DO PRINCIPAL EVALUATIONS OF INSTRUCTION CAPTURE STUDENT PERCEPTIONS OF TEACHER SOCIAL SUPPORT AND ACADEMIC PRESS?

AN EXAMINATION OF THE NETWORK FOR EDUCATOR EFFECTIVENESS INSTRUMENTS FOR MEASURING TEACHER EFFECTIVENESS.

A Dissertation

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the Faculty of the Graduate School

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by

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The undersigned, appointed by the dean of the Graduate School, have examined the dissertation entitled

DO PRINCIPAL EVALUATIONS OF INSTRUCTION CAPTURE STUDENT PERCEPTIONS OF TEACHER SOCIAL SUPPORT AND ACADEMIC PRESS? AN EXAMINATION OF THE NETWORK FOR EDUCATOR EFFECTIVENESS INSTRUMENTS FOR MEASURING TEACHER EFFECTIVENESS.

presented by Charles W. Keene,

a candidate for the degree of Doctor of Education

and hereby certify that, in their opinion, it is worthy of acceptