development in Public Education

Although the fields of human resources and psychology have devoted considerable attention to studying the effects of various training design and delivery strategies, this is an emerging area of study in the realm of public education. The literature regarding professional development in public education tends to fit into two categories: attributes of effective professional development, and outcomes of effective professional development. These categories are related—one cannot determine the attributes of effectiveness without outcomes that indicate effectiveness. For analytical purposes, however, each category is explored independently in the following sub-sections. Additionally, another sub-section focuses on one specific form of professional development, new teacher induction, given that participants in the proposed study will derive from a cohort of one district's new teacher induction program.

Attributes of effective professional development. A few studies have yielded quantitative data regarding the attributes of effective professional development. Garet et al. (2001) analyzed survey data from a national sample of 1,027 mathematics and science teachers who had participated in professional development activities funded by the Eisenhower Program. Participants provided data regarding the structure of the professional development activities in which they had participated, the core features of these professional development activities, and the degree of knowledge and skills they had acquired as well as the changes in their practice as a result of their participation. The researchers' regression analysis identified the following relationships: professional development that was sustained in length, focused on content, incorporated active learning, and provided coherence and integration with teachers' daily work was positively related to increases in teachers' knowledge and skills, and consequently, to changes in their classroom practices. The greatest changes in teachers' practices derived from professional development that was reform-structured (rather than simply an in-service training) and that encouraged professional communication and collective participation (Garet et al., 2001).

The scope of the Garet et al. (2001) study lends credibility to its findings; indeed, many researchers are beginning to structure their studies of professional development according to the variables identified by Garet et al. However, the scope of the study also presents a limitation: by focusing on such a large sample across so many districts, the researchers were unable to control for the quality or content of the various professional development trainings. The isolation of structural variables, such as type of training

(reform-oriented versus traditional in-service) and length of training, allowed Garet et al. to distinguish between trainings to some extent. However, it is logical to believe that considerable variance in quality exists among similar types of trainings and trainings of similar lengths.

Pritchard and Marshall (2002) were able to control for training variance to a greater extent by focusing on districts who implemented similar professional development interventions. Identifying the remaining differences among these districts' professional development was the specific intent of their study. Pritchard and Marshall's sample included 18 districts that were initiating district-wide, teacher-led professional development in writing. The researchers developed an organizational health scale as a tool to classify the districts based on the extensive qualitative data they had gathered. Seven districts were identified as healthy, seven were deemed unhealthy, and four were in between (these four districts were excluded from the rest of the study). The researchers then analyzed the professional development practices of the healthy and unhealthy districts. Additionally, 3000 student-writing samples were gathered at grades 4, 8, and 11 across all districts; these writing samples were scored and then analyzed quantitatively for differences by grade level and by district. The qualitative analysis revealed that the "healthy" districts employed the following professional development characteristics: integration of curriculum and instruction with district strategy; commitment to learning for all professionals; shared focus; expectation of professional growth; primary relationship to district purpose and secondary relationship to individual selection; administrator involvement; sustained length of time with a variety of activities;

derivation from needs assessments; and budgetary protection. Additionally, the researchers found significant positive differences in student achievement in the healthy districts' student writing samples.

Kennedy (1998) reviewed the literature regarding various teacher science and mathematics in-service approaches to identify similarities among programs having greater effects on student achievement. Kennedy's review focused exclusively on studies with measurable student achievement outcomes, and she disregarded the structure of the various interventions, instead focusing on the content of the interventions. Four in-service classifications were identified: generic teaching behaviors; content-related teaching behaviors; curriculum and pedagogy for a specific subject; and knowledge regarding how students learn a subject. Of these, the approaches having the strongest effect on student achievement (based on comparisons of standardized effect sizes of student achievement gains) were those that focused on curriculum and pedagogy for a specific subject and how students learn that subject (Kennedy, 1998). Kennedy's analysis is important in that it provided another attribute of professional development (the content thereof) to consider as a variable in research design. However, her findings should not be considered conclusive; only 12 studies met the criteria to be included in her review, and of these, only three studies were classified in the two categories for which she advocated as more effective. More research is warranted to test Kennedy's findings.

Guskey (2003) also conducted a review of literature to arrive at a set of criteria for effective professional development. He analyzed 13 published lists of professional development characteristics and found only a few commonalities. The most frequently

mentioned characteristic was the enhancement of teachers' content and pedagogical knowledge. Additionally, Guskey identified the characteristics of sufficient time and resources; promotion of collaboration and collegiality; and alignment with district/site initiatives. Several other experts in the field also have discussed the importance of time, resources, support, and coherence with district and/or site initiatives (Corcoran et al., 2001; Fullan, 2001b; Tallerico, 2007). Guskey's review analyzed strictly for commonalities among the literature; unlike Kennedy (1998), no comparison of student achievement effect sizes or any other measures were included.

Similarly, Hawley and Valli (1999) developed a model of effective professional development based on a review of literature. Hawley and Valli analyzed research regarding teaching, learning, professional development, and school improvement, as well as policy related to student achievement, to identify a consensus model of eight characteristics of professional development. These characteristics include the following: analysis of goals relative to student achievement data; involvement of teachers in determining areas of focus; a site-based emphasis; collaborative problem solving; continuity over time; information richness, with data deriving from multiple sources; foundations in sound theory, with participants understanding the theoretical underpinnings; and comprehensiveness in terms of the professional development's relationship to school improvement. Hawley and Valli's model derived from research, expert opinion, and policy trends, but has not been tested in a research context.

Hawley and Valli's (1999) consensus model shares similarities with the opinions of other experts regarding the structure and function of staff development. The National

Staff Development Council (NSDC, 2007a) refers to this type of professional development as job-embedded. The job-embedded model commonly is described as a learning community or professional learning community, and involves the following criteria: a school-wide focus on a common goal or goals; the participation of each teacher on a study team; and the involvement of each team in monitoring its implementation of professional development goals and the effect of these goals on student achievement (DuFour, 2004; DuFour & Eaker, 1998; Joyce, 2002; NSDC, 2007b; Schmoker, 2004).

Several commonalities have emerged in the research and opinions regarding attributes of effective professional development in public education. The expectation that professional development should demonstrate a high degree of relevance to participants' actual work is repeatedly emphasized (Garet et al., 2001; Guskey, 2003; Hawley & Valli, 1999; Kennedy, 1998; Pritchard & Marshall, 2002), and this aligns with findings from the broader training transfer literature (Burke & Hutchins, 2007). Similarly, experts agree that trainings should incorporate active learning (Burke & Hutchins, 2007; Garet et al., 2001) and should derive from assessment of needs (Burke & Hutchins, 2007; Hawley & Valli, 1999; Pritchard & Marshall, 2002). Although a few studies have focused on investigating these attributes in a scientific manner (e.g., Garet et al., 2001; Prichard & Marshall, 2002), there is an over-reliance on literature reviews and expert opinions. Clearly more research is needed to identify generalizable recommendations of professional development attributes that will result in enhanced teacher training transfer and increased student achievement.

Outcomes of effective professional development. Whereas the previously mentioned studies place greater emphasis on the attributes of effective professional development, another branch of research focuses on the outcomes of professional development. These outcomes derive from assessments of teacher knowledge and skill, assessments of teacher practices, and/or assessments of student achievement (Desimone, 2009).

Several studies have identified a positive effect of professional development on teachers' practices, confirming the findings of Garet et al. (2001). Supovitz and Turner (2000) studied participants in professional development projects deriving from the National Science Foundation's (NSF) Local Systemic Change through Teacher Enhancement Initiative. The NSF projects incorporated sustained professional development that focused on standards-based science instruction that directly related to teachers' classroom practices and curriculum. The Supovitz and Turner study analyzed data from 3,464 science teachers and 666 principals who participated in NSF projects during one year. The researchers identified a strong positive relationship between the length of professional development (in hours) and teachers' use of inquiry-based instructional practices and the strength of teachers' investigative classroom culture. However, teachers' previous content preparation and the socioeconomic status of the school as a whole were predictive factors of both instructional practices and classroom investigative culture. Teachers with greater content preparation implemented inquiry-based instruction more frequently and demonstrated a stronger investigative culture, as did teachers at schools with fewer students receiving free and reduced-price meals.

Banilower, Heck, and Weiss (2007) extended the work of Supovitz and Turner (2000) by conducting a large-scale analysis of data deriving from the NSF Local Systemic Change Initiative. The data included 25,016 survey results from 18,657 teachers in 42 NSF projects that spanned 7 years. The researchers found significant positive relationships between hours of participation and the following outcomes: teachers' perceived preparedness; frequency of use of instructional materials deriving from the trainings; amount of time devoted to science instruction per week; and frequency of implementation of instructional practices that support scientific investigation. The strongest increases in all outcomes were found within the first 80 to 100 hours of professional development. Additionally, Banilower et al. found that participants' perceptions of their principal's support were predictive of each of the above outcomes.

In a parallel study focusing on the outcomes of the NSF's mathematics-related Local Systemic Change Initiative projects, Heck, Banilower, Weiss, and Rosenberg (2008) found similar results. Participation was found to be positively related to teachers' attitudes toward standards-based mathematics reforms, their perceived preparedness to implement these reforms, and their self-reported use of reform-based mathematics instructional practices. Also, teachers' perceptions of principal support were found to be predictive of these outcomes, as well.

The findings of Supovitz and Turner (2000), Banilower et al. (2007), and Heck et al. (2008) added to the growing consensus among the literature that length of participation in professional development is important, as is a direct link between

professional development and curriculum and instructional materials and practices.

However, although these studies focus on professional development with some common characteristics, there nevertheless was a great deal of variance in intervention design and delivery across the many NSF projects.

A study by Jeanpierre, Oberhauser, and Freeman (2005) eliminated training variance by focusing on one professional development initiative that was provided to five groups of teachers over three years. Much smaller in scale than the NSF studies (Banilower et al., 2007; Heck et al., 2008; Supovitz & Turner, 2000), the research by Jeanpierre et al. studied 44 participants in a two-week-long resident institute focused on monarch butterfly ecology. Each teacher participated along with two students in one week of training over the summer and another week in the fall. The researchers identified a significant increase in the number of teachers who reported the use of inquiry-based instruction, from 8 at the beginning to 32 by the end, as well as significant gains in teachers' content knowledge as measured on pre- and post-tests. Qualitative data from 20 case studies revealed that the most important attributes of the professional development were the intensive focus on science content and processes, the requirement that teachers apply their knowledge and skills in authentic projects, and the expertise and high expectations of the facilitators.

Collectively, these studies suggest that professional development is capable of changing teachers' instructional practices, especially when the professional development is sustained in length, emphasizes reform-based instructional strategies, and is linked to curriculum and materials that support these reforms (Banilower et al., 2007; Heck et al.,

2008; Jeanpierre, Oberhauser, & Freeman, 2005; Supovitz & Turner, 2000). None of these studies, however, investigated the extent to which professional development impacts student achievement.

Research is beginning to examine the relationship between professional development and student achievement. Several studies, operating on the assumption that professional development enhances teacher knowledge, skills, and practices, have demonstrated that reform-based instructional practices (as opposed to traditional instructional practices) are positively related to increases in student achievement, especially in the areas of mathematics and science. This relationship was documented by Hamilton et al. (2003) in a study of 11 sites that were implementing professional development initiatives funded by the National Science Foundation. To control for the variance in program implementation across sites, the researchers employed a meta-analytic approach that involved multiple measures of student achievement linked to each classroom rather than aggregated across the site. Additionally, teachers were surveyed regarding their frequency of use of reform-based instructional practices. A small and sometimes significant positive relationship was found between reform-based instructional practices and student achievement. It should be noted, though, that the researchers were not trying to measure the impact of the professional development interventions; rather, they simply were assessing the relationship between the type of teaching for which the interventions advocated and student achievement.

Hill, Rowan, and Ball (2005) also found a positive relationship between reform-based instructional practices and student achievement. In a study of teachers and students

in 115 elementary schools, the researchers measured teachers' mathematical knowledge for teaching (which differs from knowledge of mathematics) and student achievement of first and third grade students. Mathematical knowledge of teaching, and accompanying instructional practices, were assessed using teaching logs and yearly questionnaires. Data for each teacher were gathered over three years. Student achievement data derived from standardized assessments. The researchers found a significant positive relationship between teacher mathematical knowledge for teaching and student achievement in mathematics. As with Hamilton et al. (2003), however, this study did not assess a particular professional development initiative. Additionally, Hill et al. (2005) did not distinguish between mathematical knowledge for teaching and general knowledge for teaching; it is possible that the relationship to student achievement derived from the employment of generic instructional skills in the context of mathematics.

Mayer (1998) analyzed the relationship between reform-based instructional practices in comparison to traditional instructional practices in terms of middle school and high school algebra students' math achievement on standardized tests. Mayer's study involved 94 teachers, 2,369 students, and 40 schools. The study took place in one large urban district that had endorsed the implementation of the National Council of Teachers of Mathematics teaching approach. Teachers were surveyed regarding their frequency of implementation of reform-based mathematics instructional practices, and multiple measures were used to assess student achievement throughout the year. The strongest positive relationship between reform-based teaching practices and student achievement was found with middle school students and with students who demonstrated

higher mathematics ability. The lowest-achieving students were neither helped nor hindered by reform-based instructional practices. Mayer's intent was to determine whether these reform-based practices undermine student performance on traditional achievement tests, as opposed to new measures of student achievement which often were adopted in concert with new instructional methods.

In contrast to Mayer's study (1998), Stein and Lane (1996) explored the relationship between implementation of reform-based mathematics instructional practices and evidence of higher-order student thinking and problem solving. Focusing on school sites rather than individual classrooms, Stein and Lane ranked four middle schools according to their degree of implementation of reform-based mathematics instruction. Data for these rankings were derived from classroom observations and qualitative analysis. Student achievement was measured using a mathematics test intended to assess students' higher-order thinking. The school with the strongest implementation of reform-based practices also demonstrated the strongest student achievement on the assessment; conversely, the school with the weakest implementation demonstrated the poorest student achievement. Unlike the studies conducted by Hamilton et al. (2003), Hill et al. (2005), and Mayer (1998), this study focused on schools in which specific professional development initiatives had been implemented to increase teachers' use of reform-based practices. The variance across the sites indicated the existence of other contextual factors that influenced the degree of training transfer of the reform. Regardless, the authors provided clear evidence linking reform-based practices to increased student problem-solving and higher-order thinking.

Von Secker (2002) further explored the relationship between reform-based instructional practices and student achievement. Focusing on 10th-grade science achievement, Von Secker analyzed teachers' self-reported frequency of use of reform-based scientific inquiry teaching practices, and compared these to student achievement in science. Von Secker's data for both measures derived from the National Educational Longitudinal Study (NELS) test for 10th-grade biology students, and her sample included 4,377 students in 1,406 biology classrooms. Although greater implementation of reform-based practices was found to be significantly positively related to student achievement, Von Secker also found that the use of these practices did not decrease the achievement gap of disadvantaged students, and in some cases, actually was associated with an increased achievement gap.

Wenglinsky (2002) sought to examine the relationship between teachers' participation in professional development, their implementation of reform-based instructional practices, and the achievement of their students. His study relied on data from 7,145 eighth-grade students who had completed the National Assessment of Educational Progress (NAEP) for mathematics, as well as questionnaires completed by these students' teachers and principals. Wenglinsky's use of multilevel structural equation modeling allowed him to demonstrate a positive relationship between teacher participation in professional development and implementation of reform-based instructional practices. Additionally, the use of these practices was associated with a significant positive difference in student achievement. Although Wenglinsky did establish a relationship between professional development, teacher practices, and student

learning, the results should be interpreted with caution. Teachers were surveyed regarding the extent to which they had participated in professional development related to topics such as classroom management, diversity, higher-order thinking, and performance-based assessment; participation in mathematics-based professional development was not assessed, nor did teachers indicate whether or how their participation in professional development led to their use (or lack thereof) of reform-based instructional practices. It is speculative to assert that participation in professional development caused these teachers to employ reform-based practices.

The above-mentioned studies (Hamilton et al., 2003; Hill et al., 2005; Mayer, 1998; Stein & Lane, 1996; Von Secker, 2002; Wenglinsky, 2002) supported the conclusion that reform-based instructional practices are associated with student achievement gains, and a few of the studies incorporated teacher participation in professional development as a related variable. Other studies (Bressoux, 1996; Cohen & Hill, 2000; Lee et al., 2008; Wiley & Yoon, 1995) have focused directly on the relationship between professional development and student achievement. The findings of these studies are discussed in the following paragraphs.

Bressoux's (1996) research analyzed the achievement of 3,000 French elementary students by comparing their post-test scores in mathematics and French to their pre-test scores from the beginning of the year. The students were categorized according to the status of their classroom teacher as a trained novice, an untrained novice, or an experienced teacher. Bressoux determined that most of the variance on students' post-test scores was related to student-level differences that were evident on pre-test scores;

however, teacher characteristics did affect post-test scores. Experienced teachers had the largest effect on student post-test scores, and trained novice teachers had a greater effect than untrained novices.

Wiley and Yoon (1995) also analyzed student achievement results for evidence of teacher effects. Their study relied on data from the 1993 California Learning Assessment System (CLAS) mathematics test for students in 4th, 8th, and 10th grades. Teachers were surveyed to determine their familiarity with statewide reform policy in mathematics instruction; familiarity included knowledge of policy initiatives as well as participation in professional development opportunities. Additionally, teachers indicated their frequency of reform-based mathematics instructional practices. Teacher survey results were analyzed in relation to student achievement results. The analysis included data from 30,350 students and 1,750 teachers. Wiley and Yoon found the most significant positive effect of teacher practices on student achievement in 4th grade; however, the 4th grade teachers indicated the least familiarity with reform initiatives and the least participation in reform-based professional development. In both fourth and eighth grade, however, the students of teachers who were most familiar with reform initiatives and who participated in the most reform-oriented professional development performed significantly better than the students of other teachers. This trend was less evident in 10th grade.

Cohen and Hill (2000) conducted a similar study with results of elementary students' achievement on the 1994 CLAS mathematics test. Cohen and Hill focused specifically on teachers' participation in professional development, however, in contrast to Wiley and Yoon's (1995) emphasis on overall familiarity with reform initiatives.

Cohen and Hill conjectured that the new state policy and the accompanying assessment would encourage greater teacher participation in professional learning attuned to the reform initiative. Additionally, Cohen and Hill believed that enhanced teacher learning would be related to greater use of reform-based mathematics instructional practices, which in turn would be related to higher student achievement. The results of their analysis were consistent with their hypotheses; teachers who participated in more in-depth professional development opportunities that were congruent with mathematics reform-based instruction implemented more reform-based practices and fewer traditional practices. Additionally, the students associated with these teachers performed at higher levels on the CLAS mathematics test.

In a science-related study, Lee et al. (2008) assessed the effects of a science and literacy curricular initiative on students' science achievement. Lee et al. provided materials and professional development for teachers in third, fourth, and fifth grades at six elementary schools in a large urban district. In each of the three years of the project's duration, students' mean post-test scores in each grade level were significantly greater than pre-test scores, with effect sizes ranging from medium to large. In the fourth-grade sample, the achievement gap narrowed for some students; the gap remained constant in grades three and five. The study by Lee et al. tested a specific professional development intervention; this differs from the approach taken by Cohen and Hill (2000), who broadly studied participation in professional development. The Lee et al. method allowed for greater control over confounding variables regarding quality, content, and duration of the professional development, but simultaneously limited the generalizability of the findings.

Collectively, these studies suggested that professional development seeking to change teachers' instructional practices would subsequently impact student achievement. Fishman, Marx, Best, and Tal (2003) tested this hypothesis in the context of a standards-based middle school science reform initiative. Fishman et al. intended to study a methodology for evaluating professional development, rather than the specific professional development intervention itself. Fishman et al. developed a model consisting of the following steps: definition of expected student outcomes; analysis of current measures of student performance; design and implementation of professional development focused on enhancing teachers' curricular knowledge, specifically in areas of weak student achievement; evaluation of the professional development training through surveys and interviews; observation of classroom teaching for evidence of teaching practices congruent with the training; interviewing teachers following their observations; and re-assessment of student achievement.

Fishman et al. (2003) implemented the above-described methodology with science teachers and students in sixth through eighth grades at 14 middle schools in the Detroit Public School District. The results were analyzed via a mixed-methods approach. Fishman et al. described improved teacher knowledge and skills based on their analysis of qualitative data deriving from teacher interviews and observations. Additionally, they found significant increases in student achievement. Although their intent was to study an evaluation model rather than to identify attributes of effective professional development, their findings suggest that effective professional development alters teachers' knowledge, beliefs, and attitudes, thereby changing their behavior, and ultimately, leading to

increased student achievement. These findings are in accord with the conclusions of Garet et al. (2001).

Other studies of reform initiatives in science and in mathematics education illustrate similar relationships between professional development, teachers' knowledge, skills, and practices, and student achievement. Carpenter, Fenema, Peterson, Chiang, and Loef (1989) found significant positive differences in student achievement in an experiment comparing the student scores of a group of teachers who participated in intensive mathematics professional development with the student scores of a control group of teachers who had not participated in the professional development. Another mathematics-related study found continuing positive changes in teacher practices and student achievement up to four years after the initial intervention (Franke, Carpenter, Levi, & Fennema, 2001).

Wallace (2009) used large data sets to test her theory-based model regarding the relationship between professional development, teacher practices, and student achievement. Professional development participation was found to have moderate effects on teacher practices, which in turn led to small but sometimes significant effects on student achievement. In the Wallace study, a substantial teacher practice effect on student achievement still existed even when controls for professional development, teacher preparation programs, and teacher characteristics were implemented.

The current professional development literature tends to focus on reform-based instructional practices in the areas of mathematics and science. These studies demonstrate the importance of in-depth professional development that is sustained over

time and directly related to the content and curriculum teachers are expected to deliver to students. As important as content-focused professional development is, however, other forms of professional development also serve important functions in schools, such as communicating district- or school-wide expectations regarding instructional delivery, classroom management, assessment, etc. These professional development trainings emphasize pedagogical knowledge of teaching (Shulman, 1986), a set of generic instructional practices that extends across grade levels and content areas. New teacher induction is one form of professional development used to train new teachers in pedagogical knowledge of teaching. The literature focusing on new teacher induction is addressed in the following section. Although there is little empirical evidence regarding the effectiveness of new teacher induction on changes in teacher practices or on student achievement, the available literature has been included in this review given the current study's investigation of participants in one district's new teacher induction program.

New teacher induction. New teacher induction is a specific type of professional development that generally refers to district-provided training for new or newly hired teachers and that focuses on instructional skills, classroom management skills, and district culture (Breaux & Wong, 2003). Although the same attributes of professional development found to be effective in improving teachers' knowledge, skills, and instructional practices can be assumed to apply to new teacher induction, the unique nature of induction programs warrants additional considerations.

Moir and Gless (2001) outlined several critical attributes of new teacher induction, foremost being a focus on instruction, classroom practices, and student

achievement. The vision of an induction program, according to Moir and Gless, should be of instructional excellence among all teachers rather than merely retention of new teachers. Additionally, induction should have systemic organizational support, and should include mentoring and other forms of classroom-based support for new teachers. These attributes of effective induction appear to be based on the expert opinion of Moir and Gless, who respectively serve as the director and associate director of the New Teacher Center at the University of California at Santa Cruz; they provide no discussion of empirical research that supports their list of attributes.

In a study comparing induction programs in terms of their impact on teacher practices and student engagement, Johnson (2009) provided empirical support for certain features of new teacher induction. Johnson's study included four matched pairs of teachers, with one teacher in each pair participating in a comprehensive induction program and the other teacher participating in an add-on induction program. Comprehensive induction was defined as providing more frequent mentor interactions with new teachers, more highly trained mentors, and more frequent training opportunities for new teachers. The eight teachers completed pre- and post-assessments regarding their use of instructional practices emphasized in induction, and 816 students in these teachers' classes also completed surveys regarding their level of engagement. The four teachers in the comprehensive induction program demonstrated statistically significant gains in their use of the intended instructional practices as well as in the engagement of their students from the pre- to post-assessments; these outcomes were in stark contrast to the add-on induction participants, who reported significantly less use of the instructional practices

and whose students' engagement decreased over the length of the study. It should be noted that this study was published by the New Teacher Center at the University of California at Santa Cruz and was not subjected to peer review. Furthermore, the small sample of participants limits generalizability. In spite of these limitations, the study does provide insights about attributes of effective induction, which otherwise are nearly entirely absent from empirical research.

Strong (2009), in his review of the literature on new teacher induction and mentoring, identified characteristics of several well-known, large-scale induction programs. These characteristics include the following: an emphasis on instructional capacity and student achievement; the combination of training seminars and mentoring; the promotion of continuing teacher professional growth and self-reflection; and the use of formative assessment and/or evaluation. Strong arrived at a similar conclusion as Johnson (2009) regarding the comprehensiveness of induction programs: generally, induction programs that are more comprehensive will show a stronger positive relationship to teacher retention and to teacher implementation of effective instructional practices. As with much of the literature regarding new teacher induction, however, Strong's conclusion is speculative and relatively void of empirical evidence. Strong points out, for example, the impossibility of controlling for all the variables that affect retention in order to conclusively identify new teacher induction as a causal variable. Similarly, defining and measuring effective instructional practices is equally difficult. Despite these limitations in the research, Strong advocates for comprehensive induction programs and contends that further research is needed.

Instructional practices emphasized in new teacher induction. As mentioned previously, a general goal of new teacher induction programs is to promote effective instructional practices. Currently, no research has been conducted to identify which instructional practices are widely promoted in induction programs. For that matter, there is little agreement regarding the definition of effective instructional practices. As Strong (2009) pointed out, the research to date “leaves us in the somewhat circular position of defining effective teachers as those who are effective” (p. 76). Given the lack of consensus, one option for deciding on instructional practices to be emphasized in induction is to consider “reform” practices, as discussed in the general professional development literature (Carpenter et al., 1989; Fishman et al., 2003; Guskey, 2003; Hamilton et al., 2003; Heck et al., 2008; Hill et al., 2005; Jeanpierre et al., 2005; Kennedy, 1998; Mayer, 1998; Stein & Lane, 1996; Supovitz & Turner, 2000; Von Secker, 2002; Wenglinsky, 2002).

Because participants in induction programs represent all content areas and grade levels, the instructional practices emphasized in these programs generally fall into the domain referred to by Shulman (1986) as pedagogical knowledge of teaching. Pedagogical knowledge of teaching describes the application of principles of learning and learning theory to classroom instruction. Consequently, one method of identifying reform-based instructional practices in the context of new teacher induction is to consider those that emphasize pedagogical knowledge of teaching, as opposed to a more traditional set of instructional practices, such as teacher lecturing (Danielson, 2007; Saphier et al., 2008).

Teaching to an instructional objective and employing active participation are two instructional strategies that fit in the category of pedagogical knowledge of teaching. Instructional objectives have been interpreted in a variety of ways, but generally they include a specific and measurable or observable outcome to be achieved by students by the conclusion of the lesson (Danielson, 2007; Dembo, 1991; Gentile, 1993; Hunter, 1982; Mager, 1962; Saphier et al., 2008). The principle of learning known as active participation describes the consistent cognitive engagement of all students and requires learners to transform or make meaning of the original information (Danielson, 2007; Gentile, 1993; Glaser, 1984; Hunter, 1967; Piaget, 1970; Saphier et al., 2008). Active participation is elicited from all students rather than a select few who volunteer or are chosen by the teacher; additionally, active participation should occur frequently throughout the learning process. Instructional objectives and active participation are two fundamental concepts in the Essential Elements of Instruction (EEI) framework (Gentile, 1993), although their emphasis has permeated many other teaching and learning frameworks.

Teaching to an instructional objective and engaging students in active participation constitute reform strategies given their deviation from traditional instructional methods. For example, Gentile (1993) described the common practice of having an instructional topic (e.g., the separation of powers in the federal government) as opposed to teaching to an instructional objective (each student will draw and label a diagram that compares and contrasts the powers of the three branches of federal government). Similarly, providing for frequent active participation of students differs

from the traditional instructional methods of lecturing, selecting a few students to answer questions, or asking each student a question once during the lesson (Danielson, 2007; Gentile, 1993; Saphier et al., 2008).

As Strong (2009) pointed out, research has not been conducted to “link teacher practices with teacher effectiveness so that we can predict effectiveness by looking at practice” (p. 76). However, the practices of teaching to objectives and engaging students in active participation are widely endorsed for their positive relationship to student achievement, student focus, rate and degree of learning, and transference of the learning to novel situations (Danielson, 2007; Gentile, 1993; Saphier et al., 2008).

Summary of research on teacher professional development. The research on teacher professional development paints a picture of effective design and delivery attributes, as well as expected outcomes if these are in place. The literature suggests that effective professional development should be sustained in length, have organizational coherence, and provide for active engagement of participants (Garet et al., 2001; Guskey, 2003; Hawley & Valli, 1999; Pritchard & Marshall, 2002). Additionally, effective professional development should emphasize reform-based, or non-traditional, instructional practices (Carpenter et al., 1989; Fishman et al., 2003; Guskey, 2003; Hamilton et al., 2003; Heck et al., 2008; Hill et al., 2005; Jeanpierre et al., 2005; Kennedy, 1998; Mayer, 1998; Stein & Lane, 1996; Supovitz & Turner, 2000; Von Secker, 2002; Wenglinsky, 2002). If these attributes are in place, research suggests that participants will experience positive changes in knowledge, skill, and instructional practices (Carpenter et al., 1989; Garet et al., 2001; Fishman et al., 2003; Guskey, 2003;

Heck et al., 2008; Jeanpierre et al., 2005; Supovitz & Turner, 2000; Wallace, 2009), and that their students will achieve at higher levels (Bressoux, 1996; Carpenter et al., 1989; Cohen & Hill, 2000; Fishman et al., 2003; Heck et al., 2008; Jeanpierre et al., 2005; Lee et al., 2008; Pritchard & Marshall, 2002; Supovitz & Turner, 2000; Wenglinsky, 2002; Wiley & Yoon, 1995).

As important as these design and delivery attributes are, the quality of the professional development intervention is only partially responsible for training transfer. The third category of influences on training transfer, the work environment context, is discussed in the following section.

Training Transfer and Work Environment Influences

The final category of variables related to training transfer is work environment influences (Baldwin & Ford, 1988; Burke & Hutchins, 2007; Ford & Weissbein, 1997). These variables include a strategic link to existing organizational goals; a supportive transfer climate; support from supervisor and peers; opportunities to perform or use the desired knowledge or skills; and accountability for the use of these newly acquired knowledge and skills (Burke & Hutchins, 2007). The leader has the potential to influence each of these variables.

Research is beginning to support the role of leadership in promoting employee training transfer. For example, Burke and Hutchins (2008) surveyed 139 training professionals regarding their perceptions of best practices in training transfer. A content analysis of the survey results revealed supervisory support and evaluation/measurement for transfer as the most frequently mentioned practices (with approximately 19% of the

responses). Additionally, Burke and Hutchins' survey results suggested that high leverage gains could result from supervisor interventions that occurred in the work context after the training had taken place.

Scaduto, Lindsay, and Chiaburu (2008) provided more convincing empirical evidence to support the role of leadership in promoting training transfer. The researchers surveyed 495 employees who worked for a large organization and who had participated in professional development provided by the organization. Immediately after the training, participants completed a survey regarding their perceptions of the social exchanges between themselves and their direct leaders, their motivation to participate in the training, and their expectations for outcomes of the training. Six to 12 weeks later, participants completed another survey to indicate their extent of training transfer, which also included measures of skill maintenance and generalization. Scaduto et al.'s analysis revealed a positive and significant relationship between perceived supportive leadership exchanges and transfer outcomes. Additionally, the relationship between leadership and transfer outcomes was mediated by participants' motivation and outcome expectancy. The researchers concluded that positive leadership social exchanges promote training transfer by enhancing employees' motivation and contributing to their sense of expectations for the training's usefulness. Although this study was conducted with participants from one organization and focused on one aspect of leadership, the results illustrate the importance of leadership in promoting training transfer.

The potential for leadership to impact the work environment and employees' training transfer is beginning to be studied in the context of schools, as well. Recent

research suggests that the principal should take an active role in teacher professional development and training transfer. For example, in the studies by Banilower et al. (2007) and Heck et al. (2008) that were discussed previously in this chapter, teacher perception of principal support was found to be a predictor variable of teachers' attitudes toward reform-based professional development initiatives in science and math, their preparedness to implement the reforms, and their reported use of reform-based instructional strategies. Several qualitative studies, which will be discussed in more detail later in this section, also suggest the importance of principal support for teacher professional development (Blase & Blase, 1999; Bredeson & Johansson, 2000; Drago-Severson, 2007; Scribner, 1999; Youngs, 2007). However, very few studies offer specific guidance for principals or distinguish between leadership behaviors or styles in terms of their influence on teacher training transfer. Drago-Severson (2007) addressed this gap in the literature: "The question of how specific school-based leadership practices support teacher growth has not been investigated" (p. 73).

Given the lack of direct research regarding principal behaviors and styles that influence professional development, this section instead focuses on the literature regarding instructional leadership. Instructional leadership is a general term that refers to the principal's supervision of instruction, curriculum, and assessment, toward the goals of teacher professional development and student achievement (Marks & Printy, 2003). The instructional leadership literature yields broad conclusions about the principal's role in teacher professional development. These conclusions, along with conclusions from the few direct studies of principal leadership and teacher professional development, are

explored in this section. Additionally, this section focuses on Bass and Avolio's (2004) full range leadership model, which spans from passive/avoidant leadership to transactional leadership to transformational leadership, as a model with the potential to provide insights regarding elements of leadership that impact training transfer.

Instructional Leadership

Historically, school principals have been expected to manage the day-to-day operations of a school and to supervise teachers' instruction; however, the complexity of modern schools coupled with the demands of reform initiatives warrant a dynamic leadership style that transcends management and supervision (Leithwood, 1994; Marks & Printy, 2003). The concept of instructional leadership often has been used to describe the manner in which principals maintain their instructional supervision responsibilities while influencing their teachers' professional growth, the quality of teaching, and thus, student achievement (Blase & Blase, 1999; Bredeson & Johansson, 2000; Glickman et al., 1995; Hallinger et al., 1983; Smith & Andrews, 1989).

With the advent of contingency leadership models in the 1960s, scholars and leaders began to recognize the benefit of flexible leadership that varies to meet unique situational and follower needs. Concurrently, Getzels and Guba (1957) re-conceptualized organizations as open systems, triggering an increased interest in organizational culture and leadership's role in nurturing the culture. These paradigms contributed to the gradual shift of the school principal's role away from management and toward leadership.

The effective schools movement in the early 1980s cemented this redefined role; based on studies of urban, poor, and minority schools that boasted strong student

achievement records, Edmonds (1982) and others identified instructional leadership of the principal as one of the correlates of effectiveness. Since then, the concept of instructional leadership frequently is mentioned in the literature on school leadership (Leithwood, Jantzi, & Steinbach, 1999), although it remains an ambiguous term. Generally, instructional leadership refers to the principal's supervision of curriculum, instruction, and assessment (Marks & Printy, 2003).

Hallinger and Murphy (1986), in their review of effective schools research and the literature on school change, developed a two-dimensional construct that focuses on both the functions and processes of instructional leadership. The functions include establishing school goals, supervising curriculum and instruction, promoting high academic expectations, monitoring student achievement, encouraging teachers' professional development, protecting instructional time, and creating incentives (for teachers and students). Instructional leadership processes, according to Hallinger and Murphy, are the tools used by principals to achieve the functions; these processes include communication, decision making, conflict management, management of groups, management of change, and awareness of how to interact with the school environment.

Smith and Andrews (1989) endorsed a slightly different approach to instructional leadership, focusing instead on the roles of the principal as an instructional leader. A principal who exercises instructional leadership, according to Smith and Andrews, would provide resources, would serve as an instructional resource or expert, would communicate and reinforce school goals, and would maintain a highly visible presence for purposes of accessibility and accountability.

In his review of the literature on instructional leadership, Murphy (1990) found that principals who employed instructional leadership cultivated school goals, supervised curriculum, instruction, and assessment, maintained a learning-focused climate, and nurtured a work environment that was congruent with these goals.

Glickman et al. (1995), in their text on instructional supervision, proposed somewhat different criteria for instructional leadership, advocating for leadership in the development of collaborative groups of teachers, promotion of staff development, and promotion of action research. Similar to Edmonds (1982), Hallinger and Murphy (1986), and Murphy (1990), Glickman et al. also maintained that an instructional leader should be very active in supporting the day-to-day work of teachers and in overseeing curriculum development.

The research regarding the role of principals as instructional leaders with new teachers parallels the general instructional leadership literature. Generally, new teachers expect an even stronger instructional leadership role on the part of their principals than do their more experienced colleagues; new teachers expect the principal, above all other individuals, to provide clear guidance and support regarding their instructional responsibilities (Brock & Grady, 1998; Ingersoll & Kralik, 2004; Richards, 2004; Wood, 2005). Wood found differences between elementary and secondary principals in their support of new teachers, with elementary principals taking a more active role. Additionally, Wood found positive outcomes when the new teacher induction program was a district-level program with embedded and mandated principal involvement.

The instructional leadership literature described thus far emphasizes the importance of the principal in promoting teacher learning and growth, but offers no specifics as to how this should occur. Broadly evident is a theme of task-focused leadership, in which the principal provides direct supervision and holds teachers accountable (Edmonds, 1982; Hallinger & Murphy, 1986; Murphy, 1990; Glickman et al., 1995; Smith & Andrews, 1989). The studies in the following section explicitly examine *how* principals encourage teacher professional development. The theme of task-focused leadership continues to be apparent, but it is balanced by a concurring theme of support-focused leadership.

Studies examining instructional leadership and teacher professional growth.

Several qualitative studies have investigated the manner in which principals support teacher professional development. For example, Drago-Severson (2007) conducted grounded theory research with the intent of identifying practices used by principals to support teachers' learning and growth. Drago-Severson's purposive sample consisted of 25 principals, with representation in elementary, middle, and high schools; in public, private, and Catholic schools; and in high-resource, medium-resource, and low-resource schools. Each principal had served for at least five years, and the sample was diverse according to race, ethnicity, and gender. Of the 25 principals, 13 had been identified by colleagues as exemplary in their support of teacher learning. Drago-Severson gathered extensive interview data, field notes, and documents, and analyzed these for themes across the entire sample and in sub-groups within the larger sample. The researcher determined that each principal, to varying degrees, employed four "pillar practices,"

which she collectively refers to as the “Learning Oriented Model of School Leadership” (p. 87). These pillar practices include the use of teaming structures, distributed leadership roles, collegial inquiry, and mentoring by experienced teachers.

Although Drago-Severson’s (2007) research provided some guidance for principals, her findings were limited by several considerations. There was no evidence to confirm the effectiveness of these strategies—they simply were strategies employed by principals as they attempted to support teacher learning. Additionally, the study failed to ask teachers for their perceptions. Finally, the pillar practices represented a broad collection of strategies with no indication as to whether certain manifestations of each practice were more effective than others. For example, which method of collegial inquiry is most effective?

Bredeson and Johansson (2000) and Blase and Blase (1999) also conducted qualitative research to identify specific behaviors and strategies employed by principals to facilitate the professional growth of their teachers. Blase and Blase approached this topic by asking teachers to describe a characteristic that their principal used to influence and improve their classroom teaching. Their sample consisted of 809 teachers who were students in 17 university courses at several universities across several states. Although not focused directly on professional development or training transfer, this study does yield insights regarding teacher perceptions of principal behaviors that strengthened their teaching (these findings are described in detail below).

Bredeson and Johansson (2000) also sought to qualify principal behaviors related to effective teaching, but they focused more specifically on strategies used to enhance

teacher professional growth. Bredeson and Johansson developed a framework regarding the principal's role in teacher professional development based on analysis of research, policy, and professional standards, as well as on the results of two focus group interviews with principals. From this framework, the researchers developed a structured interview protocol that was used to gather data from 48 teachers, principals, and other school administrators. These data were used to confirm, illustrate, and revise the original framework. Bredeson and Johansson provide no information regarding how many principals served in their original focus group interviews, nor how any of their participants were selected, how long they had served, or any other demographic information.

Despite weaknesses in both studies, the findings of Bredeson and Johansson (2000) and Blase and Blase (1999) suggest specific behaviors and strategies employed by principals to facilitate the professional growth of their teachers. They found that effective principals promoted professional growth and encouraged teacher reflection (Blase & Blase, 1999). They assumed different roles to create a learning environment, and they involved themselves in the design, delivery, evaluation, and content-selection of professional development (Bredeson & Johansson, 2000).

Blase and Blase (1999) and Bredeson and Johansson (2000) agreed that effective principals gave feedback, conducted walk-throughs, gave praise, addressed implementation problems, and coached teachers to identify needs and move toward greater autonomy; typically these behaviors occurred in the context of instructional supervision and evaluation duties. Both sets of researchers also emphasized principals'

use of inquiry and action research to encourage a climate of creative tension and risk-taking, as well as the principals' participation in professional development activities.

The findings also concurred that effective principals encouraged collegial teams, peer coaching, and ongoing planning processes to provide flexible opportunities for teacher involvement in the design and delivery of professional development (Blase & Blase, 1999; Bredeson & Johansson, 2000). Additionally, both studies found that the principal should emphasize the value of professional learning and the teaching and learning process, and intentionally apply adult learning theories, change models, and motivation theories to the design and delivery of professional development activities.

Another strategy emphasized by both pairs of researchers is the empowerment of teachers by soliciting their advice and input regarding the design, delivery, and content of professional development (Blase & Blase, 1999; Bredeson & Johansson, 2000). Blase and Blase contended that effective instructional leaders encouraged their teachers to redesign instructional programs, and provided the necessary resources to facilitate this process. Bredeson and Johansson emphasized the leader's role in keeping the focus on student learning and in using data to evaluate the effectiveness of professional development.

Research by Youngs (2007) confirmed at least some of the findings of Blase and Blase (1999) and Bredeson and Johansson (2000). Youngs gathered qualitative data through interviews and observations of six elementary principals, the novice teachers at their respective sites, site-based mentors, and other educators. Youngs determined that three of the principals effectively promoted their new teachers' professional growth. The

effective principals facilitated their new teachers' work with mentors, grade-level team members, and other colleagues through direct intervention and indirectly through the ongoing cultivation of a professional school culture (Youngs, 2007).

Scribner (1999) conducted a qualitative study regarding the influences on teachers' professional development. Snowball sampling was used to identify 45 effective teachers across three diverse urban high schools in one large school district. Scribner conducted interviews with these teachers and with their principals and other administrators involved in professional development decisions; additionally, 12 professional development events were observed. Data were analyzed using grounded theory. Scribner identified personal motivators, learning activities, and work context as three categories of influences on teacher professional development; interestingly, these closely parallel the broader training literature's categories of individual learner characteristics, intervention design and delivery, and workplace influences (Baldwin & Ford, 1988; Burke & Hutchins, 2007; Ford & Weissbein, 1997). In the category of work context, the foremost factor was leadership; Scribner described how the school leadership balanced (or failed to balance) organizational learning goals and teachers' individual goals. Additionally, principals influenced teacher professional development through their structure of teacher work time and space, and through their allocation of resources. Other work context variables included faculty norms, the pace of the day, and district-level factors (Scribner, 1999). Although Scribner's study focused on teachers' perceptions of professional development influences, the results provide insights regarding principal instructional leadership that can play a positive role.

The instructional leadership described by Blase and Blase (1999), Bredeson and Johansson (2000), Drago-Severson (2007), Youngs (2007), and Scribner (1999) emphasizes a support-focused role for principals in the promotion of their teachers' professional development. This support-focused role balances the more task-focused role described by Edmonds (1982), Hallinger and Murphy (1986), Murphy (1990), Glickman et al. (1995), and Smith and Andrews (1989).

Collectively, the instructional leadership literature suggests that principals should combine support-focused practices and task-focused practices to encourage teachers' training transfer. This dichotomous approach is found throughout the general leadership literature, as well (Fiedler, 1967; Halpin, 1954; Halpin & Winer, 1952; Hemphill & Coons, 1950; Hersey & Blanchard, 1969; House, 1971; House & Mitchell, 1974; Yukl, 1981). In terms of instructional leadership, support-focused behaviors are intended to build a climate of collegial and supervisory support through actions such as professional discussions, encouragement of risk-taking, coaching and collaboration opportunities, praise and encouragement, and the leader's participation in trainings and overall valuing of professional development (Blase & Blase, 1999; Bredeson & Johansson, 2000; Burke & Hutchins, 2007; Drago-Severson, 2007; Glickman et al., 1995).

Conversely, a principal's task-focused behaviors also promote teacher training transfer. Task-focused behaviors include the following: direct supervision of employees as they perform the desired skills; indirect supervision by monitoring the products or outcomes of employees' performances (such as student achievement in reading following a teacher's participation in a reading training); and specific feedback, praise, and

suggestions (Blase & Blase, 1999; Bredeson & Johansson, 2000; Burke & Hutchins, 2007; Edmonds, 1982; Hallinger & Murphy, 1986; Murphy, 1990; Glickman et al., 1995; Smith & Andrews, 1989). The balance of task-focus and support-focus also is implicit in the factors of transformational leadership, which resides on a continuum of leadership styles known as the full range leadership model (Bass & Avolio, 2004). The full range leadership model will be discussed in the following section, and its potential relevance to training transfer will be explored.

The Full Range Leadership Model

The instructional leadership literature describes the principal as grounded in teaching and learning and active in supervising these processes. Leithwood (1994) summarized this tenet as follows: “Instructional leadership demands an active role in classroom practice based on high levels of pedagogical expertise” (p. 502). However, as the notion of instructional leadership became more fully developed with the progression of years, the emphasis on school culture increased. This attention to school culture coincided with the gradual recognition of the principal as a change agent.

Collectively, the emphasis on school culture and on change processes challenged the traditional view of instructional leadership. Traditional instructional leadership, in which the principal exerts tight control over issues related to curriculum, instruction, and assessment, is considered ineffective for schools in the current era of reform (Leithwood, 1994; Marks & Printy, 2003). Leithwood pointed out that this mode of instructional leadership can, at best, propel first-order change, change that is focused on implementing a new technology. However, he cautions that first-order changes will fail if they occupy

the sole focus. Leadership also must attend to second-order change, which is “essential to the survival of first-order change” (p. 501).

The full range leadership model (Bass & Avolio, 2004) includes a continuum of leadership styles that encompasses both first- and second-order change, with transformational leadership representing the most fully developed leadership style. Transactional leadership resides in the middle of the continuum, and passive/avoidant leadership occupies the weak end of the full range leadership model. Although transformational leadership is generally described as inspiring innovation, growth, and achievement (Bass, 1985; Bass & Avolio, 1994, 2004), it should be noted that no research has linked transformational leadership, or any of the styles within the full range leadership model, to teacher training transfer. Several studies have explored transformational leadership in the context of the principalship, however; these studies will be explored in this section, which begins with an overview of the full range leadership model.

A principal who is a transformational leader still would exercise instructional leadership, but would do so in such a way as to create a transcendent culture, motivating teachers toward innovation, purpose-driven work, and contribution to the greater good (Bass & Avolio, 1994). Marks and Printy (2003) and Leithwood (1994) contended that the principal should employ transformational leadership as a means of cultivating expertise and teacher leadership. As the leader of leaders, the principal neither pushes nor pulls, but walks alongside teachers as they collectively strive toward excellence in teaching and learning. This notion of leadership aligns with the literature regarding

organizational culture, which contends that change is culture-bound; to manage and lead change, one must cultivate a culture of innovation and trust (Fullan, 2001a; Hoy et al., 2006; Senge et al., 2000). This outcome of transformational leadership also overlaps with the description of a supportive, training-transfer-oriented climate described by Burke and Hutchins (2007).

The construct of transformational leadership began with Burns (1978), who described transformational leadership as a style focused on change and inspiration. Bass (1985) expanded on Burns' ideas and developed the original model of transformational leadership, which included four factors—individualized consideration, intellectual stimulation, inspirational motivation, and idealized influence. Individualized consideration describes the leader's attention to the strengths, growth, and achievement needs of each follower. By demonstrating intellectual stimulation, a transformational leader propels followers toward creativity and innovation. Inspirational motivation refers to the leader's ability to communicate a vision and compel followers to believe in the organization's capacity to achieve. Finally, idealized influence describes perceptions of the leader related to his or her confidence, charismatic appeal, and ethics.

Transformational leadership focuses on innovation and high-level achievement through building trust and inspiring followers (Bass & Avolio, 1994). Transactional leadership, on the other hand, also can be quite effective at producing results among followers, but it accomplishes this by focusing on rewarding achievement and monitoring for mistakes (Bass & Avolio, 1994). Transformational leadership has been described as having an augmentative effect on the outcomes of transactional leadership (Bass, 1998;

Bass & Avolio, 2004). Similar to Leithwood's (1994) connections to first-order and second-order change, Bass (1998) and Bass and Avolio (2004) described effective leaders as demonstrating transformational leadership as a means of solidifying and transforming the outcomes generated through transactional leadership. The lowest style of leadership in Bass and Avolio's (1994) model is passive/avoidant leadership, which is described as uninvolved leadership that focuses on small problems rather than big goals. Research studies spanning the nearly 30 years since its inception generally point toward transformational leadership as a stronger indicator of leader effectiveness and follower satisfaction than transactional leadership (Bass & Avolio, 2004); this trend has been observed in studies of light infantry platoon leaders (Bass & Avolio, 2000), health care center coordinators (Molero & Morales, 1994), school principals (Catanyag, 1995), and bank branch managers (Geyer & Steyrer, 1998), to name a few.

As transformational leadership has gained in popularity as a research construct, it also has evolved. Transformational leadership and its subcomponents now are included in a full range leadership model (Bass, 1998; Bass & Avolio, 2004), which identifies three categories and nine factors from least to most effective leadership: passive/avoidant leadership (with *laissez-faire* and management-by-exception-passive factors); transactional leadership (with factors of contingent-reward, and management-by-exception-active); and transformational leadership (with factors of idealized influence attributed, idealized influence behavior, inspirational motivation, intellectual stimulation, and individualized consideration). These factors are described in greater detail in the following paragraphs.

Passive/avoidant leadership occupies the weak end of the continuum and is considered ineffective; Bass and Avolio (2004) described passive/avoidant leadership as active in the sense that the leader chooses to avoid making decisions and often does not exercise his or her authority. Transactions or exchanges between leader and follower are fundamental to leadership; the laissez-faire factor describes leadership that avoids these transactions and the goal-setting and accountability measures associated with them. The management-by-exception (passive) factor occurs when the leader gets involved only after a problem has arisen or when noncompliance occurs (Bass & Avolio, 2004).

Transactional leadership, by contrast, does engage followers in movement toward goals and objectives, relying on monitoring, rewards, and sanctions as motivational tools (Bass, 1985). Transactional leadership is comprised of two factors: contingent reward leadership and management-by-exception (active) (Bass & Avolio, 2004). Contingent reward leadership is demonstrated when the leader proactively defines follower roles, responsibilities, and goals, and provides rewards contingent on successful job performance. Leader behaviors in the management-by-exception active realm include transactions based on active monitoring and feedback; the leader intervenes as problems arise to ensure that standards are being met (Bass & Avolio, 2004). Transactional leadership generally is considered an effective tool for organizational maintenance, what Leithwood (1994) referred to as first-order change—the implementation of a new technology. However, transactional leadership will not suffice to embed this new technology into the fabric of the organizational culture. Systemic cultural change is dependent upon transformational leadership (Bass & Avolio, 2004; Leithwood, 1994).

Whereas transactional leadership focuses on compliance, transformational leadership focuses on commitment; the leader's role is to cultivate a culture of innovation, and to motivate and inspire followers to take risks and perform at extraordinary levels (Bass & Avolio, 1994). Five factors constitute transformational leadership: idealized influence attributed; idealized influence behavior; inspirational motivation; intellectual stimulation; and individualized consideration (Bass & Avolio, 2004). The first of these factors, idealized influence attributed, is based on followers' perceptions of the leader and the extent to which they view him or her as charismatic, ethical, and powerful. Idealized influence behavior, on the other hand, is demonstrated when the leader's behaviors convey these value-centered, ethical, and charismatic messages. A leader who demonstrates inspirational motivation might be described as a visionary—someone who establishes challenging goals and energizes followers with the belief that these goals are achievable. Intellectual stimulation is expressed when the leader engages followers' intellect in problem solving, creativity, novel solutions, and innovation. Finally, the factor of individualized consideration manifests itself in the leader's human relations skills, as he or she coaches, supports, and attends to the needs of individual followers (Bass & Avolio, 2004). Transformational leadership, then, can be viewed as a tool for catalyzing both individual and organizational change, what Senge (1990) refers to as organizational learning.

To assess leadership using the full range leadership model, Bass and Avolio (2004) developed the Multi-Factor Leadership Questionnaire (MLQ). The current version of this instrument, form 5X, has undergone empirical testing and scholarly

revision, and multiple studies support the validity of its nine factors (Antonakis, Avolio, & Sivasubramaniam, 2003; Bass & Avolio, 2004). A thorough description of the MLQ is provided in the methodology section of this proposal.

Leithwood (1994) has pioneered the study of transformational leadership in the context of schools. In a series of quantitative studies among 289 schools, teachers and administrators were surveyed regarding the extent of transformational school leadership, teachers' commitment to change, organizational learning, and outcomes regarding the success of school restructuring initiatives and student-level outcomes. Path analysis was used to measure the relationships between variables. Transformational leadership was found to have significant direct and indirect effects on the success of school restructuring, on teachers' perceptions of student outcomes, on teachers' personal goals, and on in-school conditions (which, in turn, had strong direct effects on school restructuring and student outcomes). Additionally, transformational leadership had a strong direct effect on organizational learning (Leithwood, 1994).

In addition to the quantitative studies, Leithwood (1994) also employed qualitative methods to investigate the behaviors and practices of transformational school leaders. Purposive sampling focused on teachers and administrators in schools undergoing restructuring and in which the leadership was identified as transformational in the survey results. Data revealed insights regarding transformational leaders' methods of establishing purpose-driven schools, of supporting teachers, of building and reinforcing organizational structures, and of developing collaborative cultures (Leithwood, 1994).

Based on his research, Leithwood (1994) strongly advocated for the application of transformational leadership as a necessary means to achieve successful change in times of reform. However, Leithwood distinguished between transformational leadership in schools and in other organizations. Although the contingent nature of transformational leadership lends itself to varying degrees of application, Leithwood asserted that all components should be implemented; in other words, a leader who narrowly focuses on one factor, such as intellectual stimulation, will fail to reap transformational outcomes. Also, given the professional nature of schools and their general loosely-coupled structure, transactional leadership relates differently to transformational leadership than in other organizations (Leithwood, 1994). Leithwood found transactional leadership to be counterproductive and ineffective in schools, suggesting that the factor of individual consideration more appropriately represents the foundation of transformational leadership.

Barnett and McCormick (2004) found empirical support for this assertion regarding the ineffectiveness of transactional leadership in schools. The researchers randomly selected teachers within a sample of schools in New South Wales, Australia, to participate. Overall, 373 teachers from 41 secondary schools completed surveys regarding their perceptions of their principal's leadership style and their school's learning culture. Using multi-level analysis and structural modeling, Barnett and McCormick determined a direct effect on perceptions of the leader's vision by the leader's demonstration of individual consideration. Additionally, individual consideration, through its relationship with perception of task-focused learning goals, was found to be

related to increased innovation, interest, and excellence in teaching and learning (Barnett & McCormick, 2004).

The contradiction of prior research regarding the effectiveness of transactional leadership derives from the blurry lines between transactional and transformational leadership in the school setting (Leithwood, 1994). In other words, management and leadership often tend to look the same: “Most of the overt practices of transformational leaders look quite managerial. Transformational effects depend on school leaders infusing day-to-day routines with meaning and purpose for themselves and their colleagues” (Leithwood, 1994, p. 515). Contingent reward behaviors and management-by-exception (active) behaviors, in which the leader sets goals, defines roles and responsibilities, gives feedback, and intervenes as needed, are indeed necessary and effective behaviors for school principals; however, the manner in which a transformational leader would exercise these behaviors would cause a follower to perceive them as transformational (individual consideration) rather than transactional (Leithwood, 1994).

The task-focused aspects of instructional leadership described earlier in this chapter (Blase & Blase, 1999; Bredeson & Johansson, 2000; Burke & Hutchins, 2007; Edmonds, 1982; Glickman et al., 1995; Hallinger & Murphy, 1986; Murphy, 1990; Smith & Andrews, 1989) fall within the parameters of transactional leadership, as evidenced by the principal’s direct supervision of curriculum and instruction and reliance on feedback and accountability tactics. This provides context for Leithwood’s (1994) findings regarding the limitations of transactional leadership in school settings. The ambiguous

and complicated nature of school reform renders impossible the task of tightly supervising and controlling behavior in all grades and content areas, thus necessitating leadership through commitment rather than compliance (Leithwood, 1994). Leithwood's vision of transformational leadership in school principals includes a combination of support-focused instructional leadership practices (Blase & Blase, 1999; Bredeson & Johansson, 2000; Burke & Hutchins, 2007; Drago-Severson, 2007; Glickman et al., 1995) implemented in conjunction with task-focused practices.

Marks and Printy (2003), in their study of principals in 24 schools undergoing restructuring, found evidence to support and extend Leithwood's (1994) findings. Marks and Printy's research included eight elementary, eight middle, and eight high schools. The data collection process was extensive: the researchers surveyed 910 teachers, interviewed 25-30 staff members per school, conducted observations of six teachers per school four times each, gathered teacher assessment tasks, analyzed over 5,000 examples of student work, interviewed all principals, and observed the principals during the course of their daily work. Based on these data, measures were derived for pedagogical quality, assessment task quality, academic achievement, principal transformational leadership, and principal shared instructional leadership.

Marks and Printy (2003) identified transformational leadership as a necessary prerequisite for *shared* instructional leadership, which distributes the goals and foci of instructional leadership among the entire school faculty—the principal facilitates teachers' growth by engaging them in “collaborative inquiry” (Marks & Printy, 2003, p. 374) toward instructional improvement and school reform. “Transformational leadership

builds organizational capacity whereas (shared) instructional leadership builds individual and collective competence” (Marks & Printy, 2003, p. 377). Of the principals in Marks and Printy’s purposive sample, none were found to demonstrate shared instructional leadership without also exhibiting transformational leadership. These combined forms of leadership, which the authors dub integrated leadership, were found to yield higher quality pedagogy and higher student achievement than when either or both forms of leadership were absent (Marks & Printy, 2003).

Ultimately Marks and Printy (2003) and Leithwood (1994) arrived at the common conclusion that transformational leadership demonstrated by a school principal will look different than transformational leadership demonstrated by leaders in other organizations. Marks and Printy’s findings related to integrated leadership imply that effective principals do not have the luxury of relying on the strength of the culture and the charisma of their leadership, especially amidst the turbulence of school restructuring. Rather, these principals must demonstrate transformational leadership in the context of their instructional and curricular supervision responsibilities—as Leithwood (1994) asserted: “infusing day-to-day routines with meaning and purpose” (p. 515).

Although researchers such as Barnett and McCormick (2004), Leithwood (1994), and Marks and Printy (2003) have arrived at similar conclusions regarding the effectiveness of transformational leadership in the context of schools, many questions remain unanswered and warrant further research. For example, both Leithwood and Marks and Printy focused their inquiries on schools that had already undergone restructuring or were in the process of restructuring; it is not clear whether their findings

are generalizable to principal leadership in schools undergoing other forms of change less dramatic than restructuring.

Another question arises regarding the ambiguous line between transactional and transformational leadership in the context of the principalship. Although Leithwood (1994) and Barnett and McCormick (2004) found transactional leadership to be ineffective in schools, Leithwood also acknowledged the difficulty in discerning the difference between transactional and transformational leadership given that “most of the overt practices of transformational leaders look quite managerial” (Leithwood, 1994, p. 515). Furthermore, it is possible that different leadership styles are more or less appropriate for different teachers depending on their experience level and on their comfort level with the given reform initiative.

Finally, it should be noted that the relationship between principal leadership style and teacher training transfer is uncertain. Transformational leadership has shown a positive relationship to outcomes such as organizational learning, teacher goals, and the success of restructuring efforts (Leithwood, 1994), as well as pedagogical quality and student achievement (Marks & Printy, 2003). However, no research has studied whether transformational leadership on the part of the principal affects the likelihood of a specific reform initiative to be transferred into classroom practice, or how transformational leadership compares to other leadership styles with regard to teacher training transfer. More research is needed to better understand how the various styles within the full range leadership model (Bass & Avolio, 2004) relate to teacher training transfer.

Summary

Collectively, the literature suggests a positive relationship between principal leadership and teacher training transfer, although the specifics of this relationship are under-researched. Training transfer is affected by three categories of variables: the individual characteristics of the learner, the design and delivery of the intervention, and the influences of the work environment (Baldwin & Ford, 1988; Burke & Hutchins, 2007; Ford & Weissbein, 1997). In a public school setting, these variables manifest themselves in unique ways.

Educational research often includes categorical variables, such as experience level, grade level, and content area, as a means to organize individual learner characteristics. For example, experience level has been found to be a distinguishing variable in terms of teacher attitudes, effectiveness, and perceptions of self-efficacy (Clotfelter et al., 2007; Darling-Hammond, 2000; Huberman, 1989; Tschannen-Moran & Woolfolk Hoy, 2007).

Regarding intervention design and delivery, the literature suggests that teacher professional development should be sustained in length, have organizational coherence, and actively engage participants (Garet et al., 2001; Guskey, 2003; Hawley & Valli, 1999; Pritchard & Marshall, 2002). Additionally, the professional development should emphasize reform-based, or non-traditional, instructional practices (Carpenter et al., 1989; Fishman et al., 2003; Guskey, 2003; Hamilton et al., 2003; Heck et al., 2008; Hill et al., 2005; Jeanpierre et al., 2005; Kennedy, 1998; Mayer, 1998; Stein & Lane, 1996; Supovitz & Turner, 2000; Von Secker, 2002; Wenglinsky, 2002). New teacher induction

programs, which represent a specific category of teacher professional development, should include the above-mentioned design and delivery elements, and also should incorporate comprehensive training and mentoring support that focuses on developing teacher instructional capacity and student achievement (Johnson, 2009; Strong, 2009).

Variables in the category of work environment influences include a strategic link to existing organizational goals; a supportive transfer climate; support from supervisor and peers; opportunities to perform or use the desired knowledge or skills; and accountability for the use of these newly acquired knowledge and skills (Burke & Hutchins, 2007). Although the leader has the potential to influence each of these variables, the role of leadership in promoting training transfer is under-researched (Burke & Hutchins, 2008; Drago-Severson, 2007).

Specifically in schools, the construct of instructional leadership has been promoted as a means for principals to encourage teacher development and student achievement through supervision of curriculum, instruction, and assessment. The literature on instructional leadership has evolved from centering exclusively on task-focused practices (Edmonds, 1982; Hallinger & Murphy, 1986; Murphy, 1990; Smith & Andrews, 1989) to including support-focused practices along with task-focused practices (Blase & Blase, 1999; Bredeson & Johansson, 2000; Drago-Severson, 2007; Glickman et al., 1995). Although very few studies have researched the relationship of principal leadership and teacher learning, the literature suggests that training transfer will be maximized when principals employ a combination of task-focused and support-focused practices.

The continuum of styles within the full range leadership model (Bass & Avolio, 2004) provides useful constructs to understand how a leader demonstrates and prioritizes task- and support-focused behaviors. A principal who demonstrates transactional leadership would engage in behaviors such as goal setting, monitoring, and providing feedback, rewards, and sanctions; transformational leadership would include transactional behaviors in addition to idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration (Bass & Avolio, 2004; Leithwood, 1994; Marks & Printy, 2003). Although Leithwood and Barnett and McCormick (2004) contended that transactional leadership is ineffective in schools, the fact that transactional leadership is foundational to transformational leadership creates ambiguity.

Although the relationship between principal leadership and teacher training transfer has not been studied directly, a synthesis of the literature suggests that teachers' perceptions of principal leadership are related to the work environment variables that affect training transfer, as well as to the likelihood of training transfer occurring (Banilower, Heck, & Weiss, 2007; Barnett & McCormick, 2004; Blase & Blase, 1999; Bredeson & Johansson, 2000; Desimone, 2009; Drago-Severson, 2007; Fullan, 2001a; Heck et al., 2008; Youngs, 2007). The current dissertation sought to explore this relationship to gain insights into whether and how perceived principal leadership style is related to the training transfer of participants in one district's new teacher induction program. An in-depth description of this study's methodology is provided in the following chapter.

CHAPTER 3

METHOD

A mixed-methods design was used to explore the relationship between teacher training transfer, perceived principal leadership style, and other teacher characteristics. The research design is discussed in the current chapter, with attention given to the research context, participants, data-collection instruments, procedures, and data-analysis techniques. The mixed-methods design allowed the researcher to examine quantitative relationships between variables, and to compare these relationships to outcomes of the qualitative analysis.

Although the literature alludes to a relationship between principal leadership and training transfer (Banilower et al., 2007; Barnett & McCormick, 2004; Blase & Blase, 1999; Bredeson & Johansson, 2000; Desimone, 2009; Drago-Severson, 2007; Fullan, 2001a; Heck et al., 2008; Youngs, 2007), these certainly are not the only two variables at play. Rather, training transfer most likely is related to a variety of interacting variables, one of which is leadership. This complexity has limited the research on training transfer in schools. The current dissertation employed three techniques to mitigate this complexity: first, by studying participants from one district's new teacher induction program, potentially confounding variables such as quality of the training, length of training hours, follow-up procedures, length of time working with the given principal, etc., were controlled; second, the main effects and interaction effects of the categorical variables of gender, race/ethnicity, experience level, and grade level were studied in relation to participants' perceptions of their principal's leadership style and their training

transfer score; and third, a grounded theory analysis was conducted to identify themes regarding the actions of principals that impact teacher training transfer.

Context and Participants

The study was conducted with participants from the new teacher induction program in Desert Unified School District (DUSD). DUSD is a mid-sized school district located in a rural and suburban area on the outskirts of a major metropolitan region in the southwestern United States. The district includes 8 elementary schools, 5 middle schools, and 4 high schools, with approximately 9,000 students and 1,200 employees.

Teachers who participated in DUSD's 2008-2009 new teacher induction were recruited as participants in this study. This cohort included 72 teachers who represented a range of grade levels, races and ethnicities, and years of experience, but all of whom were new to DUSD in 2008. The study focused exclusively on participants in the new teacher induction program as a means of controlling for the potential error that could arise from analyzing across different trainings. Burke and Hutchins (2007) have identified the design and delivery of the training as having an impact on training transfer; by controlling for training design and delivery, the researcher eliminated the possibility that it would skew the outcomes. Of the 72 eligible candidates, 62 teachers completed the surveys in a useable manner, resulting in an overall response rate of 86%.

Demographic data were collected from the participants. Of the 62 participants, 54 (87%) were female, and 8 (13%) were male. Regarding race/ethnicity, 52 (84%) identified themselves as White, 6 (10%) as Hispanic, 2 (3%) as American Indian or Alaskan, and 2 (3%) as some other race or ethnicity. The race/ethnicity categories were

collapsed, resulting in 52 (84%) White and 10 (16%) non-White participants. For experience level, 40 (65%) participants had taught for 1-3 years, 8 (13%) had taught for 4-6 years, 10 (16%) had taught for 7-18 years, 2 (3%) had taught for 19-30 years, and 2 (3%) had taught for more than 30 years. When collapsed, these categories resulted in 40 (65%) participants in the novice category (1-3 years of experience), and 22 (35%) participants in the veteran category (4 or more years). In terms of grade levels, 31 participants (50%) taught elementary, 21 (34%) taught middle school, and 10 (16%) taught high school. These categories were collapsed into elementary and secondary, with 31 (50%) in elementary and 31 (50%) in secondary. Regarding subject areas, 29 participants (47%) taught all elementary subjects, 8 (13%) taught a single elementary subject, 6 (10%) taught English, 4 (6%) taught math, 3 (5%) taught science, 1 (1%) taught social studies, and 11 (18%) taught some other subject. Participants included teachers from 7 of the district's 8 elementary schools, 4 of the 5 middle schools, and 3 of the 4 high schools. Table 1 displays the collapsed demographic data.

Table 1

Participant Demographic Information

	Gender		Race/Ethnicity		Experience		Grade Level	
	M	F	Wh	Non-Wh	Nov	Vet	Elem	Sec
<i>n</i>	8	54	52	10	40	22	31	31
%	13%	87%	84%	16%	65%	35%	50%	50%

DUSD's new teacher induction program consists of seven days of training focused on the district's instructional priorities, classroom management expectations, assessment procedures, and culture (Cloud, personal communication, July 27, 2009; see Appendix A for daily agendas of DUSD's new teacher induction). This study focused on participants in DUSD's 2008-2009 new teacher induction cohort, with data collection occurring during their second year in the district (2009-2010). All teachers participated in trainings taught by the same instructors on the same topics, but these trainings occurred on different days to accommodate the large size of the cohort. In addition to the seven core days, elementary teachers participated in two days focused on the district's balanced literacy and balanced math curricular initiatives (Cloud, personal communication, July 27, 2009).

District administrators described DUSD as having a strong culture of high expectations that is reflected in their hiring practices, their staff development programs, and their site and district administration (Cloud, personal communication, July 27, 2009). One manifestation of this culture is the district's emphasis on common instructional practices. Specifically, the Essential Elements of Instruction (EEI) framework is a major focus of new teacher induction (see Appendix A), as well as mentoring and evaluation for new teachers. Within the EEI framework, two fundamental concepts are instructional objectives and active participation (Gentile, 1993); EEI emphasizes several other instructional strategies, as well, but nearly all are predicated on the teacher's ability to teach to a specific and measurable or observable objective and to engage all students in frequent active participation consistently throughout the lesson. In spite of DUSD's

strong culture, variance exists in new teachers' degree of transfer of these instructional skills (Cloud, personal communication, July 27, 2009).

Instruments

Data were gathered using a combination of surveys. The Training Transfer Questionnaire was designed by the researcher to elicit teachers' self-assessments of their implementation of instructional skills, as well as their perceptions of principal behaviors that promoted their training transfer. The Multifactor Leadership Questionnaire (MLQ; Bass & Avolio, 2004) was used to measure teachers' perceptions of their supervising principal's leadership style. Both surveys are described in the current section.

Training Transfer Questionnaire

The TTQ (see Appendix B) was employed to gather demographic information about each participant, to assess the participant's training transfer of the EEI skills of teaching to an objective and eliciting student active participation (learned during new teacher induction), and to inquire about principal behaviors that were conducive to the teacher's implementation of these instructional skills.

The demographic section of the TTQ includes seven items that elicit information regarding the participant's gender, race/ethnicity, grade level, content area, years of experience, and school. Race/ethnicity categories derived from standards established by the U.S. Census Bureau (2008), and the categories of years of teaching experience derived from the stages identified by Huberman (1989). The items in this section allowed the researcher to analyze participants' training transfer scores and perceptions of principal leadership style for differences between demographic groups.

The items used to assess training transfer of instructional skills were designed specifically for the content of DUSD's new teacher induction program. The training transfer items focus on the EEI components of active participation and instructional objectives. Both skills are explicit components of DUSD's new teacher induction (see Appendix A), and are expected outcomes for all participants (Cloud, personal communication, July 27, 2009).

The TTQ also includes items eliciting perceptions of principal behaviors that encouraged training transfer of the instructional skills specific to new teacher induction. The prompts for these items derived from an analysis of literature related to leadership, instructional leadership, and training transfer, and were designed to elicit reporting of principal behaviors from a continuum of leadership behaviors spanning task-driven, directive behaviors to relationship-driven, supportive behaviors (Bass & Avolio, 1994, 2004; Blase & Blase, 1999; Bredeson & Johansson, 2000; Drago-Severson, 2007; Edmonds, 1982; Fiedler, 1967; Glickman et al., 1995; Hallinger & Murphy, 1986; Halpin, 1954; Halpin & Winer, 1952; Hemphill & Coons, 1950; Hersey & Blanchard, 1969; House, 1971; House & Mitchell, 1974; Murphy, 1990; Smith & Andrews, 1989; Yukl, 1981). Nine of the items in this section ask the participant to rate how frequently his or her principal engaged in the given behavior. The final item is open-ended, requesting a description of specific actions taken by the principal that helped or hindered the teacher's implementation of the instructional skills of interest.

All items on the TTQ (except the demographic items) were crafted to elicit an accounting of behaviors, which has been found to yield more valid responses than

judgments of quality or agreement (Desimone & Carlson Le Floch, 2004; Mayer, 1999). Each reporting item includes a Likert-style rating scale from 0 to 4, with 0 representing “Not at all,” and 4 representing “Frequently, if not always.” Multiple items were included for each construct to allow the calculation of a composite score, which also tends to improve validity and reliability (Light et al., 1990; Mayer, 1999). The training transfer section also includes reverse-scored items to enhance validity (Nunnally, 1978).

Validity and Reliability of the TTQ

The TTQ was designed by the researcher and thus had not been subjected to psychometric tests of validity or reliability prior to this study. However, efforts were taken to enhance the validity of the TTQ. In addition to the above-mentioned considerations taken in the design of the items, the instrument was presented to several reviewers for feedback regarding the clarity and construction of the items. The process and nature of the revisions are described in greater detail in the Procedures section of this chapter. The researcher also conducted psychometric analyses to assess the validity and reliability of the TTQ’s results with the current sample of participants. Based on these tests, the researcher made decisions to remove specific items from consideration, and then determined participants’ outcome scores based on the remaining subset of items. These procedures and decisions occurred for the Self-Assessment section and the Principal’s Influence section of the TTQ and are described in the following sub-sections.

Self-Assessment section of the TTQ. The Self-Assessment section consisted of 11 items intended to measure the participants’ use of two skill sets within the EEI framework: teaching to an objective and use of active participation (a thorough

description of these constructs is provided in Chapter 3). To assess construct validity, the researcher conducted principal component analyses on these 11 items, once with oblique rotation (oblimin) and again with orthogonal rotation (varimax). Each principal component analysis (PCA) yielded factor structures that did not match the researcher's conceptual categories of active participation and teaching to an objective. Additionally, 3 of the 11 items demonstrated either negative factor loadings or clustered into a two-item factor. The Kaiser-Meyer-Olkin measure of sampling adequacy resulted in $KMO = .68$, which Field (2009) described as mediocre. Additionally, the researcher measured Cronbach's α to assess the reliability of the factors; each Cronbach's α fell below the acceptable range of .7 or higher (Field, 2009).

Given these results, the researcher eliminated three problematic items. Upon consideration, each of these items could have been perceived ambiguously. Each item is listed below in the exact form it appeared on the TTQ:

SA Item 1: I get responses from students by selecting volunteers.

SA Item 5: I rely primarily on homework and tests/quizzes to know whether my students understood the lesson.

SA Item 7: I assess students by asking questions and calling on individuals.

The response options ranged from *Not at all* to *Frequently, if not always*. These items were reverse-scored by the researcher, indicating an absence of training transfer if the given behavior occurred frequently, if not always. Although these behaviors are not desirable in the extreme, their occasional demonstration does not necessarily show a failure to transfer the given skill. For example, a teacher who has successfully

implemented the skill of active participation occasionally might choose a volunteer with no detrimental effect. The PCAs and the reliability tests indicated the poor validity of these items. These results, coupled with the potential ambiguity described above, led to the elimination of these three items in determining participants' training transfer scores.

Given the lack of evidence for a multi-factor solution, two additional tests were conducted: a parallel analysis and Velicer's minimum average partial (MAP) test, both recommended by O'Connor (2000) as superior to the eigenvalues-greater-than-one rule in identifying how many factors to retain. Velicer's MAP test identified only a single factor. Additionally, only one of the eigenvalues in the parallel analysis was greater than the eigenvalue for a corresponding factor in a randomly generated data set with no underlying factors. Table 2 shows these results. The results of Velicer's MAP test and the parallel analysis suggested a single-factor solution.

Table 2

Parallel Analysis Results

	Eigenvalues	
	Two-factor solution	Random data
First factor	2.86	1.80
Second factor	1.48	1.49

A one-factor solution was tested on the remaining eight items. Table 3 displays the results. The KMO measure of sampling adequacy yielded $KMO = .73$, good according to Field (2009), and Bartlett's test yielded $\chi^2(28) = 99.45$, $p < .001$, suggesting the appropriateness of a PCA. The one-factor eigenvalue was 2.86, which accounted for 35.70% of the variance. Individual factor loadings were above .4, the cutoff established by Stevens (as cited in Field, 2009). Cronbach's α was acceptable (Field, 2009), $\alpha = .71$.

Table 3

Summary of Results: One-Factor PCA of Self-Assessment Items on TTQ

Item	Factor loading
SA_11 (Use of EEI)	.72
SA_6 (Cognitive learning activities)	.71
SA_4 (Connect to past experiences)	.63
SA_3 (Active engagement)	.58
SA_8 (Summarize at end)	.58
SA_9 (Choose to not participate)	.52
SA_2 (Specific learning objectives)	.50
SA_10 (Check re. objectives)	.49
Eigenvalue of single factor	2.86
% of variance	35.70
Cronbach's α	.71

Principal's Influence section of the TTQ. The Principal's Influence section of the TTQ also was used to gather perception data. Although the results from this section were used for qualitative rather than quantitative analysis, the researcher still analyzed the validity and reliability of the items. Table 4 summarizes the results of the PCA and reliability tests for these nine items.

Table 4

Summary of Results: One-Factor PCA of Principal's Influence Items on TTQ

Item	Factor loading
PI_8 (Belief that EEI enhances growth/goals)	.92
PI_5 (Talked to me about implementation)	.91
PI_7 (Gave feedback about implementation)	.90
PI_6 (Valued and supported EEI)	.86
PI_11 (Gave specific suggestions for improvement)	.85
PI_3 (Encouraged and praised my implementation)	.85
PI_4 (Encouraged experimentation with EEI)	.85
PI_9 (Supervised/evaluated my teaching)	.84
PI_10 (Supported collaboration opportunities)	.61
Eigenvalue of single factor	6.44
% of variance	71.60
Cronbach's α	.95

A PCA was conducted to examine the relationship of the nine items, with a clear one-factor solution emerging. The KMO measure verified the sampling adequacy as $KMO = .89$, approaching the “superb” range of .9 and above identified by Field (2009, p. 659). Bartlett’s test of sphericity resulted in $\chi^2(36) = 512.89, p < .001$, which suggests sufficient correlations between items. The eigenvalue for the single factor was 6.44, and this accounted for 71.60 % of the variance. All factor loadings were greater than .6, well above the bottom threshold of .4 suggested by Field (2009). The reliability test resulted in Cronbach’s $\alpha = .95$, which indicates good reliability of this section of the TTQ.

Multifactor Leadership Questionnaire

Participants also completed the Multifactor Leadership Questionnaire (MLQ) Form 5x-Short (Bass & Avolio, 2004) (five sample items from the MLQ are displayed in Appendix D). The MLQ was employed to gather data regarding teachers’ perception of principal leadership style. The MLQ consists of 45 descriptive statements, each of which is to be rated on a scale of zero to four regarding how frequently the statement describes the leader. A score of zero implies “Not at all,” and a score of four implies “Frequently, if not always.” Participants’ responses were used to calculate mean scores for passive/avoidant (PA), transactional (TA), and transformational leadership (TF), and to determine each principal’s leadership profile based on these mean scores. This process is described in greater detail in the “Data Analysis” section of this chapter.

The MLQ 5x-short employs nine factors that cluster into three leadership styles: the PA style consists of the laissez-faire (LF) and management-by-exception-passive (MBEP) factors; the TA style consists of the management-by-exception-active (MBEA)

and contingent reward (CR) factors; and the TF style consists of the factors of individualized consideration (IC), intellectual stimulation (IS), inspirational motivation (IM), idealized influence behavior (IIB), and idealized influence attributed (IIA). Bass and Avolio (2004) tested this nine-factor solution against other factor structures. Some problematic inter-correlations between factors were eliminated, resulting in a stable and replicable factor structure (Bass & Avolio, 2004). Drawing from large normative databases from 1999 and 2003, Bass and Avolio conducted extensive tests to validate and cross-validate the MLQ; they stated: “Reliabilities for the total items and for each leadership factor scale ranged from .74 to .94. All of the scales’ reliabilities were generally high, exceeding standard cutoffs for internal consistency recommended in the literature” (2004, p. 48). Additionally, Bass and Avolio described the MLQ’s consistency in diverse samples and settings.

For the current study, the researcher analyzed the MLQ’s (Bass & Avolio, 2004) reliability with data collected with the participants from DUSD by testing each factor using Cronbach’s α . All factors had relatively high reliabilities of $\alpha = .7$ or greater, with the exception of the LF factor ($\alpha = .62$) and the MBEA factor ($\alpha = .58$). Table 5 displays Cronbach’s α for each of the factors on the MLQ. Overall, the MLQ’s reliability was acceptable. Although the reliabilities for LF and MBEA are lower than desired, it is important to consider the nature of the instrument; as a device attempting to measure a psychological construct (leadership style), the MLQ can be expected to have lower reliability than an instrument measuring ability or frequency of behavior (Field, 2009).

Table 5

Reliability of MLQ factors

Factor	Cronbach's α
Laissez-Faire	.62
Management-by-Exception (Passive)	.70
Management-by-Exception (Active)	.58
Contingent Reward	.88
Individualized Consideration	.75
Intellectual Stimulation	.80
Inspirational Motivation	.89
Idealized Influence (Behavior)	.80
Idealized Influence (Attributed)	.83

Procedures

Prior to gathering the data, the researcher purchased the rights to use the MLQ instrument from MindGarden, Inc. The permission form is provided in Appendix C. The researcher also acquired a letter of approval to conduct research from DUSD's administration (see Appendix F). Additionally, the researcher received approval from the Human Subjects Protection Program at the University of Arizona (see Appendix G).

The research procedures began with the development of the TTQ, which entailed several steps. The initial construction of the instrument was based on the researcher's

own experience with the constructs of active participation and instructional outcomes as well as a consultation of the literature on these topics (Danielson, 2007; Dembo, 1991; Gentile, 1993; Glaser, 1984; Hunter, 1967, 1982; Mager, 1962; Piaget, 1970; Saphier et al., 2008). A pilot study conducted by the researcher in the spring of 2009 employed an earlier version of the TTQ. Results from this pilot study led to refinements in the instrument, including a narrowed focus on the constructs being measured and improved design of the items. Additionally, literature regarding survey design further informed the revision of the TTQ. All items were crafted to elicit an accounting of behaviors, which tends to yield more valid responses than judgments of quality or agreement (Desimone & Carlson Le Floch, 2004; Mayer, 1999). Also, multiple items were included for each construct to allow the calculation of a composite score, which also tends to yield better validity and reliability (Light et al., 1990; Mayer, 1999).

Once a draft of the TTQ was developed, the researcher elicited feedback from several sources to enhance the validity of the instrument. A public school administrator with experience in educational survey design and in the instructional constructs of interest provided clarification and helped the researcher reduce the overall items. A university professor and researcher also provided clarifying feedback. The researcher then consulted with the director of professional development from DUSD to ensure congruence with the district's instructional expectations for its new teachers. A draft of the TTQ was emailed to the director, who responded with written feedback to help make the language of the instrument more comprehensible for DUSD's new teachers. The

researcher revised the TTQ, emailed the updated version, and then consulted with the director in a telephone conversation to elicit additional feedback.

The researcher then administered the TTQ to a focus group of six teachers. These six respondents derived from the researcher's own school district and, like the anticipated participants from DUSD, were second-year teachers who had participated in new teacher induction the previous year. Their induction program shares a similar instructional focus with DUSD's new teacher induction. Two high school teachers, two middle school teachers, and two elementary teachers participated in this focus group. The researcher directed the respondents to highlight any words, phrases, or items that were confusing or unclear while they were completing the TTQ. After all respondents had finished, the researcher elicited feedback for each item. If an individual had highlighted a word or passage, she was asked to think out loud about the interpreted meaning. The researcher then explained the intended meaning, and the group offered suggestions to improve the clarity.

The researcher collected these respondents' completed TTQs and calculated a training transfer score for each teacher. The researcher had prior knowledge of each teacher's implementation of the instructional skills of interest derived from classroom observations in their first year. Based on this prior knowledge, the researcher categorized each participant as either a strong, moderate, or weak implementer. The TTQ results were weighed against these categories to see if the scores distinguished similarly. Discrepancies tended to occur with the items related to classroom management, which were later eliminated based on feedback from the researcher's doctoral committee.

Review by the doctoral committee initiated the final phase of revisions to the TTQ. The committee provided feedback regarding formatting, clarity of wording, and constructs to be measured. Based on the committee's advice, the researcher eliminated items related to classroom management, and narrowed the focus to the instructional skills of active participation and teaching to an objective.

To gather the data, the researcher met with all potential participants following a district-sponsored professional development session on January 27, 2010, and provided them with disclosure materials (see Appendix H), the TTQ, and the MLQ (Bass & Avolio, 2004). The researcher emphasized the voluntary nature of participation in the study, as well as the anonymity of the results. Candy bars were provided to all candidates as a token of appreciation for their time, regardless of whether they actually completed the surveys. Each candidate was asked to place the surveys in an envelope, regardless of whether they were completed, and to place the envelope in a box prior to leaving. The researcher left the room after explaining the directions. Sixty-two participants completed useable surveys (59 participants completed surveys during the meeting, and 3 mailed their surveys to the researcher at a later time).

Data Analysis

The data were analyzed in phases, with the quantitative analyses preceding the qualitative analysis. All quantitative data were entered into the statistical software package SPSS GradPack 17.0. Four of the items on the TTQ required reverse-scoring (1, 5, 7, and 9 in the Self-Assessment section), and the researcher adjusted all participants' scores for these four items accordingly (a score of "0" was entered as "4," "1" was

entered as “3,” “2” remained “2,” “3” was entered as “1,” and “4” was entered as “0”). Any cell with a missing value was excluded from contributing to the composite score.

The researcher analyzed the resulting data for the TTQ to assess the instrument’s validity and reliability. Several principal component analyses were conducted to identify the most appropriate factor structure that yielded the greatest reliability in terms of Cronbach’s α . Based on the results, the researcher eliminated three problematic items from the “Self-Assessment” section of the TTQ (1, 5, and 7). All nine Likert-style items in the Principal’s Influence section of the TTQ remained intact. All psychometric analyses of both sections of the TTQ are described in detail in an earlier section of this chapter.

The researcher computed each participant’s composite training transfer score on the TTQ by finding the mean of the remaining eight “Self-Assessment” items. Also, each participants’ Principal’s Influence score was calculated by finding the mean of the nine items in this section of the TTQ.

Scoring the MLQ

The results of the MLQ (Bass & Avolio, 2004) were used to determine each participant’s perception of her principal’s leadership profile (which can be described as the balance of the principal’s use of passive/avoidant, transactional, and transformational styles). The researcher first calculated mean scores for each of the nine leadership factors (laissez-faire: LF; management-by-exception-passive: MBEP; management-by-exception-active: MBEA; contingent reward: CW; individualized consideration: IC; intellectual stimulation: IS; inspirational motivation: IM; idealized influence behavior:

IIB; and idealized influence attributed: IIA) in the full range model (the Scoring Key in Appendix E provides a breakdown of which items correspond with each leadership style). These mean scores reflect each participant's perception of her principal's frequency of use of the given factor.

Based on these mean scores for each factor, the researcher determined a mean composite score for the principal in each leadership style (passive/avoidant: PA; transactional: TA; and transformational: TF), as perceived by the respective participant. Table 6 provides an example of the process by which mean factor scores were used to find the mean composite score for each style. The PA score represents the average of the LF and MBEP factors, the TA score represents the average of the MBEA and CR factors, and the TF score represents the average of the IC, IS, IM, IIB, and IIA factors. This process was repeated for each set of scores provided by participants.

Table 6

Example Composite Leadership Style Scores

	LF	MBEP	MBEA	CR	IC	IS	IM	IIB	IIA
Mean Factor Score	0.25	0.00	2.50	4.00	2.75	3.75	4.00	4.00	4.00
Composite Leadership Style Score	PA Score = 0.13		TA Score = 3.25		TF Score = 3.70				

Next, the composite scores for each leadership style were categorized as low, medium, or high, based on the researcher's conceptual interpretation of the five-point Likert scale established on the MLQ (Bass & Avolio, 2004). The researcher classified scores equal to or below 1.0 as low, scores between 1.1 and 2.9 as medium, and scores equal to or above 3.0 as high. Figure 2 illustrates these criteria, along with the original categories of response options directly from the MLQ.

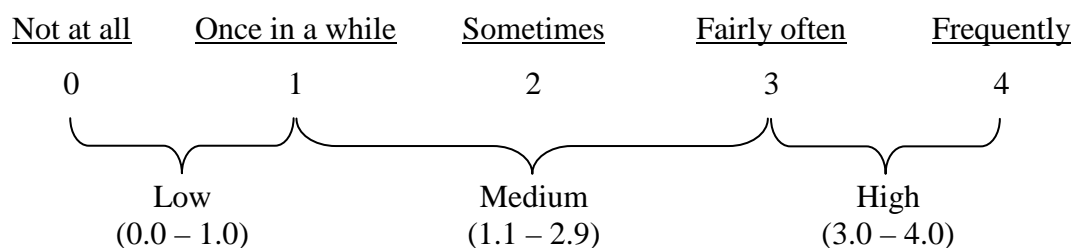


Figure 2. Criteria used to categorize the principal's composite leadership style scores

These composite scores then were used to determine the principal's leadership profile, which portrays whether the principal was perceived as low, medium, or high for PA, TA, and TF styles. Using the example composite scores from Table 6 with the criteria in Figure 2, this principal's leadership profile would be Low-PA/High-TA/High-TF. In other words, this participant perceived this principal as demonstrating a low level of passive/avoidant behavior, a high level of transactional behavior, and a high level of transformational behavior. This process was repeated to determine the leadership profile that each participant perceived for her principal. Table 7 displays the seven leadership profiles that resulted. From these seven profiles, the researcher identified three super-ordinate profiles into which 59 of the 62 principals could be categorized. These super-

ordinate profiles derived from the principal's score as either medium or high for TA and medium or high for TF. Table 7 also displays these super-ordinate profiles and the original profiles from which they derived. It should be noted that three participants scored their principals much differently than all other participants; these were the only respondents to rate their principals as low for TF leadership. These three participants' responses were excluded from further analysis; justification of this decision is provided in the following paragraph.

Table 7

Leadership Profiles

Original profiles				<i>n</i>	Super-ordinate profiles		<i>n</i>
Low-PA	High-TA	High-TF	7	High-TA/High-TF	11		
Medium-PA	High-TA	High-TF	4				
Low-PA	Medium-TA	High-TF	21	Medium-TA/High-TF	30		
Medium-PA	Medium-TA	High-TF	9				
Low-PA	Medium-TA	Medium-TF	6	Medium-TA/Medium-TF	18		
Medium-PA	Medium-TA	Medium-TF	12				
Medium-PA	Medium-TA	Low-TF	3				

As evidenced by Table 7, 59 (95%) of the 62 participants perceived their principal as demonstrating one of three super-ordinate leadership profiles: medium for both transactional and transformational leadership; medium for transactional and high for transformational; or high for both transactional and transformational leadership. The three participants who were excluded from further analysis were outliers in terms of their perceptions of their principals' transformational leadership. The mean composite TF score perceived by these three outliers was .64, compared to the mean composite TF score of 2.31 for the next lowest group, the Medium-TA/Medium-TF group. An independent samples *t*-test showed the outliers' mean perceived TF score was significantly less than that of the Medium-TA/Medium-TF group, $t(19) = -6.04, p < .001$.

It is possible that these three Low-TF outliers represented a separate category. However, there simply were too few members of this group for their scores to be analyzed in relation to the members of the three other super-ordinate profiles for this study's research questions. Prior to excluding them, the researcher examined these outliers' data for other trends. The three outliers all were White, novice, female teachers who taught at the same elementary school. Five other participants also taught at this same school; these participants also were novice female teachers, although two were Non-White and three were White.

In comparison to the other teachers from their same school, the outliers differed mainly in their perceptions of their principal's transformational (TF) leadership. An independent samples *t*-test showed the outliers' perceived TF scores ($M = .64, SD = .07$) were significantly lower than those of the other five participants from their school ($M =$

2.82, $SD = .54$), $t(6) = -6.72$, $p = .001$. However, when their scores for perceived passive/avoidant (PA) leadership and perceived transactional (TA) leadership were compared (also using independent samples t -tests), no significant differences were found between the outliers and the other participants from their school. Furthermore, the outliers' training transfer (TT) scores ($M = 3.33$, $SD = .38$) were not significantly different from the other participants from their same school ($M = 3.50$, $SD = .20$), $t(6) = -.84$, $p = .44$. In other words, the outliers scored themselves about the same as the other teachers at their school in terms of their training transfer, and they perceived their principal about the same in terms of passive/avoidant and transactional leadership behaviors, but they perceived their principal much lower in terms of transformational leadership behaviors.

The only other difference of interest was the outliers' indication that the person who most directly supervised their teaching was a person other than their principal. It is possible that their perceptions were directed at this other supervisor rather than their principal, which could explain why their perceptions of transformational leadership were lower. Only one of the three outliers provided any written comments, but it was unclear whether she was referring to her principal or a surrogate. Regardless, the outliers' TF scores were too low for inclusion in any of the other three categories; this, coupled with the small size of their group, led the researcher to exclude them from further analysis. Consequently, the three research questions were analyzed using the data from the 59 remaining participants in the Medium-TA/Medium-TF group, Medium-TA/High-TF group, and High-TA/High-TF group.

Preliminary Analyses

The researcher examined the normality of the distribution of training transfer (TT) scores within each group of interest (High-TA/High-TF, Medium-TA/High-TF, and Medium-TA/Medium-TF) using the Kolmogorov-Smirnov (K-S) test in SPSS. Levene's test was used to assess homogeneity of variance. The TT scores of the High-TA/High-TF group were approximately normally distributed, with $D(11) = .23, p = .10$. The distribution of TT scores within the Medium-TA/High-TF group also was approximately normal, $D(30) = .15, p = .11$. The distribution of TT scores in the Medium-TA/Medium-TF group was significantly non-normal, $D(18) = .21, p = .04$. These three groups shared equal variances, however, with the results of Levene's test indicating $F(2, 56) = .63, p = .54$.

Analysis of Research Questions

All quantitative research questions were analyzed with a significance level of $p < .05$. The researcher employed a comparison technique using both parametric and non-parametric tests to examine the first research question regarding the relationship of teacher training transfer to perceived principal leadership style. The non-normal distribution of one of the comparison groups suggests non-parametric tests should be used. However, because no factorial non-parametric tests are available, and the second research question requires factorial analysis, the researcher conducted both parametric and non-parametric tests for the first research question simply to compare outcomes and justify the use of parametric tests for the second research question. The tests for each research question are described in greater detail in the following sub-sections.

Research question 1. The first research question asks whether a relationship exists between teacher training transfer (TT) and perception of principal leadership style (High-TA/High-TF, Medium-TA/High-TF, and Medium-TA/Medium-TF). As mentioned in the previous section, both parametric and non-parametric tests were used to explore this question due to the non-normal distribution of the Medium-TA/Medium-TF scores. The parametric test employed a one-way ANOVA to examine for significant differences in mean TT scores among the three groups. Hochberg's GT2 test was used for the post-hoc analysis given its ability to compare different sample sizes (Field, 2009). Partial eta squared (partial η^2) was used to calculate effect sizes for significant relationships, with effects of .2 and above considered large for this test, .1 to .19 considered medium, and .09 and below considered small (Cohen, 1969). The researcher then used the non-parametric Kruskal-Wallis test to assess for significant difference in mean ranks between the three levels of perceived principal leadership style.

Research question 2. The second research question asked whether demographic conditions interacted with the relationship between teachers' TT scores and their perception of principal leadership style. The researcher conducted independent factorial ANOVAs, with post-hoc comparisons analyzed using Hochberg's GT2 test. Although these are parametric tests, the researcher chose these methods because no non-parametric equivalents exist. Additionally, for the first research question, the parametric and non-parametric tests yielded comparable results. Furthermore, Field (2009) described these tests as relatively robust regarding violations of the assumption of normality, and only one of the distributions of interest was found to be non-normal. Partial η^2 was used to

calculate effect sizes for significant relationships, with effects of .2 and above considered large for this test, .1 to .19 considered medium, and .09 and below considered small (Cohen, 1969).

Research question 3. The third research question focused on what principals do to promote training transfer. This phase of the data analysis consisted primarily of a qualitative exploration for themes regarding the actions of principals that impact teacher training transfer. Data derived from participants' responses to the Principal's Influence (PI) section of the Training Transfer Questionnaire (TTQ). The PI section included eight items that described specific principal behaviors and asked participants to rate how frequently their principal demonstrated the given behavior on a scale from 0 (Not at all) to 4 (Frequently, if not always). For example, Item 8 stated: "My principal expressed the belief that EEI would enhance my professional growth and our school-wide goals" (see Appendix B for the complete list of PI items). The final PI item elicited a written response from participants; this item stated: "Please describe specific actions taken by your principal that helped or hindered your implementation of EEI." The researcher analyzed responses to the eight Likert-style items and the final written-response item for themes regarding principal behaviors that promoted the training transfer of participants with the highest training transfer (TT) score.

This analysis began with the identification of a sub-group of participants whose composite TT scores were significantly higher than the rest of the sample. Specifically, the qualitative analysis focused on participants who scored 3.63 or higher on the self-assessment section of the TTQ. The 19 members of this High-TT group represented the

80th percentile and above of TT scores. An independent samples *t*-test indicated a statistically significant positive difference in their scores ($M = 3.72$, $SE = .02$) in comparison to the 40 participants in the rest of the sample ($M = 3.06$, $SE = .06$), with $t(57) = 6.93$, $p < .001$.

Of the 19 participants in the High-TT group, 14 provided written responses to PI Item 12. Their responses ranged in length from two words to 49 words, with an average of 26 words. This group consisted of 18 females and one male, 14 White participants and five Non-White participants, 13 novices and six veterans, and 12 elementary participants and seven secondary participants. Regarding the conditions of their supervision, 16 participants were supervised most directly by their principal, two by an assistant principal, and one by some other supervisor. In response to the question of who initiated contact more often, three identified themselves, six identified their principal, and 10 said they shared equal responsibility between themselves and their principal for initiating contact.

For comparison, 22 of the 40 participants in the Lower-TT group provided written responses to PI Item 12, with responses ranging from four words to 153 words, and an average length of 27 words. Demographically, the Lower-TT group consisted of 33 females and seven males, 35 White participants and five Non-White participants, 24 novices and 16 veterans, and 16 elementary participants and 24 secondary participants. In terms of their supervision, 27 were supervised by their principal, 11 by their assistant principal, and two by some other supervisor. Additionally, two participants identified

themselves as having initiated contact more often, 16 identified their principal, and 22 said they shared equal responsibility with their principal for initiating contact.

Chi-square tests were used to analyze for significant differences in the demographic make-up of the High-TT group in comparison to the Lower-TT group. Chi-square tests also were used to analyze for differences between the two groups in terms of the conditions of their supervision (who most directly supervised them, and who initiated contact more often). Additionally, a chi-square test was used to analyze for differences between the High- and Lower-TT groups in terms of their perceptions of their principals' leadership styles. (Note: Pearson's chi-square was used in all cases except those in which expected frequencies in any category were less than 5; the likelihood ratio statistic was used in these cases). An alpha of $p < .05$ was established for all tests.

The researcher also conducted an independent samples *t*-test to compare the mean Principal's Influence (PI) score of this High-TT group to the mean PI score of the rest of the cohort, again with $p < .05$. Finally, the High-TT group members' written responses on the open-ended item from the TTQ, and their frequency ratings of various principal actions, were analyzed using grounded theory procedures (Corbin & Strauss, 1990). To accomplish this, the researcher typed all written comments (from PI Item 12) into a Microsoft Excel 2007 database. Longer comments were broken into separate statements. These statements were grouped according to conceptual themes, and themes were grouped into overarching categories. The researcher also incorporated participants' responses for the Likert-style items (PI Item 3 through Item 11) that received a score of 3 (Fairly often) or 4 (Frequently, if not always) into the themes and categories. Themes

and categories were tested and revised as each new piece of data was analyzed. The process yielded two categories of principal behaviors that promoted training transfer, with two themes in each category.

Limitations

1. The TTQ was created by the researcher expressly for the proposed study. Efforts were taken to enhance the validity and reliability of this instrument, including a previous pilot study, several sources of feedback, a pilot of the revised instrument with six teachers, and exploratory factor analysis and reliability testing. The researcher developed the TTQ out of necessity; because training transfer outcomes depend on the specific training, no universal assessments of training transfer exist.
2. Participants derived entirely from one school district's new teacher induction program. Although this allowed for control of potentially confounding variables, it also limited generalizability.
3. The relatively small sample size of 62 participants limits statistical power. However, the researcher decided against recruiting participants from other districts because of error that could derive from confounding variables associated with training design and delivery and district-level culture.
4. Perception data were used to assess principal leadership style and participants' training transfer outcomes; although the intent of the study was to examine the relationship between these perceptions, the validity of the findings depends upon honest and accurate responses from participants.

Summary

This dissertation focused on the relationship between teacher training transfer, principal behaviors, and perceived principal leadership style, among participants in one district's new teacher induction program. The limitations of the research context, including the small sample size and limited generalizability, may be outweighed by the ability to control for confounding variables. The mixed-methods design allowed the researcher to understand whether certain leadership styles were more strongly related to the training transfer of these teachers, and to identify principal behaviors that they perceived as conducive to their training transfer. The results of the data analysis are provided in the fourth chapter, and this dissertation concludes with a discussion of the findings and implications for educational leaders and future researchers.

CHAPTER 4

DATA ANALYSIS AND RESULTS

The intent of this study was to examine the relationship between teacher training transfer and perceived principal leadership style. Specifically, the researcher intended to examine teachers' self-reported training transfer scores on the Training Transfer Questionnaire (TTQ) for differences according to their perceptions of their principals' leadership style as measured with the Multifactor Leadership Questionnaire (MLQ) (Bass & Avolio, 2004), as well as to examine these differences based on the demographic variables of gender, race/ethnicity, experience level, and grade level. The final purpose was to identify themes among the teachers with the highest training transfer in terms of their descriptions of principal behaviors that influenced their skill acquisition. This chapter presents the results of the data analysis, with each research question addressed independently.

Research Question 1

The first research question was stated as follows: What is the relationship between teachers' self-reported training transfer (TT) scores and teachers' perceptions of their principal's leadership style? The null hypothesis states that there is no statistically significant difference in TT scores between teachers who perceive their principal as passive/avoidant (PA), transactional (TA), or transformational (TF) on the Multifactor Leadership Questionnaire (MLQ; Bass & Avolio, 2004). Stated more specifically, the null hypothesis specifies that there will be no statistically significant difference in TT scores between teachers who perceive their principal as High-TA/High-TF, Medium-

TA/High-TF, or Medium-TA/Medium-TF. The significance level of $p < .05$ was chosen for all analyses. K-S tests indicated a non-normal distribution of TT scores for the Medium-TA/Medium-TF group, although the other two groups' TT scores were normally distributed, and Levene's test indicated homogeneity of variance. Consequently, the researcher conducted non-parametric and parametric tests to examine the differences in TT scores among the three groups.

Non-parametric Analysis regarding Leadership Style

Given the non-normality of the distribution of TT scores in the Medium-TA/Medium-TF group, the researcher first conducted a Kruskal-Wallis test to compare mean ranks of the TT scores of teachers grouped by their perception of their principals' leadership styles. Table 8 displays these mean ranks. No significant differences in mean ranks resulted, $H(2) = 2.40$, $p = .30$. Thus, the null hypothesis was retained.

Table 8

Mean Ranks of TT Scores Grouped by Principal Leadership Style

Dominant principal leadership style	<i>n</i>	Mean rank
High-TA/High-TF	11	36.82
Medium-TA/High-TF	30	29.38
Medium-TA/Medium-TF	18	26.86

Parametric Analysis regarding Leadership Style

For the sake of comparison and to justify parametric analyses with the second research question, the researcher also conducted a parametric analysis of the differences between TT scores grouped by perception of principal leadership style. This analysis was conducted using a one-way ANOVA, with partial eta squared (partial η^2) used to measure effect size. Table 9 shows the mean scores and standard deviations of each group of teachers, and Figure 3 displays a graph of these means. No significant differences were found between the mean TT scores of teachers who perceived High-TA/High-TF style, Medium-TA/High-TF style, or Medium-TA/Medium-TF style, with $F(2, 56) = .71, p = .50$, partial $\eta^2 = .03$.

Like the non-parametric analysis, this test also resulted in retention of the null hypothesis. It should be noted that both the Kruskal-Wallis test and the one-way ANOVA yielded comparable results.

Table 9

Means and Standard Deviations of TT Scores Grouped by Principal Leadership Style

Principal leadership style	<i>N</i>	<i>M</i>	<i>SD</i>
High-TA/High-TF	11	3.42	.42
Medium-TA/High-TF	30	3.25	.50
Medium-TA/Medium-TF	18	3.22	.38

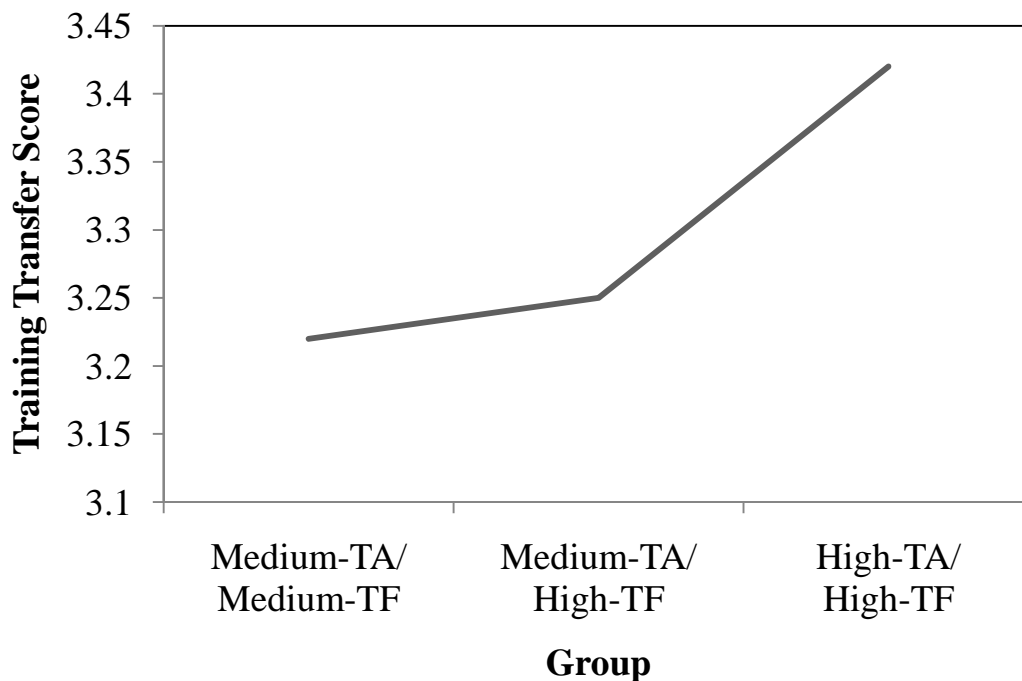


Figure 3. Mean TT scores based on perceived principal leadership style

Research Question 2

The second research question sought to determine whether certain demographic variables interacted with the relationship between teachers' training transfer and their perceptions of principal leadership style. Specifically, the researcher focused on the variables of gender, race/ethnicity, experience, and grade level taught. The null hypothesis is that there are no statistically significant effects between any categorical variables on the relationship between teachers' training transfer scores and their perception of their principal's leadership style.

All analyses were conducted using independent factorial ANOVAs, with post-hoc comparisons analyzed using Hochberg's GT2 test. Although these are parametric tests,

the researcher chose these methods because no non-parametric equivalents exist. Additionally, for the first research question, the parametric and non-parametric tests yielded comparable results. Furthermore, although one of the comparison groups demonstrated a non-normal distribution, Field (2009) has described these tests as relatively robust regarding violations of the assumption of normality. Partial eta squared (partial η^2) was used to calculate effect sizes for significant relationships, with effects of .2 and above considered large for this test, .1 to .19 considered medium, and .09 and below considered small (Cohen, 1969). All tests were analyzed at a significance level of $p < .05$.

Gender, Leadership Style, and TT Score

The cohort included 51 females and 8 males. The mean score of female participants ($M = 3.33$, $SD = .41$) was significantly higher than the mean score of male participants ($M = 2.91$, $SD = .60$), with the main effect of gender on TT score, $F(1, 53) = 7.44$, $p = .01$, partial $\eta^2 = .12$ (a medium effect size). The relationship between perceived leadership style and TT score was not significant, $F(2, 53) = .94$, $p = .40$, partial $\eta^2 = .03$. Additionally, the interaction effect between gender and perceived leadership style on TT score also was non-significant, $F(2, 53) = 3.00$, $p = .06$, partial $\eta^2 = .10$ (a medium effect size). Although the null hypothesis was retained, the effect size indicates a trend in the interaction between gender and perceived leadership style. Females who perceived high transactional and transformational leadership tended to demonstrate higher TT scores than males who perceived these leadership styles. Table 10 summarizes these ANOVA results, and Figure 4 displays the graph of males' and females' TT scores.

Table 10

ANOVA Table: TT Scores Grouped by Gender and Leadership Style

Source	<i>df</i>	<i>F</i>	partial η^2	<i>p</i>
Between subjects				
Gender (G)	1	7.44*	.12	.01
Leadership Style (LS)	2	0.94	.03	.40
G x LS	2	3.00	.10	.06
Error	53			

* $p < .05$.

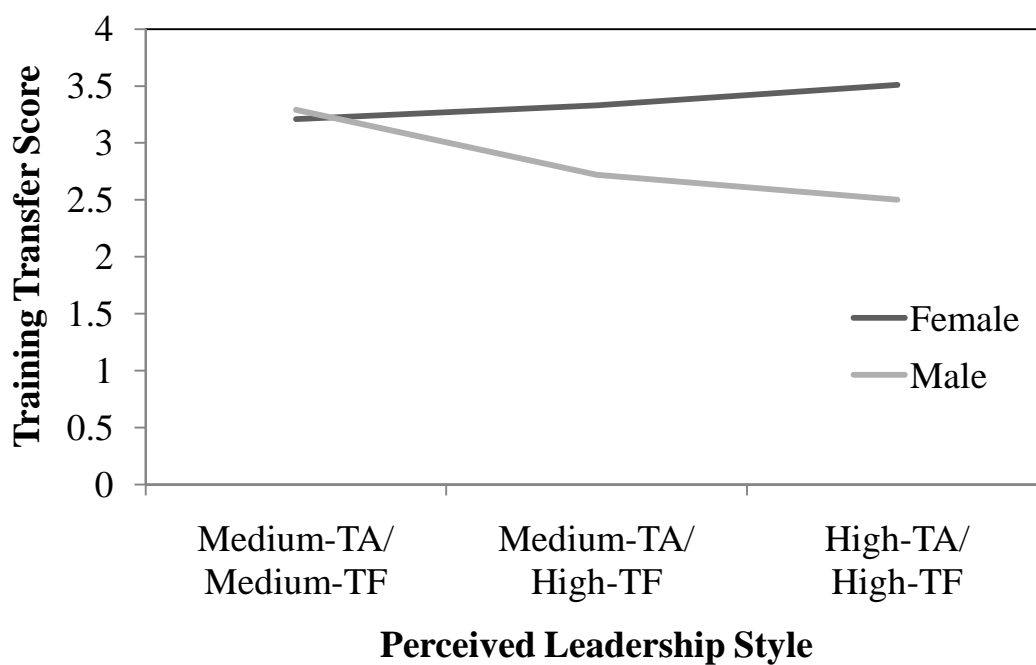


Figure 4. Mean TT scores grouped by gender and principal leadership style

Race/ethnicity, Leadership Style, and TT Score

The categories for race/ethnicity were defined as White ($n = 49$) and Non-White ($n = 10$). Although the mean TT score of Non-White participants ($M = 3.49$, $SD = .48$) was higher than White participants ($M = 3.23$, $SD = .44$), this difference was not significant, $F(1, 53) = 3.26$, $p = .08$, partial $\eta^2 = .06$. The main effect of perceived leadership style on TT score also was non-significant, $F(2, 53) = 1.66$, $p = .20$, partial $\eta^2 = .06$. Additionally, the interaction effect between race and perceived leadership style on TT score also was non-significant, $F(2, 53) = 1.73$, $p = .19$, partial $\eta^2 = .06$. Thus, the null hypothesis was retained. Table 11 displays these results, and Figure 5 provides a graph of mean TT scores grouped by race/ethnicity and perceived leadership style.

Table 11

ANOVA Table: TT Scores Grouped by Race/ethnicity and Leadership Style

Source	<i>df</i>	<i>F</i>	partial η^2	<i>p</i>
Between subjects				
Race/ethnicity (R)	1	3.26	.06	.08
Leadership Style (LS)	2	1.66	.06	.20
R x LS	2	1.73	.06	.19
Error	53			

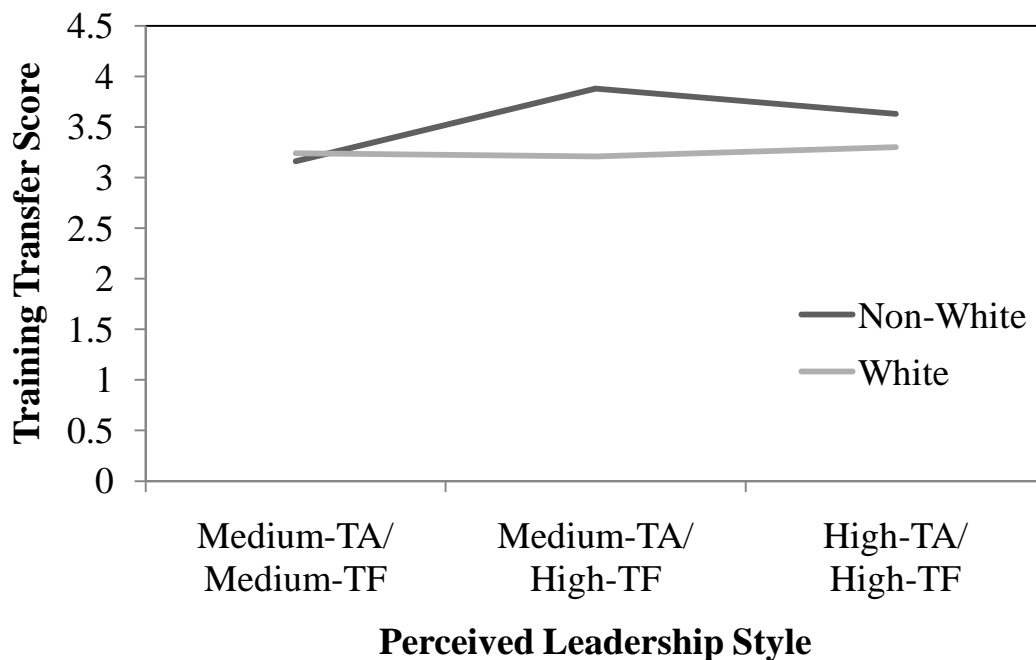


Figure 5. Mean TT scores grouped by race/ethnicity and principal leadership style

Experience Level, Leadership Style, and TT Score

The categories for experience level were novice (1-3 years of experience; $n = 37$) and veteran (greater than 3 years of experience; $n = 22$). Although the mean TT scores of the novice group ($M = 3.29$, $SD = .47$) were higher than the veteran group ($M = 3.25$, $SD = .44$), the main effect for experience level was non-significant, $F(1, 53) = .19$, $p = .67$, partial $\eta^2 = .004$. There was a non-significant main effect of leadership style on TT score, $F(2, 53) = .04$, $p = .96$, partial $\eta^2 = .002$. Additionally, the interaction effect between experience level and leadership style on TT score was non-significant, $F(2, 53) = .90$, $p = .41$, partial $\eta^2 = .03$. The null hypothesis was retained. These results are displayed in Table 12, and the plots of means are graphed in Figure 6.

Table 12

ANOVA Table: TT Scores Grouped by Experience and Leadership Style

Source	<i>df</i>	<i>F</i>	partial η^2	<i>p</i>
Between subjects				
Experience Level (E)	1	.19	.004	.67
Leadership Style (LS)	2	.04	.002	.96
E x LS	2	.90	.03	.41
Error	53			

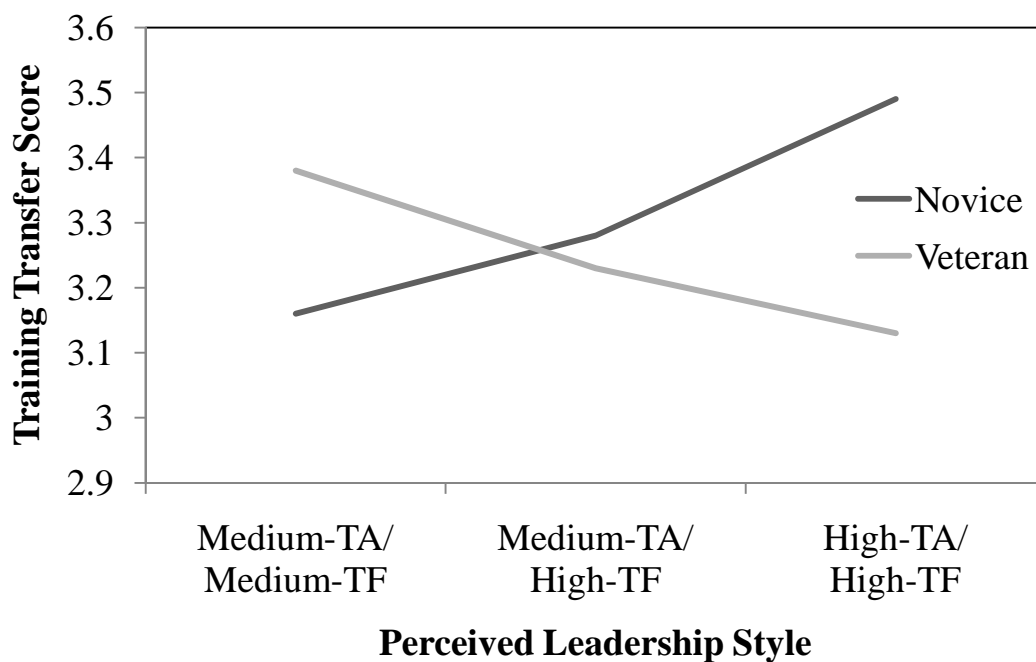


Figure 6. Mean TT scores grouped by experience and principal leadership style

Grade Level, Leadership Style, and TT Score

The researcher defined the categories for grade level as elementary ($n = 28$) and secondary ($n = 31$). Although the mean TT score of elementary participants ($M = 3.39$, $SD = .38$) was higher than secondary participants ($M = 3.17$, $SD = .50$), the difference was not significant, $F(1, 53) = .44$, $p = .51$, partial $\eta^2 = .01$. There was a non-significant main effect of perceived leadership style on TT score, $F(2, 53) = .97$, $p = .39$, partial $\eta^2 = .04$. Additionally, the interaction effect between grade level and perceived leadership style also was not significant, $F(2, 53) = 2.36$, $p = .11$, partial $\eta^2 = .08$, and the null hypothesis was retained. Table 13 summarizes the results of the ANOVA, and the mean TT scores of the groups are plotted in Figure 7.

Table 13

ANOVA Table: TT Scores Grouped by Grade Level and Leadership Style

Source	<i>df</i>	<i>F</i>	partial η^2	<i>p</i>
Between subjects				
Grade Level (GL)	1	.44	.01	.51
Leadership Style (LS)	2	.97	.04	.39
GL x LS	2	2.36	.08	.11
Error	53			

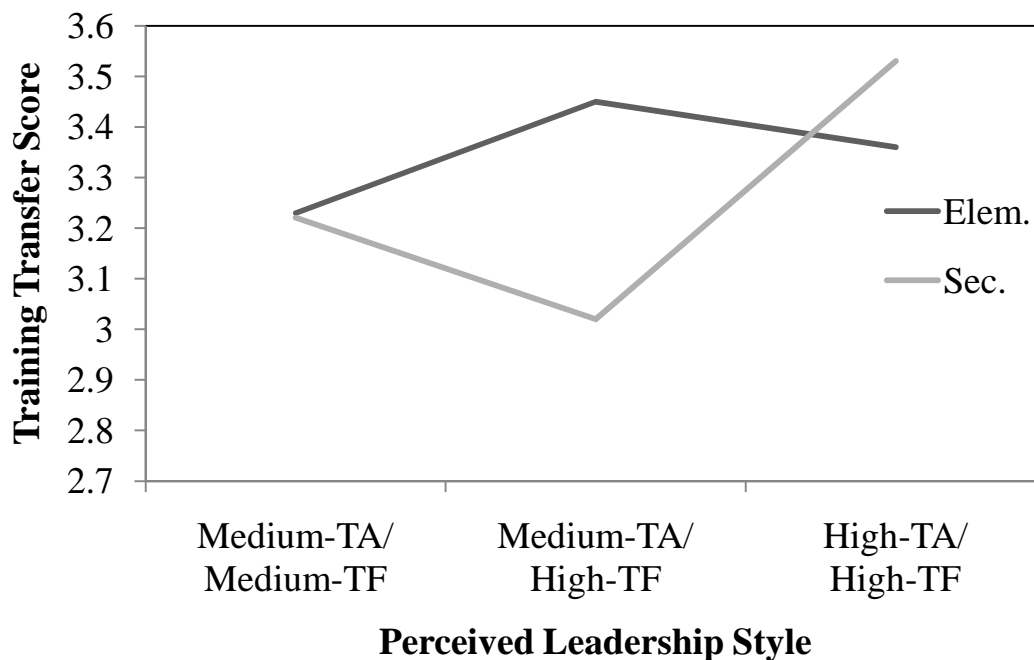


Figure 7. Mean TT scores grouped by grade level and principal leadership style

Research Question 3

The third research question sought to determine principal behaviors that promoted teacher training transfer. As discussed in Chapter 3, the researcher initially identified participants whose training transfer (TT) scores were at the 80th percentile and above, indicating a statistically significant difference in mean TT scores between this group and the rest of the cohort, $t(57) = 6.93, p < .001$. This group, which will be referred to as the High-TT group, consisted of 19 participants, with the rest of the cohort comprised of the 40 remaining participants.

This research question was explored primarily through a grounded theory analysis (Corbin & Strauss, 1990), using participants' responses from the Principal's Influence

section of the TTQ. This section of the TTQ consisted of nine Likert-style items and one open-response item. Additionally, two other items were used for grouping purposes regarding conditions of participants' supervision: one item asked participants to identify who most directly supervised their teaching (principal, assistant principal, or other); another item asked who initiated contact more often (teacher, principal, or teacher and principal equally). Several preliminary analyses also were conducted to analyze for differences between the High-TT group and Lower-TT group with regard to their demographic profiles, their supervisory conditions, their perceptions of principal leadership style, and their scores for the Principal's Influence section of the TTQ.

Analysis of Demographic Differences

The researcher first analyzed the High-TT group for demographic differences in comparison to the Lower-TT group. Table 14 summarizes these comparisons. Although some variations in percentages certainly exist, both groups demonstrate diversity among participants in terms of gender, race/ethnicity, experience level, and grade level.

The lack of meaningful demographic differences between the High-TT and Lower-TT groups was confirmed by the results of chi-square tests. For the variable of gender, the likelihood ratio statistic was used given the small number of males in the High-TT group. This test resulted in $\chi^2(1) = 1.90, p = .17$, suggesting a non-significant difference in the ratio of males to females between the High-TT and Lower-TT groups. The likelihood ratio statistic also was used for the variable of race/ethnicity, again given the expected frequency of fewer than 5 in one of the cells. This test resulted in $\chi^2(1) = 1.66, p = .20$, indicating a non-significant difference in the ratio of White to Non-White

participants between the High-TT and Lower-TT groups. Regarding experience level, Pearson's chi-square test yielded $\chi^2(1) = .39, p = .53$, indicating a non-significant difference in the ratio of novice to veteran participants between the High-TT and Lower-TT groups. Finally, regarding grade level, Pearson's chi-square test yielded $\chi^2(1) = 2.77, p = .10$, also indicating a non-significant difference in the ratio of elementary to secondary participants between the High-TT and Lower-TT groups.

Table 14

Comparison of Demographic Variables: High-TT and Lower-TT Groups

	Gender		Race		Exp.		Grade	
	M	F	W	Non-W	Nov	Vet	El	Sec
High- TT								
Count	1	18	14	5	13	6	12	7
Percent	5%	95%	74%	26%	68%	32%	63%	37%
Lower- TT								
Count	7	33	35	5	24	16	16	24
Percent	18%	82%	88%	12%	60%	40%	40%	60%

Analysis of Differences in Supervisory Conditions

Additionally, the researcher compared groups for differences regarding the conditions of participants' supervision; specifically, who most directly supervised their teaching (the response options included principal, assistant principal, or other), and who initiated contact more often (either the participant, the principal, or equal initiation of contact between both parties). Table 15 displays the counts and percentages of participants who reported each supervisory condition.

Table 15

Comparison of Supervisory Conditions: High-TT and Lower-TT Groups

	Who most directly supervised?			Who initiated contact more often?		
	Principal	A.P.	Other	Participant	Principal	Equal
High- TT						
Count	16	2	1	3	6	10
Percent	84%	11%	5%	16%	32%	52%
Lower- TT						
Count	27	11	2	2	16	22
Percent	68%	27%	5%	5%	40%	55%

The researcher conducted chi-square tests to analyze for significant differences in frequencies between the High-TT group and the Lower-TT group in terms of these supervisory conditions. The likelihood ratio statistic was used for both analyses given the expected frequency of fewer than five in various cells. Regarding the condition of who was responsible for supervising instruction, the likelihood ratio resulted in $\chi^2(2) = 2.40, p = .30$, suggesting a non-significant difference in the ratio of participants who were supervised by their principal, assistant principal, or some other supervisor, between the High-TT and Lower-TT groups. For the condition of who initiated contact more often, the likelihood ratio yielded $\chi^2(2) = 1.89, p = .39$, suggesting a non-significant difference between the High-TT and Lower-TT groups in the ratio of participants who initiated contact themselves, whose principals initiated contact, or who shared responsibility with their principal for initiating contact. It should be noted that, although not statistically significant, a larger percentage of principals directly supervised the High-TT teachers than the Lower-TT teachers, whereas the percentage of assistant principals who supervised the Lower-TT teachers was greater than in the High-TT group. This observation, coupled with the fact that elementary teachers demonstrated higher TT scores than their secondary counterparts, warrants further discussion and will be explored in Chapter 5.

Analysis of Differences in Perceived Leadership Style

Given the lack of significant differences between the High-TT group and Lower-TT group regarding demographic composition and conditions of their instructional supervision, the researcher followed up with an analysis of differences between the

groups in their perceptions of principal leadership styles. The counts and percentages of members in each group are summarized in Table 16. The researcher conducted a chi-square test using the likelihood ratio, which resulted in $\chi^2(2) = 7.01, p = .03$, indicating a significant difference between the High-TT group and the Lower-TT group in their perceptions of principal leadership style. In the High-TT group, fewer than expected members perceived Medium-TA/Medium-TF leadership, and more than expected members perceived both Medium-TA/High-TF and High-TA/High-TF leadership.

Table 16

Comparison of Principal Leadership Style: High-TT and Lower-TT Groups

		Perceived principal leadership style		
		Medium-TA/ Medium-TF	Medium-TA/ High-TF	High-TA/ High-TF
High- TT				
	Count	2	11	6
	Percent	10%	58%	32%
Lower- TT				
	Count	16	19	5
	Percent	40%	48%	12%

Analysis of Differences in Mean Principal's Influence Scores

The researcher analyzed differences between the High-TT and Lower-TT groups in terms of mean Principal's Influence (PI) scores using an independent samples *t*-test. In addition to the above-mentioned differences in perceived principal leadership style, the High-TT group also exhibited a statistically significant difference in mean PI score ($M = 3.46$, $SE = .15$) in comparison to the mean PI score of the Lower-TT group ($M = 2.76$, $SE = .14$), with $t(57) = 2.95$, $p = .005$. This result indicates that teachers in the High-TT group perceived their principals as demonstrating the PI behaviors more often than those in the Lower-TT group.

Grounded Theory Analysis

The statistical analyses conducted to this point justified further exploration for themes regarding the behaviors of principals that promote teacher training transfer. The previously discussed chi-square tests indicated that differences in training transfer scores were not associated with demographic differences or differences in the conditions of their supervision by their principal (or surrogate). Furthermore, these differences in training transfer scores were associated with perception of the principal as either medium or high for transactional behaviors and high for transformational behaviors, as evidenced by the chi-square test comparing perceived leadership styles. Finally, the independent *t*-test suggested that the principals of the High-TT teachers demonstrated the PI behaviors more frequently than did the principals of the Lower-TT group.

A grounded theory analysis (Corbin & Strauss, 1990) was employed to further investigate the responses of the High-TT group regarding the actions and behaviors taken

by their principals to promote their training transfer. The researcher systematically analyzed each written response (from PI Item 12), as well as all responses for PI Items 3 through 11 that earned scores of either a 3 (Fairly often) or 4 (Frequently, if not always), grouping responses into emerging themes and then clustering these themes into overarching categories. Themes and categories were constantly tested and revised as each new piece of data was considered. The analysis yielded two categories of principal behaviors that promote training transfer, with two conceptual themes in each category. The first category, *promotion of a culture of accountability*, consisted of the themes of *formal observations* and *direct feedback*. The second category, *promotion of a culture of professional learning*, consisting of the themes of *meaning and purpose*, as well as *reinforcement and teaching*. Figure 8 illustrates these categories and themes, which are described in greater detail in the following sub-sections.

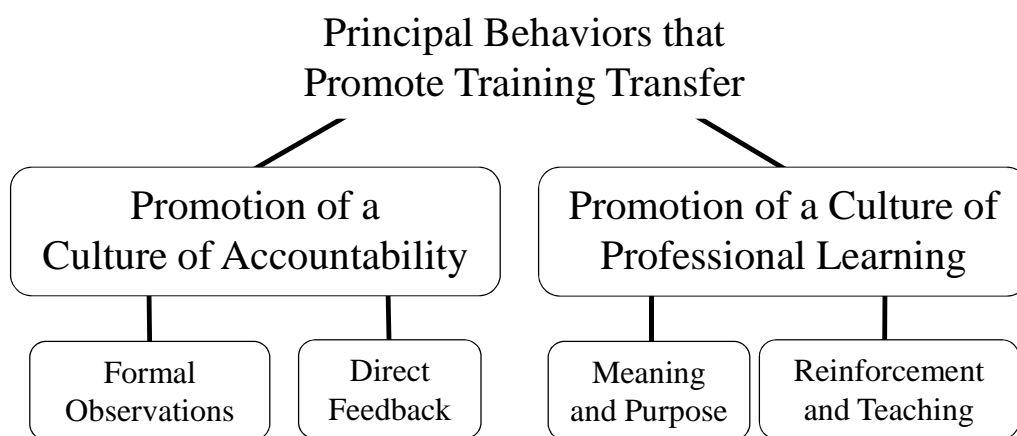


Figure 8. Principal behaviors that promoted teacher training transfer

Promotion of a culture of accountability. The category of principal behaviors entitled promotion of a culture of accountability included the greatest number of written responses by participants in the High-TT group. This set of behaviors collectively conveyed the message that training transfer (specifically, training transfer of EEI) is a non-negotiable expectation of the job of teaching. This message was communicated through formal observations and direct feedback.

Formal observations. The theme of formal observations described the manner in which principals used observations and data-collection techniques to hold teachers accountable for implementing EEI. Of the 19 members of the High-TT group, 10 participants responded with 15 different statements that referred to their principals' use of these behaviors. Item 9 in the PI section also contributed to this theme; this item stated: "My principal supervised/evaluated my teaching for the implementation of EEI." Of the 19 members of the High-TT group, 17 reported their principals as fairly often (Likert score of 3) or frequently if not always (Likert score of 4) demonstrating this behavior. The following participant statements are representative of this theme:

- "My principal has an EEI-based checklist and visits at least 3-4 times a quarter, with immediate feedback."
- "My principal would often come in my room and make observations."
- "She consistently does walk-throughs and leaves notes about what is being taught and how I choose to implement EEI."

Direct feedback. Additionally, nine of the High-TT teachers provided 14 statements that described their principals' use of direct feedback, which included specific

refinements and praise. Refinements and praise frequently were mentioned in the same statement, and participants described a clear directness on the part of the principal—these principals directly stated what had been done well during the lesson as well as what needed to be improved. Contributing to this theme were PI Item 3 (“Provided encouragement and praise regarding my implementation of EEI”), PI Item 5 (“Talked to me about my implementation of EEI”), and PI Item 7 (“Gave me feedback about my implementation of EEI”). For PI Item 3, 18 of the 19 participants scored their principal with a 3 or 4 for their demonstration of the given behavior. For PI Item 5, 14 of the participants scored their principal with a 3 or 4. For PI Item 7, 16 participants scored their principal with either a 3 or 4. Similarly, the following written responses from participants in the High-TT group describe their principals’ use of direct feedback:

- “Gave feedback during our pre- and post-conferences that provided specific information on what was present or lacking in a lesson.”
- “Had a discussion on how I implemented EEI—talked about my strong and weak points.”
- “He gave specific recommendations and checked back in to see how implementation went.”

Promotion of a culture of professional learning. The second major category, principal behaviors that promote a culture of professional learning, focused on the manner in which principals provided support for teachers and encouraged their professional growth. This category was more nuanced, with words such as “suggested,” “encouraged,” “coached,” and “modeled” factoring prominently into the High-TT

teachers' statements about their principals. This category included two themes: meaning and purpose; and reinforcement and teaching.

Meaning and purpose. This theme conveyed the message that EEI is an important component of the culture of the school and that its implementation supports a greater good. Contributing to this theme were PI Item 6 ("Valued and supported EEI") and PI Item 8 ("Expressed the belief that EEI would enhance my professional growth and our school-wide goals"). Only one member of the High-TT group rated her principal as less than a 3 ("Fairly often") or 4 ("Frequently, if not always") for these two items. Although items 6 and 8 received higher mean scores than any other PI items, only one participant actually provided a written response to elaborate about this theme. This participant stated: "My principal was a strong supporter of EEI and very knowledgeable of it."

Reinforcement and teaching. The theme of reinforcement and teaching described principals' efforts to challenge teachers to experiment and problem-solve as part of an ongoing process of professional learning. These principals also provided guidance to help teachers understand and apply strategies from the EEI trainings. This theme differs from the previously mentioned theme of direct feedback—it positions the principal in a teaching role rather than a supervisory role. Six participants responded with eight statements that contributed to this theme. Additionally, PI Item 4 ("Encouraged me to experiment with new strategies as I implemented EEI") supported this theme, with 15 of the 19 participants scoring their principals as either a 3 or 4. PI Item 10 ("Supported opportunities for me to collaborate with and/or observe colleagues to improve my implementation of EEI") and PI item 11 ("Gave me specific suggestions to help me

improve my implementation of EEI”) also contributed to this theme. Of the 19 participants, 13 scored their principal as a 3 or 4 for PI Item 10, and 12 participants scored their principal as either a 3 or 4 for PI Item 11. The following statements from members of the High-TT group illustrate their principals’ use of reinforcement and teaching to promote implementation of EEI:

- “He encouraged me to try new strategies.”
- “He gave me tapes/videos at the beginning of the school year to help with some management issues (that therefore helped with my EEI).”
- “He is very good at giving specific examples from when he was teaching, and comparing them with my specific teaching style.”

The importance of both categories rather than either/or. Thus far, the qualitative analysis suggests the existence of two categories of principal behaviors related to the High-TT group’s training transfer: promotion of a culture of accountability, and promotion of a culture of professional learning. Several statements by participants suggested the importance of both categories of behaviors operating in conjunction, rather than either one category or the other operating in isolation. These statements derived from six members of the Lower-TT group. The mean PI score of these six members was 1.60, compared to the mean PI score of 3.40 of the High-TT group. Three of these participants taught at the same high school. The other three participants taught at three different schools (one elementary and two middle schools).

Several statements suggested a lack of the principal’s promotion of a culture of professional learning. Rather than help the teacher learn and grow, these principals

provided lower-level feedback that was overly broad or general. The following statements are representative of this trend:

- "Said I was doing great, but didn't offer any ideas on how I could improve."
- "Feedback was primarily restricted to positive/negative statements that didn't give me much basis on specific things to do."
- "I would have appreciated more specific feedback and more specific suggestions for improvement."

Alternately, some teachers in this Lower-TT group described their principals' near lack of endorsement of EEI altogether. These principals did not promote a culture of accountability for the use of EEI. Representative statements include the following:

- "It was mostly as though EEI were concepts covered in NTI (New Teacher Induction), but then not really dealt with again except to make sure most elements were present in written plans."
- "I think a lot of importance of using EEI in the classroom is stressed at the district level, but it is not really stressed at the school/site level."
- "There has been no communication about it (EEI) whether with the principal or vice principal."

Summary of findings for research question 3. The 19 members of the High-TT group stood out in several ways. First, their mean TT score was statistically significantly higher than the other 40 participants, indicating the High-TT members reported greater transfer of the EEI training. Additionally, their mean PI score was significantly higher, which indicates that their principals demonstrated more of the principal behaviors

described in the PI items. The High-TT teachers were more likely to perceive their principals as Medium- or High-TA and High-TF, and they were demographically comparable to the Lower-TT members. An analysis of their responses on the PI items shows their principals encouraged their training transfer by promoting a culture of accountability, which included observations and direct feedback, and by promoting a culture of professional learning, which included establishing meaning and purpose, and reinforcing and teaching.

Summary

This chapter reported the results of the analyses for the three research questions. The first question asked whether there is a relationship between teacher training transfer and perceived principal leadership style; a Kruskal-Wallis test and a one-way ANOVA revealed no significant differences, and the null hypothesis was retained. For the second question, independent factorial ANOVAs were used to examine the relationship between teacher training transfer and perceived principal leadership style for interaction effects with certain demographic variables. Again, no significant differences were found and the null hypothesis was retained. Question 3 sought to determine principal behaviors that promoted training transfer, focusing on a group of 19 participants who demonstrated statistically significantly higher training transfer scores. Statistical analyses indicated this group's similarity to the other participants in terms of demographics and conditions of their supervision. A grounded theory analysis then was conducted to identify the categories and themes of behaviors identified by these teachers' principals. These findings will be discussed in further detail in Chapter 5.

CHAPTER 5

SUMMARY AND DISCUSSION

Although professional development has taken on a critical role in many reform efforts, the impact of professional development is diminished when training transfer fails to occur to the desired level. A growing body of research is focusing on the attributes and outcomes of effective professional development; however, little research has explored the role that school leaders play in enhancing teacher training transfer of professional development, despite evidence suggesting the existence of a relationship (Banilower, Heck, & Weiss, 2007; Barnett & McCormick, 2004; Blase & Blase, 1999; Bredeson & Johansson, 2000; Burke & Hutchins, 2007; Desimone, 2009; Drago-Severson, 2007; Fullan, 2001a; Heck et al., 2008; Youngs, 2007).

This study explored the relationship between teacher training transfer and perceived principal leadership style, focusing specifically on a cohort of 62 teachers of varying gender, race/ethnicity, experience level, and grade level. This cohort was chosen due to the participation of its members in a new teacher induction program in the Desert Unified School District (DUSD) during the prior year. By the time of their completion of this professional development initiative, teachers were expected to transfer skills from the Essential Elements of Instruction (EEI) model into their daily classroom teaching.

This final chapter provides a summary of the current study's research questions, methodology, and results regarding the relationship between training transfer and principal leadership. The chapter concludes with a discussion of these results, which includes an interpretation of the findings and an explanation of their relationship to prior

research, an explanation of unanticipated findings, recommendations for school leaders, and suggestions for future research.

Problem Statement

This dissertation explored this relationship between perceived principal leadership and teacher training transfer, in the context of one district's new teacher induction program, to determine whether and how principal leadership style related to teacher training transfer with the 62 participants in this study. Three research questions were pursued.

Research Question 1

What is the relationship between teachers' self-reported training transfer scores and teachers' perceptions of their principal's leadership style? The null hypothesis is that there is no statistically significant difference in training transfer scores between teachers who perceive their principal as passive/avoidant, transactional, or transformational on the Multifactor Leadership Questionnaire (MLQ) (Bass & Avolio, 2004).

Research Question 2

What factors interact with the relationship between teachers' training transfer and their perceptions of principal leadership style? The null hypothesis is that there are no statistically significant interaction effects between demographic variables (gender, race/ethnicity, experience level, and grade level) on the relationship between teachers' training transfer scores and their perception of their principal's leadership style.

Research Question 3

What do principals do to promote teacher training transfer? This question was analyzed qualitatively using participants' reporting of principal behaviors. Participants indicated how frequently their principal exhibited certain actions (provided by the researcher) and provided a written response to explain any other principal actions that impacted their training transfer. The analysis focused on the responses of those teachers whose training transfer score was highest. Quantitative tests were used preliminarily to analyze for differences between the high- and lower-training transfer groups.

Review of Methodology

A mixed-methods design was employed to analyze the three research questions. The first step in the process involved the development of the Training Transfer Questionnaire (TTQ), an instrument designed by the researcher to assess teacher training transfer of the EEI skills of teaching to an objective and active participation, which are fundamental desired outcomes of DUSD's new teacher induction program. The TTQ also was used to gather demographic information as well as participants' reporting of principal behaviors that influenced their training transfer. Additionally, to assess perceived leadership styles of principals, the researcher used the Multifactor Leadership Questionnaire (MLQ; Bass & Avolio, 2004), a published instrument from which mean scores for each of nine leadership factors and three leadership styles were calculated.

The 62 participants in the cohort of new teacher induction participants completed both the TTQ and the MLQ, thus providing a self-assessment of their own training transfer, a description of principal behaviors that influenced their transfer, and an

assessment of their respective principal's leadership style. The researcher calculated a mean training transfer score and a mean principal's influence score for each participant. The MLQ results were used to determine each participant's perception of principal leadership as either high or low for the leadership styles of passive/avoidant (PA), transactional (TA), and transformational (TF). These scores were combined to establish leadership profiles. Of the 62 participants, 59 perceived their principal as fitting into one of three categories: Medium-TA/Medium-TF ($n = 18$); Medium-TA/High-TF ($n = 30$); or High-TA/High-TF ($n = 11$). (Three participants scored their principals dramatically differently; the researcher excluded their data from the rest of the study because of the very small number of participants in this group. An in-depth profile of these participants is provided in Chapter 3, as is an explanation of why their data were excluded.)

The first two research questions were assessed with quantitative methods. All tests were conducted with an alpha level of $p < .05$. To assess the first research question regarding a relationship between teacher training transfer and principal leadership style, the researcher conducted two tests: the non-parametric Kruskal-Wallis test, and the parametric one-way ANOVA test, to compare the mean training transfer (TT) scores of teachers based on their perception of their principal's leadership style. Because both tests yielded comparable results and because no non-parametric equivalent exists, the researcher conducted independent factorial ANOVAs to assess the variables of interest in the second research question. This question asked whether gender, race/ethnicity, experience level, and grade level, interact with the relationship between teacher training transfer and perceived principal leadership style.

The third research question involved both quantitative and qualitative methods. The researcher first determined a sub-group of participants with significantly higher TT scores: the TT scores of these 19 participants (the High-TT group) fell at the 80th percentile and above, and their mean score ($M = 3.72$, $SE = .02$) demonstrated a statistically significant difference from the mean score of the other 40 participants in the Lower-TT group ($M = 3.06$, $SE = .06$), with $t(57) = 6.93$, $p < .001$.

The High-TT group consisted of 18 females and one male, 14 White participants and five Non-White participants, 13 novices and six veterans, and 12 elementary participants and seven secondary participants. Also, 16 participants were supervised most directly by their principal, two by an assistant principal, and one by some other supervisor. Three identified themselves as having initiated contact more often, six identified their principal, and 10 said they shared equal responsibility between themselves and their principal.

For comparison, the Lower-TT group consisted of 33 females and seven males, 35 White participants and five Non-White participants, 24 novices and 16 veterans, and 16 elementary participants and 24 secondary participants. In terms of their supervision, 27 were supervised by their principal, 11 by their assistant principal, and two by some other supervisor. Two participants identified themselves as having initiated contact more often, 16 identified their principal, and 22 said they shared equal responsibility with their principal for initiating contact.

Chi-square tests were used to compare the High-TT group to the Lower-TT group regarding demographic variables, conditions of their supervision, and perceptions of

principal leadership style. Another independent samples *t*-test was used to compare the principal's influence score of the High-TT group to the Lower-TT group. These quantitative techniques were used to rule out some sources of variance between the High-TT group and the Lower-TT group, as well as to emphasize other sources of variance.

The next step involved a qualitative grounded theory analysis (Corbin & Strauss, 1990) of the principal behaviors reported by the members of the High-TT group. The researcher clustered participants' responses into themes and overarching categories of behaviors that the High-TT teachers perceived as encouraging their training transfer of skills from DUSD's new teacher induction.

Summary of Results

The results of each research question are summarized in the following subsections. These results are interpreted and explained in the subsequent section of this chapter.

Research Question 1

To analyze the relationship between teacher training transfer and perceived principal leadership, the researcher grouped participants according to their perceptions of their principals' leadership styles (as determined with the MLQ). Eleven participants perceived their principals as High-TA/High-TF, 30 participants perceived their principals as Medium-TA/High-TF, and 18 participants perceived their principals as Medium-TA/Medium-TF. The training transfer (TT) scores of participants were determined using the self-assessment section of the TTQ. One of the groups (the Medium-TA/Medium-TF

participants) demonstrated a non-normal distribution of TT scores; consequently, the researcher conducted both non-parametric and parametric analyses.

The Kruskal-Wallis test, a non-parametric method, was used to compare the mean ranks of TT scores between the three groups. The High-TA/High-TF group demonstrated the highest mean rank, followed by the Medium-TA/High-TF group, with the lowest mean rank held by the Medium-TA/Medium-TF group. No statistically significant differences were found between these mean ranks, however.

For the parametric analysis, the researcher conducted a one-way ANOVA to compare mean TT scores between the three groups. Again, the High-TA/High-TF group demonstrated the greatest mean TT score, followed by the Medium-TA/High-TF group, with the lowest mean TT score held by the Medium-TA/Medium-TF group. Again, these differences were not statistically significant. Given that statistically significant differences in TT scores were not evident with either the Kruskal-Wallis or the ANOVA tests, the researcher retained the null hypothesis for the first research question.

Research Question 2

The second research question asked whether the demographic variables of gender, race/ethnicity, experience level, and grade level, interact with the relationship between teacher training transfer and perceived leadership style. Independent factorial ANOVAs were used to analyze for these interaction effects. Regarding the variable of gender, the mean TT score of the 51 female participants was significantly higher than the mean score of the 8 male participants. The interaction effect between gender and perceived leadership style demonstrated a trend but was not statistically significant at the alpha

level of $p < .05$. The independent factorial ANOVA resulted in $F(2, 53) = 3.00, p = .06$, with a medium effect size, partial $\eta^2 = .10$.

For the variable of race/ethnicity, the difference in mean TT scores between White participants ($n = 49$) and Non-White participants ($n = 10$) was not statistically significant but did demonstrate a trend of Non-White participants having higher TT scores, $F(1, 53) = 3.26, p = .08$, partial $\eta^2 = .06$. The interaction effect between race/ethnicity and perceived leadership style was not significant. Similarly, regarding the variable of experience level, there was no statistically significant difference in TT scores between novice participants ($n = 37$) and experienced participants ($n = 22$), and the interaction effect between experience level and perceived leadership style on TT scores also was not statistically significant.

Regarding grade level, there was no statistically significant difference in mean TT scores between elementary teachers ($n = 28$) and secondary teachers ($n = 31$). The interaction effect between grade level and perceived leadership style was not significant at the stated alpha level of $p < .05$. The independent factorial ANOVA yielded $F(2, 53) = 2.36, p = .11$, with an effect size in the small range, partial $\eta^2 = .08$.

Given the outcomes of these ANOVAs, the researcher retained the null hypothesis that no statistically significant interaction effects would occur between the demographic variables and perceived leadership style on participants' TT scores. However, a few of the main effects and interaction effects warrant further elaboration given their effect sizes and the evidence of statistical trends; these will be explored in the Discussion section of this chapter.

Research Question 3

To determine principal behaviors that promoted teacher training transfer, the researcher first identified a sub-group of participants (the High-TT group) who demonstrated training transfer scores at the 80th percentile and above. The High-TT group's mean score ($M = 3.72$, $SE = .02$) demonstrated a statistically significant difference from the mean score of the Lower-TT group ($M = 3.06$, $SE = .06$), with $t(57) = 6.93$, $p < .001$.

Chi-square tests were conducted to examine whether the High-TT group was significantly different from the Lower-TT group in terms of ratios of males to females, White to Non-White participants, novice to veteran participants, and elementary to secondary participants. No statistically significant differences were found. Additionally, chi-square tests were conducted to determine if differences existed between the High-TT group and Lower-TT group regarding the conditions in which they were supervised. No statistically significant differences were found in the ratios of participants who were supervised by their principal, assistant principal, or another supervisor, nor were statistically significant differences found in the ratios of participants who initiated contact with their principal, whose principal initiated contact, or who shared responsibility with the principal for initiating contact.

Although the High-TT group was demographically similar to the Lower-TT group, the groups were different in terms of their perceptions of their principals. The results of a chi-square test showed participants in the High-TT group were significantly more likely to perceive their principals as Medium-TA/High-TF or High-TA/High-TF

than their counterparts in the Lower-TT group. Additionally, an independent samples *t*-test was used to compare the mean Principal's Influence (PI) score of the High-TT group with the Lower-TT group. A statistically significant difference in PI scores was found, with the High-TT group also demonstrating greater PI scores. This indicates that the High-TT participants perceived their principals as more frequently demonstrating the behaviors described in the PI items.

The results described thus far for Research Question 3 illustrate two important considerations: first, the High-TT teachers were similar to the Lower-TT teachers in terms of demographic variables and conditions of supervision; second, the High-TT teachers perceived the leadership of their principals differently than their Lower-TT counterparts. Given these findings, the researcher conducted a qualitative analysis to identify patterns of principal behaviors that supported the training transfer of the High-TT group.

The grounded theory analysis resulted in two categories of principal behaviors, with each category consisting of two themes. The first category, promotion of a culture of accountability, consisted of principal behaviors that established training transfer as an expectation of the job. The underlying themes of formal observations and direct feedback describe the manner in which principals communicated this expectation. The second category, promotion of a culture of professional learning, consisted of principal behaviors that supported teachers and encouraged their professional growth. Two themes contributed to this category. The first theme, meaning and purpose, conveyed the message that EEI was an important component of the school culture and that it served a

greater good. The second theme, reinforcement and teaching, described the manner in which principals challenged their teachers to experiment and coached them toward improved implementation by helping them understand EEI better.

Discussion of Results

This section provides an explanation of the results of the various analyses, with attention given to the following topics: interpretation of findings and their relationship to previous research; explanation of unanticipated findings; recommendations for school leaders; and suggestions for future research.

Interpretation of Findings and Relationship to Previous Research

The results indicate that the self-reported training transfer of participants in this study was related to their principals' demonstration of certain behaviors and, to a lesser degree, the perceived leadership styles of the principals. This conclusion is illustrated most clearly by the findings to the third research question. The 19 participants who comprised the High-TT group reported significantly greater transfer of EEI skills (as evidenced by their TT scores) and were more likely to perceive their principals as medium or high for transactional leadership and high for transformational leadership. The High-TT group also reported significantly greater Principal's Influence (PI) scores, indicating their principals demonstrated the PI behaviors more frequently with them. The High-TT group and Lower-TT group were relatively comparable regarding their demographic make-up and the conditions of their supervision, as evidenced by the results of the chi-square tests, which found no significant differences between groups for any demographic or conditions-of-supervision variables.

It is unclear whether this relationship between principal behaviors, leadership style, and teacher training transfer is causal. It is possible that the behaviors and leadership style of the principal caused greater training transfer in the High-TT teachers. However, it also is possible that the principals responded differently to the High-TT teachers as a result of these teachers' greater training transfer. Alternatively, the High-TT teachers simply may have perceived their principals differently than their Lower-TT colleagues, regardless of whether a real difference existed.

Although different interpretations are possible, the grounded theory analysis suggested that the High-TT participants' reported training transfer was influenced by their principals' behaviors. The items from which these data were derived imply a causal relationship; for example: "My principal gave me specific suggestions to help me improve my implementation of EEI," and "My principal encouraged me to experiment with new strategies as I implemented EEI." Additionally, the final open-response item stated: "Please describe specific actions taken by your principal that helped or hindered your implementation of EEI." Responses to this item, and to the other PI items, portray efforts taken by principals to directly promote training transfer. Participants in the High-TT group reported a significantly greater use of these PI behaviors on the part of their principals, and the qualitative analysis suggested that these principals simultaneously promoted a culture of accountability and a culture of professional learning.

These findings are supported by the instructional leadership literature. According to Blase and Blase (1999), Bredeson and Johansson (2000), Drago-Severson (2007), Scribner (1999), and Youngs (2007), instructional leaders who effectively promote

teacher professional growth demonstrate support-focused behaviors such as those described in the current study's category entitled promotion of a culture of professional learning. The instructional leadership literature also has emphasized the importance of the principal's task-focused leadership behaviors (Edmonds, 1982; Glickman et al., 1995; Hallinger & Murphy, 1986; Murphy, 1990; Smith & Andrews, 1989), which align with this study's findings regarding the category entitled promotion of a culture of accountability.

In addition to the High-TT group's reporting of their principals' greater use of the PI behaviors, this group also was more likely to perceive their principals as medium or high for transactional and high for transformational leadership. The results of the grounded theory analysis also suggested the co-existence of transactional and transformational leadership among the principals of the High-TT teachers. The category of principal behaviors referred to as promotion of a culture of accountability conceptually aligns with transactional leadership. For example, using summative observations to hold teachers accountable for training transfer, and providing direct feedback to increase desired behaviors and eliminate undesired behaviors, parallel Bass and Avolio's (2004) description of transactional leadership as monitoring for mistakes and rewarding achievement. Alternatively, the second category of principal behaviors established in the grounded theory analysis, promotion of a culture of professional learning, conceptually aligns with transformational leadership. Transformational leaders, according to Bass and Avolio, encourage innovation through their emphasis on an inspiring vision, and they intellectually engage followers in pursuit of this vision. The grounded theory themes of

meaning and purpose and reinforcement and teaching align with these descriptions of transformational leadership. The co-existence of transactional and transformational leadership is supported by Bass and Avolio, who described transactional as not ineffective, but simply a prerequisite for transformational leadership. Leithwood (1994) also acknowledged that both leadership styles often co-exist; a transformational leader would demonstrate transactional behaviors, but would infuse them with greater meaning.

The findings of the current study also demonstrated that only in conjunction with the PI behaviors (promotion of a culture of accountability and professional learning) did leadership style have an impact on teacher training transfer. Figure 9 illustrates this conceptual relationship between leadership style and principal behaviors. Although the results to the first research question showed no significant differences in training transfer scores between groups based on their perceptions of principal leadership style, teachers in the High-TT group *were* more likely to perceive their principals as stronger in both transactional and transformational leadership. These principals' greater use of the PI behaviors in conjunction with high levels of transactional and transformational styles contributed to the High-TT teachers' greater self-reported training transfer. Perceived leadership style alone was not sufficient to explain training transfer.

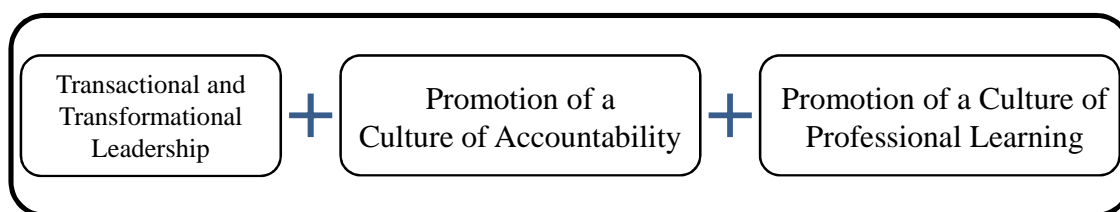


Figure 9. Leadership style in conjunction with principal behaviors

This finding regarding the multi-faceted nature of effective leadership is supported by prior research. Marks and Printy (2003) found transformational leadership to be a necessary prerequisite for shared instructional leadership, and schools whose principals demonstrated this shared instructional leadership were home to higher-quality teaching and higher student achievement than schools in which the principal failed to demonstrate either or both transformational leadership and shared instructional leadership. A combined approach to leadership was found to be more effective. This finding offers a possible explanation for the current study's outcomes regarding teacher training transfer. Nearly all participants reported medium or high levels of transformational leadership, but the High-TT group consisted of participants who also reported high levels of PI behaviors. A principal's demonstration of behaviors explicitly focused on training transfer, in conjunction with transactional and transformational leadership styles, positively related to greater teacher-reported training transfer.

For the second research question, whether demographic variables interact with leadership style, a few findings warrant further discussion. In terms of main effects, gender was the only demographic variable significantly related to training transfer. The mean TT score of females ($n = 51$, $M = 3.33$, $SD = .41$) was significantly greater than that of males ($n = 8$, $M = 2.91$, $SD = .60$). The other main effect of interest was between race/ethnicity and training transfer. The mean TT score of Non-White participants ($n = 10$, $M = 3.49$, $SD = .48$) was higher than White participants ($n = 49$, $M = 3.23$, $SD = .44$); the alpha level of $p = .08$ showed a trend but was non-significant. These differences illustrate a recurring theme in the literature, that individual learner characteristics

influence training transfer (Baldwin & Ford, 1988; Burke & Hutchins, 2007; Ford & Weissbein, 1997).

Of the four variables tested, no interaction effects were significant. However, the interaction effect between gender and leadership style demonstrated a medium effect size and is therefore worth discussing further. Figure 10 shows this interaction, $F(2, 53) = 3.00$, $p = .06$, partial $\eta^2 = .10$. High-TA/High-TF leadership was most strongly related to females' training transfer, whereas Medium-TA/Medium-TF leadership was most strongly related to males' training transfer. Male participants tended to transfer the training more strongly when they perceived their principals as demonstrating transactional and transformational leadership to a lesser degree. This suggests that different leadership styles were effective with different followers, a conclusion that parallels the contingency leadership literature (Fiedler, 1967; Hersey & Blanchard, 1969; House, 1971; House & Mitchell, 1974; Kerr & Jermier, 1978).

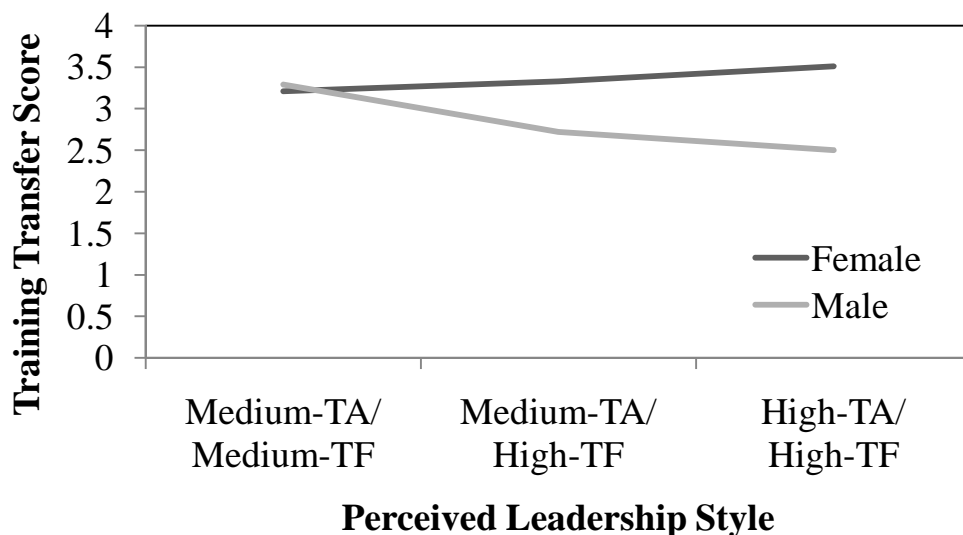


Figure 10. Mean TT scores grouped by gender and principal leadership style

The other interaction effect worth exploring occurred between grade level and perceived leadership style, illustrated in Figure 11. This interaction was not significant, with an alpha of $p = .11$ and a small effect size of partial $\eta^2 = .08$. However, this finding warrants further consideration given the results of the third research question. Figure 11 shows that the training transfer scores of elementary teachers were relatively stable across the three groups, whereas a difference existed between secondary teachers who perceived their principal as High-TA/High-TF ($n = 4, M = 3.53, SD = .44$) versus those who perceived Medium-TA/High-TF ($n = 14, M = 3.02, SD = .61$).

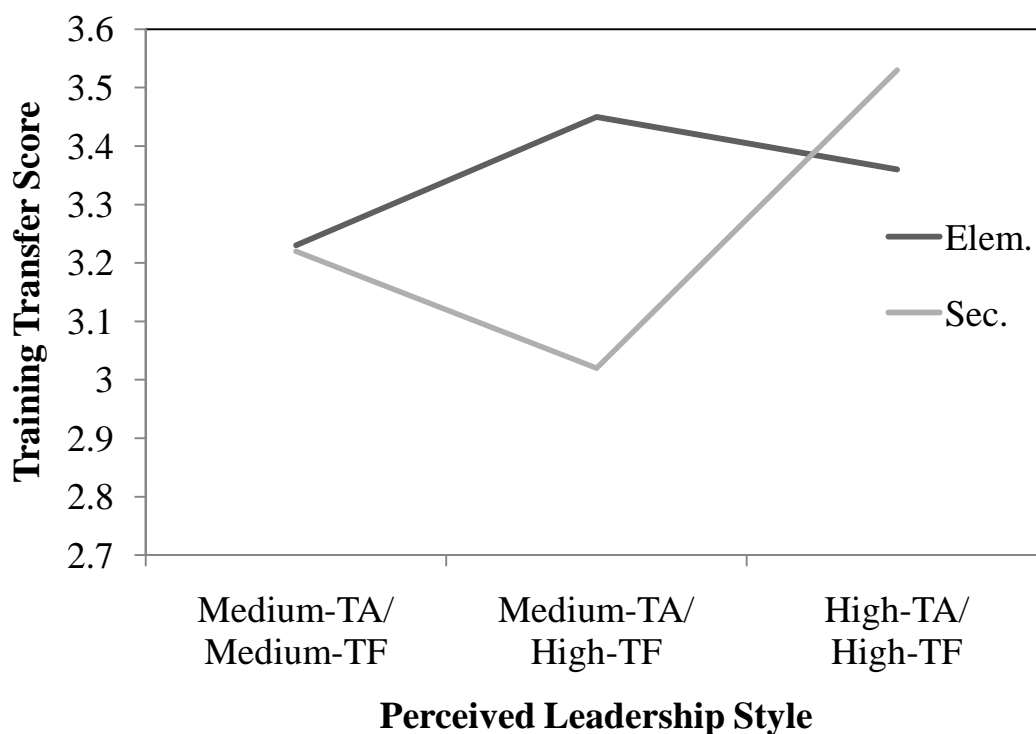


Figure 11. Mean TT scores grouped by grade level and principal leadership style

The third research question, which focused on the differences between the High-TT group and Lower-TT group, showed proportional differences in the percentages of elementary and secondary teachers in the High-TT and Lower-TT groups (although, again, these differences were not statistically significant). The High-TT group, whose participants reported a greater degree of principal involvement in their training transfer, consisted of a larger percentage of elementary teachers (63% elementary; 37% secondary) than the Lower-TT Group (40% elementary; 60% secondary). Additionally, the High-TT group consisted of a larger percentage of teachers who were directly supervised by their principal (84% supervised by principal; 16% supervised by assistant principal or other) than the Lower-TT Group (68% supervised by principal; 32% supervised by assistant principal or other). One interpretation of these outcomes is that the elementary principals were more directly involved in supervising their teachers' training transfer, which could explain the greater percentage of elementary participants in the High-TT group. By contrast, the tiered administrative structure at the secondary level resulted in supervisory responsibilities being distributed between the principal and assistant principal, which possibly contributed to a smaller percentage of secondary teachers in the High-TT group. However, when these secondary participants perceived High-TA/High-TF leadership, regardless of who supervised them, they reported a greater degree of training transfer.

Consequently, when secondary teachers perceived High-TA/High-TF leadership, and when their principals demonstrated greater involvement in their supervision, their self-reported training transfer scores were higher. However, these conditions were less

likely to occur at the secondary level, possibly because of the tiered administrative structure. Further research is needed to explore the relationship of these variables and their impact on secondary teachers' training transfer.

The interpretations of findings presented in this section are not conclusive; certainly, other interpretations exist. The following section presents factors that could have impacted the study's findings and that could suggest alternative explanations.

Explanation of Unanticipated Findings

Several unanticipated findings occurred in this study. This section explores these unanticipated findings and offers possible explanations related to the research design, the instrumentation, and the unique context of the study. Additionally, this section describes one interesting finding that fell beyond the scope of the study's research questions but which was relevant and worth further analysis.

Foremost among the unexpected outcomes was the lack of statistically significant differences in training transfer scores between different levels of perceived leadership style. Additionally, the failure to find statistically significant interaction effects also was unexpected. Although no prior research has explicitly studied the link between leadership style and training transfer, research has shown that certain leadership styles are more effective in terms of other outcomes. For example, Bass and Avolio (2004) found transformational leadership to be more strongly related to follower satisfaction than either transactional or passive/avoidant leadership. In schools, Barnett and McCormick (2004) found components of transformational leadership to be significantly related to increased innovation, interest, and excellence in teaching. Also, Leithwood (1994) found a

significant relationship between transformational leadership and the success of school restructuring, conditions of the school, student outcomes, and organizational learning. Given these findings, a relationship between transformational leadership and training transfer would not have been surprising.

The failure to find such a relationship could be attributed to several possible factors. First, a relationship simply may not exist. The current study's findings suggest that leadership style alone was not sufficient to promote training transfer, but that leadership style in conjunction with certain principal behaviors was related to teacher training transfer.

Alternatively, the small sample size could have been a limiting factor. All statistical tests were conducted with 59 participants, which may not have yielded enough statistical power given the alpha level of $p < .05$ and the analysis of three groups for the first research question and six groups for the second research question. It is possible that leadership style's effect on training transfer was relatively small enough that statistical significance would not be evident without a larger sample.

The context of the research also could have contributed to the unexpected outcomes. For example, the Training Transfer Questionnaire (TTQ) was used to measure participants' training transfer approximately a year and a half after their original training had occurred. It is possible that differences in training transfer of EEI skills among the participants had leveled out to some extent by the time the data were collected, thus confounding the relationship of principal leadership to training transfer.

In addition to these unexpected outcomes, the researcher also discovered some findings that went beyond the scope of the pre-established research questions but which warranted further discussion. Given the findings of the third research question, which demonstrated a significant difference in the Principal's Influence (PI) scores between High-TT teachers and Lower-TT teachers, the researcher decided to analyze the relationship of PI scores and TT scores overall. The researcher hypothesized that teacher training transfer would be positively related to the principal behaviors described in the PI items.

K-S tests revealed both distributions as significantly non-normal, with TT scores yielding $D(59) = .15, p = .003$, and PI scores yielding $D(59) = .13, p = .000$. Consequently, Kendall's tau (τ) was used to analyze the correlation between both sets of scores. A one-tailed test was conducted, with an alpha level of $p < .05$. The results of the test indicated that training transfer was significantly positively related to the PI behaviors, $\tau = .21, p = .01$. This suggests that participants demonstrated greater training transfer of EEI skills as their principals demonstrated the PI behaviors more frequently. This positive correlation is relatively weak, however; future research could employ regression analysis to establish a model in which the relationship between the PI behaviors and demographic variables on teacher training transfer is more clearly established.

Recommendations for School Leaders

Although the findings of this study may not be generalizable to principals and teachers in other settings, several recommendations warrant consideration given their relationship to previous research. First, principals and other school leaders should take

an active role in influencing teacher training transfer rather than assuming it will occur. The teachers in the current study reported greater transfer of their EEI training when their principals consistently demonstrated the PI behaviors of promoting a culture of accountability and promoting a culture of professional learning. These categories of principal behaviors included conducting formal observations and providing direct feedback regarding teachers' use of EEI skills, as well as reinforcing and teaching the skills and portraying them as meaningful and purposeful relative to school goals and teachers' professional growth. This recommendation also is supported by the research regarding leadership and training transfer (Barnett & McCormick, 2004; Blase & Blase, 1999; Bredeson & Johansson, 2000; Burke & Hutchins, 2008; Desimone, 2009; Drago-Severson, 2007; Fullan, 2001a; Scribner, 1999; Youngs, 2007).

Additionally, principals and other school leaders who demonstrate a multi-faceted approach to leadership may encourage greater training transfer among their teachers. In the current study, the existence of high levels of both transactional and transformational leadership, coupled with the demonstration of the PI behaviors, was significantly related to teachers' self-reported training transfer. However, the combination of transactional and transformational styles absent the PI behaviors did not yield a significant effect on teacher training transfer. This indicates that leadership style impacts training transfer only when applied in conjunction with explicit instructional leadership behaviors (in the current study, the PI behaviors). Research regarding the full range leadership model in general (Bass & Avolio, 2004) and principal leadership in particular (Marks & Printy,

2003) supports this conclusion regarding the value of combined or integrated leadership styles.

The current study also suggests for principals and school leaders that the consistent demonstration of the PI behaviors may be effective in promoting the training transfer of teachers regardless of their gender, race/ethnicity, experience level, or grade level. Although the interaction of some demographic variables with leadership style yielded possible trends in training transfer, these differences appeared to have been overridden by the demonstration of the PI behaviors. For example, High-Transactional (TA) and High-Transformational (TF) leadership was more strongly related to secondary teachers' training transfer, whereas Medium-TA/High-TF leadership was more strongly related to elementary teachers' training transfer. However, regardless of grade level, the self-reported training transfer score of all teachers in the High-TT group was significantly positively related to their principals' use of the PI behaviors. This outcome also was true regardless of the teacher's race/ethnicity, experience level, or gender. Research has suggested the likelihood of different degrees of training transfer among different individuals (Baldwin & Ford, 1988; Burke & Hutchins, 2007; Ford & Weissbein, 1997), as well as the effectiveness of different types of leadership with different individuals (Fiedler, 1967; Hersey & Blanchard, 1969; House, 1971; House & Mitchell, 1974; Kerr & Jermier, 1978). With participants in the current study, the PI behaviors may have outweighed these differences.

Finally, given these recommendations regarding the importance of the explicit demonstration of the PI behaviors, district leaders and principal preparation programs

should provide support for current and future principals in developing these practices. Establishing a school culture focused on training transfer, including accountability and support for professional learning, is entirely different from simply establishing a positive culture. Principals would benefit from district and university efforts to help them develop the level of intentionality necessary to cultivate a high-training-transfer culture.

Suggestions for Future Research

Several suggestions for future research emerge from the current study. First, in terms of research design, follow-up studies should include a larger sample size to enhance statistical power. Also, future studies should measure training transfer in closer proximity to the training. This would reduce the possibility for confounding variables to influence training transfer. Another research design consideration would be to improve the measurement of training transfer. Whereas the TTQ relied on perception data, a more valid measurement of training transfer possibly could be achieved by observing teachers or for analyzing their students' work products if the training had focused on specific content-area outcomes.

Additionally, future research could explore the school, rather than individual teachers, as the unit of study. By examining the overall training transfer of teachers at a given school in relation to their principal's leadership style and behaviors, and contrasting these outcomes with other schools, a stronger case could be made for certain leadership styles and behaviors over others.

Another consideration for future research would be to focus on the behaviors described in the Principal's Influence items on the TTQ, and the relationship of these

behaviors to teacher training transfer. Given the preliminary evidence suggesting a positive relationship (discussed earlier in this chapter), it would be interesting to explore this relationship in greater detail. Additionally, the measurement of principal behaviors could include direct observations of principals interacting with teachers; this would provide more in-depth descriptions of the principals' actual behaviors.

Finally, training transfer research overall demonstrates questionable generalizability. This occurs because the measures of training transfer must be tailored to the specific training in which the subjects participated. Future studies should be conducted with participants from other districts and regions who had participated in different trainings, especially given the unique context presented by each district. For example, the district in the current study implemented a highly centralized model of professional development that, by design, attempted to reduce site-level variance in training transfer. In less centralized districts, the leadership styles and behaviors of principals may yield a much larger degree of variance in teacher training transfer outcomes. To accomplish this expansion of training transfer research in different districts and for different trainings, researchers would need to develop different self-assessment items on the TTQ. Meta-analyses of trends across these studies would create a more comprehensive picture of teacher training transfer and principal leadership.

Summary

The purpose of this study was to examine the relationship between teacher training transfer and perceived principal leadership style with a sample of 62 teachers who had participated in their district's new teacher induction program. The study

revealed that the teachers who reported significantly higher training transfer scores also reported significantly greater use of specific behaviors on the part of their principals. The principal behaviors that contributed to their training transfer were categorized as promotion of a culture of accountability and promotion of a culture of professional learning. Additionally these teachers were more likely to perceive their principals as demonstrating both transactional and transformational leadership styles. This combination of high levels of transactional and transformational leadership, in conjunction with frequent use of the above-mentioned principal behaviors, contributed to significantly greater reported training transfer than when these conditions were present to a lesser degree.

Overall, the differences in training transfer scores among groups of participants suggested trends regarding perceptions of principal leadership style, as well as the interaction of leadership style with the demographic variables of gender and grade level. However, these differences were not statistically significant. The small sample size of the current study warrants further investigation in future studies to clarify these relationships.

This study offers recommendations for school leaders, as well as recommendations for future research, and contributes to the literature by providing specific insights regarding why and how principals play a vital role in teacher training transfer. Given the importance of teacher training transfer to ongoing school reform efforts, leaders and researchers should continue to explore this topic and strive to understand how to maximize teacher training transfer.

APPENDIX A

OVERVIEW AND DAILY AGENDAS OF DUSD'S NEW TEACHER INDUCTION

New Teacher Induction Topics

New Teacher Induction (Months/Days)	Topics
July DAYS 1 – 4	<ul style="list-style-type: none"> • Curriculum and Standards (including: Standards-Based Instruction, Essential Standards, Unwrapping the Standards with Big Ideas and Essential Questions, Calendaring, Benchmark Assessments, Formatives, and Reteach/Enrich) • Essential Elements of Instruction (including: Two Part Objective, Teach to the Objective, Anticipatory Set, Active Participation, and Closure) • Classroom Management (including: procedures/routines, signal, bellwork, rules/consequences, seating arrangements) • Overview of Classroom Responsibilities • History of / Bus Tour / Trivia • Cognitive Coaching Program • 6 Traits of Writing • The Role of Technology • Special Education • Parents As Partners
August / September DAY 5	<ul style="list-style-type: none"> • Motivation - Essential Elements of Instruction • Effective Teaching Strategies – Higher Level Questioning • Praise, Prompt, and Leave – Helping the Helpless Handraiser • Classroom Management
January / February DAY 6	<ul style="list-style-type: none"> • Proactive vs. Reactive Teaching • Dealing with Severe Behavior Problems • Classroom Management
April / May DAY 7	<ul style="list-style-type: none"> • Essential Elements of Instruction Year-End-Review • 5 Bits of Advice for New Teachers • Retention – Essential Elements of Instruction • Classroom Management

SCHOOL DISTRICT
“Where Education is a Community Effort”

NEW TEACHER INDUCTION PROGRAM

DAY 1

**Preview of the Year Ahead
Curriculum & Standards
Beyond Textbooks**

Monday, July 6, 2009

8:00 - 8:30 a.m.	Refreshments / Class Pictures
8:30 - 8:45 a.m.	Welcome
8:45 - 9:30 a.m.	Business / Introductions
9:30 - 10:15	Team Builder
10:15 - 10:30 a.m.	Break
10:30- 11:45 a.m.	Viable Curriculum
11:45 - 12:30 p.m.	Lunch
12:30 - 2:30 p.m.	Standards - Based Instruction
2:30 - 3:00 p.m.	Beyond Textbooks
3:00 - 3:30 p.m.	Closure

HOMEWORK: Review Unit D - Lesson Mastery, pages 196 - 267, *The First Days of School*.

SCHOOL DISTRICT
“Where Education is a Community Effort”
NEW TEACHER INDUCTION PROGRAM
DAY 2
Essential Elements of Instruction

Tuesday, July 7, 2009

8:00 - 8:15 a.m.	Bellwork / Refreshments
8:15 - 8:45 a.m.	Classroom Responsibilities Overview of E.E.I. - MUST
8:45 - 9:15 a.m.	Two Part Objective / Teach to the Objective
9:15 - 10:00 a.m.	Anticipatory Set
10:00 - 10:15 a.m.	Break
10:15 - 11:00 a.m.	Active Participation
11:00 - 11:30 a.m.	Task Analysis Modeling
11:30 - 12:15 p.m.	Lunch
12:15 - 1:30 p.m.	Guided Practice / Independent Practice
1:30 - 2:00 p.m.	Checking for Understanding
2:00 - 3:00 p.m.	Closure

HOMEWORK: Review Unit C - Classroom Management, pages 82 -193,
The First Days of School.

SCHOOL DISTRICT
“Where Education is a Community Effort”
NEW TEACHER INDUCTION PROGRAM

DAY 3
Lesson Planning
Classroom Management
District Tour

Wednesday, July 8, 2009

8:00 - 8:30 a.m.	Bellwork / Refreshments EEI Review / Find Someone Who?
8:30 - 9:00 a.m.	P.E.P. - 12 Principles of Effective Planning
9:00 - 10:00 a.m.	Classroom Management (Part 1)
10:00 - 10:15 a.m.	Break
10:15 - 11:00 a.m.	Classroom Management (Part 2)
11:00 - 11:30 a.m.	Lunch
11:30 - 12:00 p.m.	History of
12:00 - 3:00 p.m.	Bus Tour

HOMEWORK: Review Unit B - Positive Expectations, pages 34 - 78,
The First Days of School.

3:00 - 6:00
Human Resources Department Training
(Dinner Provided)

SCHOOL DISTRICT
“Where Education is a Community Effort”
NEW TEACHER INDUCTION PROGRAM

DAY 4
Special Education
Cognitive Coaching
Technology
Parents as Partners

Thursday, July 9, 2009

8:00 - 8:30 a.m.	Refreshments
8:30 - 9:30 a.m.	Special Education
9:30 - 10:30 a.m.	STEEP
10:30 - 10:45 a.m.	Break
10:45 - 11:30 a.m.	Cognitive Coaching Overview
11:30 - 12:00 p.m.	Business Office
12:00 - 12:30 p.m.	Lunch
12:30 - 1:30 p.m.	The Role of Technology
1:30 - 2:30 p.m.	Parents as Partners
2:30 - 3:00 p.m.	Closure

HOMEWORK: Review Unit A - The Teacher, pages 2 - 32, *The First Days of School*.

SCHOOL DISTRICT
“Where Education is a Community Effort”
NEW TEACHER INDUCTION PROGRAM - Day 5

AGENDA

Revisiting Essential Elements of Instruction (E.E.I.)
and Classroom Management

8:00	Refreshments and Bellwork
8:15 - 8:35	Team Builder
8:35 - 9:15	Motivation
9:15 - 9:30	Break
9:30 - 10:00	Praise, Prompt, and Leave - Helping the Helpless Handraisers
10:00 - 11:00	Effective Teaching - Effective Instructional Strategies * Higher Level Thinking Questions
11:00	Closure

- **Next New Teacher Induction**
Group 1 - January 6, 2010
Group 2 - January 7, 2010

SCHOOL DISTRICT
"Where Education is a Community Effort"
NEW TEACHER INDUCTION PROGRAM - Day 6

AGENDA
Severe Behavior Problems
and Classroom Management

8:00 - 8:15	Refreshments and Bellwork
8:15 - 8:35	Proactive / Reactive Teacher
8:35 - 9:15	Identification of Severe Behavior Problems
9:15 - 9:30	Break
9:30 - 10:15	Teacher Responses to Severe Behavior Problems
10:15 - 10:45	Habit #1 "When In Doubt Ream Someone Out." Teacher Anger Jeopardy
10:45 - 11:00	Closure

Next New Teacher Induction

Group 1 - April 28, 2010

Group 2 - April 29, 2010

SCHOOL DISTRICT
“Where Education is a Community Effort”

NEW TEACHER INDUCTION PROGRAM - Day 7

AGENDA

“Wrapping Up”
Essential Elements of Instruction

8:00 - 8:15	Refreshments and Bellwork
8:15 - 9:00	Retention
9:00 - 9:15	Break
9:15 - 10:00	Top 5 List
10:00 - 10:45	Jeopardy - EEI Review
10:45 - 11:00	Closure

APPENDIX B

TRAINING TRANSFER QUESTIONNAIRE

Training Transfer Questionnaire

DEMOGRAPHIC INFORMATION

1. Gender: <input type="checkbox"/> Male <input type="checkbox"/> Female	2. Race/Ethnicity (check all that apply): <input type="checkbox"/> White <input type="checkbox"/> Black or African American <input type="checkbox"/> Asian <input type="checkbox"/> Hispanic or Latino <input type="checkbox"/> American Indian or Alaska Native <input type="checkbox"/> Native Hawaiian or Pacific Islander <input type="checkbox"/> Other	3. Years of teaching experience (including current 2009-2010 year): <input type="checkbox"/> 1 – 3 <input type="checkbox"/> 4 – 6 <input type="checkbox"/> 7 – 18 <input type="checkbox"/> 19 – 30 <input type="checkbox"/> more than 30
4. Were you a participant in New Teacher Induction during the 2008-2009 year? <input type="checkbox"/> Yes <input type="checkbox"/> No	5. Grade level taught during 2008-2009 year: <input type="checkbox"/> Elementary <input type="checkbox"/> Middle School <input type="checkbox"/> High School	6. Content area taught during 2008-2009 year: Elementary: <input type="checkbox"/> All academic subjects <input type="checkbox"/> Other (please list) _____ Secondary (please list) _____

7. School at which you taught during 2008-2009 year:

SELF-ASSESSMENT

Please report how frequently each item describes your teaching.

	Not at all	Once in a while	Sometimes	Fairly often	Frequently, if not always
1. I get responses from students by selecting volunteers.	0	1	2	3	4
2. I teach lessons with specific learning objectives to be achieved by students.	0	1	2	3	4
3. All of my students are actively engaged throughout the lesson.	0	1	2	3	4
4. I provide activities to help students connect new ideas to past experiences or prior learning.	0	1	2	3	4
5. I rely primarily on homework and tests/quizzes to know whether my students understood the lesson.	0	1	2	3	4
6. I engage students in cognitive learning activities at least every 3-5 minutes	0	1	2	3	4
7. I assess students by asking questions and calling on individuals.	0	1	2	3	4
8. Students are required to summarize, practice, and/or reflect on their learning at the end of the lesson.	0	1	2	3	4
9. Students may choose to not participate as long as they do not disrupt the learning of others.	0	1	2	3	4
10. I check to see whether each student has met the objective by the end of the lesson	0	1	2	3	4
11. I use Essential Elements of Instruction (EEI) in my teaching.	0	1	2	3	4

TTQ

PRINCIPAL'S INFLUENCE ON ESSENTIAL ELEMENTS OF INSTRUCTION (EEI)

Please respond to the following items regarding the influence of your principal on your implementation of the Essential Elements of Instruction (EEI). If you have more than one principal, or if you have a different principal this year than last, please focus your responses on the principal who most directly supervised you during the 2008-2009 year.

1. Who most directly supervised your teaching during the 2008-2009 year?

- Principal
 Assistant Principal
 Other

In the following items, the term "principal" refers to this person.

2. Regarding interactions between you and your principal about your use of EEI, who initiated contact more often?

- Me
 My principal
 My principal and I initiated contact approximately equally

Please report how frequently each statement describes your principal.

My principal...	Not at all	Once in a while	Sometimes	Fairly often	Frequently, if not always
3. Provided encouragement and praise regarding my implementation of EEI.	0	1	2	3	4
4. Encouraged me to experiment with new strategies as I implemented EEI.	0	1	2	3	4
5. Talked to me about my implementation of EEI.	0	1	2	3	4
6. Valued and supported EEI.	0	1	2	3	4
7. Gave me feedback about my implementation of EEI.	0	1	2	3	4
8. Expressed the belief that EEI would enhance my professional growth and our school-wide goals.	0	1	2	3	4
9. Supervised/evaluated my teaching for the implementation of EEI.	0	1	2	3	4
10. Supported opportunities for me to collaborate with and/or observe colleagues to improve my implementation of EEI.	0	1	2	3	4
11. Gave me specific suggestions to help me improve my implementation of EEI.	0	1	2	3	4
12. Please describe specific actions taken by your principal that helped or hindered your implementation of EEI. Continue writing on back, if needed.					

APPENDIX C

PERMISSION TO USE MLQ

For use by Kevin Stoltzfus only Received from Mind Garden, Inc. on April 1, 2009



www.mindgarden.com

To whom it may concern,

This letter is to grant permission for the above named person to use the following copyright material:

Instrument: Multifactor Leadership Questionnaire

Authors: Bruce Avolio and Bernard Bass

Copyright: 1995 by Bruce Avolio and Bernard Bass

for his/her thesis research.

Five sample items from this instrument may be reproduced for inclusion in a proposal, thesis, or dissertation.

The entire instrument may not be included or reproduced at any time in any other published material.

Sincerely,

A handwritten signature in black ink, appearing to read "Vicki Iainez".

Vicki Iainez
Mind Garden, Inc.
www.mindgarden.com

APPENDIX D
SAMPLE MLQ ITEMS

Not at all	Once in a while	Sometimes	Fairly often	Frequently, if not always
0	1	2	3	4

THE PERSON I AM RATING. . .

- | | | | | | | |
|----|---|---|---|---|---|---|
| 1. | Provides me with assistance in exchange for my efforts | 0 | 1 | 2 | 3 | 4 |
| 2. | Re-examines critical assumptions to question whether they are appropriate..... | 0 | 1 | 2 | 3 | 4 |
| 3. | Fails to interfere until problems become serious..... | 0 | 1 | 2 | 3 | 4 |
| 4. | Focuses attention on irregularities, mistakes, exceptions, and deviations from standards..... | 0 | 1 | 2 | 3 | 4 |
| 5. | Avoids getting involved when important issues arise..... | 0 | 1 | 2 | 3 | 4 |

APPENDIX E

MLQ SCORING KEY

MLQ Multifactor Leadership Questionnaire Scoring Key (5x) Short

My Name: _____ Date: _____

Organization ID #: _____ Leader ID #: _____

Scoring: The MLQ scale scores are average scores for the items on the scale. The score can be derived by summing the items and dividing by the number of items that make up the scale. All of the leadership style scales have four items, Extra Effort has three items, Effectiveness has four items, and Satisfaction has two items.

Not at all	Once in a while	Sometimes	Fairly often	Frequently, if not always
0	1	2	3	4

Idealized Influence (Attributed) total/4 =	Management-by-Exception (Active) total/4 =
Idealized Influence (Behavior) total/4 =	Management-by-Exception (Passive) total/4 =
Inspirational Motivation total/4 =	Laissez-faire Leadership total/4 =
Intellectual Stimulation total/4 =	Extra Effort total/3 =
Individualized Consideration total/4 =	Effectiveness total/4 =
Contingent Reward total/4 =	Satisfaction total/2 =

1.	Contingent Reward	0	1	2	3	4
2.	Intellectual Stimulation	0	1	2	3	4
3.	Management-by-Exception (Passive)	0	1	2	3	4
4.	Management-by-Exception (Active)	0	1	2	3	4
5.	Laissez-faire	0	1	2	3	4
6.	Idealized Influence (Behavior)	0	1	2	3	4
7.	Laissez-faire	0	1	2	3	4
8.	Intellectual Stimulation	0	1	2	3	4
9.	Inspirational Motivation	0	1	2	3	4
10.	Idealized Influence (Attributed)	0	1	2	3	4
11.	Contingent Reward	0	1	2	3	4
12.	Management-by-Exception (Passive)	0	1	2	3	4
13.	Inspirational Motivation	0	1	2	3	4
14.	Idealized Influence (Behavior)	0	1	2	3	4
15.	Individualized Consideration	0	1	2	3	4

	Not at all	Once in a while	Sometimes	Fairly often	Frequently, if not always
	0	1	2	3	4
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APPENDIX F

LETTER GRANTING PERMISSION TO CONDUCT RESEARCH IN DUSD

x SCHOOL DISTRICT NO. x

"Where Education is a Community Effort"

Xx Xx
Assistant Superintendent

November 23, 2009

Kevin Stoltzfus has permission to conduct survey research in the X School District in the spring of 2010 for his dissertation project entitled *The Relationship Between Teachers' Training Transfer and their Perceptions of Principal Leadership Style*.

Sincerely,

Xx Xx

Xx Xx
Assistant Superintendent

APPENDIX G

APPROVAL FROM HUMAN SUBJECTS PROTECTION PROGRAM



Human Subjects
Protection Program

1618 E. Helen St.
P.O. Box 245137
Tucson, AZ 85724-5137
Tel: (520) 626-6721
<http://www.irb.arizona.edu>

HSPP Correspondence Form

Date: 12/09/09

Investigator: Kevin M. Stoltzfus, Doctoral Student Department: Ed. Leadership & Ed. Psychology

Advisor: Kris Bosworth, PhD

Project No./Title: 09-1026-02/The Relationship between Teachers' Training Transfer and their Perceptions of Principal Leadership Style

Current Period of Approval: 12/09/09 – No Expiration Date

IRB Committee Information	
FWA Number: FWA00004218	<input checked="" type="checkbox"/> Administrative/Exempt Review – 12/09/09
Nature of Submission	
<input checked="" type="checkbox"/> New Project	
Documents	
Reviewed Concurrently	
<input checked="" type="checkbox"/> Project Review Form (received 10/30/09)	Appr: Approved Ack: Acknowledged Rev: Reviewed Appr
<input checked="" type="checkbox"/> Consenting Instruments: Disclosure Form (version 11/30/09)	Appr
<input checked="" type="checkbox"/> VOIF (received 10/30/09)	Appr
<input checked="" type="checkbox"/> Recruitment Materials: Script	Appr
<input checked="" type="checkbox"/> Surveys/Questionnaires: Training Transfer Questionnaire (TTQ) and Multifactor Leadership Questionnaire Rater Form (MLQ)	Appr
<input checked="" type="checkbox"/> Site Authorization: x School District No. 20	Appr
Committee/Chair Determination	
<input checked="" type="checkbox"/> Approved as submitted effective 12/09/09.	
Additional Determination(s)	

- Exempt Approval 45 CFR 46.101(b)(2): Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior.

Elizabeth A. Boyd

12/09/09

Elizabeth Boyd, PhD
Assistant Vice President
Research Compliance & Policy
Office for the Responsible Conduct of Research

Date

EB/rkd

cc: Departmental/College Review Committee

Reminder: Continuing Review materials should be submitted 30-45 days prior to the expiration date to obtain project re-approval

- Projects may be concluded or withdrawn at any time using the forms available at www.irb.arizona.edu.
- No changes to a project may be made prior to IRB approval except to eliminate apparent immediate hazard to subjects.
- Original signed consent forms must be stored in the designated departmental location determined by the Department Head.



APPENDIX H

SUBJECT DISCLOSURE FORM

Subject Disclosure Form

Title of Project: The Relationship between Teachers' Training Transfer and their Perceptions of Principal Leadership Style

You are being invited to voluntarily participate in the above-titled research study. The purpose of this study is to learn more about the transfer of skills from a training experience to classroom practice with students, and how principal leadership impacts this transfer. You are being invited because of your recent completion of X's new teacher induction program and your status as a second-year teacher in X.

If you agree to participate, your participation will involve your completion of the Training Transfer Questionnaire (TTQ) and the Multifactor Leadership Questionnaire (MLQ), which should take a total of 15 to 30 minutes. Your name will not be included on the surveys, nor will you be asked to identify your principal. Your surveys, whether completed or not, should be placed in your envelope and given to the researcher when you leave. Again, you should not write your name on the surveys or envelope.

Your involvement will end once you have submitted the surveys. Participation in this research poses no foreseeable risk to you, nor are there any costs aside from your time. Snacks have been provided simply as a gesture of appreciation for your time, regardless of whether you complete the surveys. You will receive no other direct benefit from taking part in this study. However, the study will yield greater benefits in that it will enhance the knowledge base regarding teacher training transfer and effective school leadership.

Participation is completely anonymous. Your name will never appear on the survey. Upon submission, your surveys will not be traceable. You will not be identified in any reports or publications resulting from the study. No identifiable information will be given to the district. Your refusing to participate or your decision to stop participating will have no effect on your involvement with the X School District.

You can call the Principal Investigator to tell him about a concern or complaint about this research study. The Principal Investigator, Kevin Stoltzfus, can be called at (520) 250-1862. If you have questions about your rights as a research subject, you may call the University of Arizona Human Subjects Protection Program office at (520) 626-6721. If you have questions, complaints, or concerns about the research and cannot reach the Principal Investigator, or want to talk to someone other than the Investigator, you may call the University of Arizona Human Subjects Protection Program office. (If out of state use the toll-free number 1-866-278-1455.) If you would like to contact the Human Subjects Protection Program via the web (this can be anonymous), please visit <http://www.irb.arizona.edu/contact/>.

By participating in the surveys, you are giving permission for the investigator to use your survey responses for research purposes.

Thank you for your time.

Kevin Stoltzfus
Doctoral student, Educational Leadership
University of Arizona College of Education

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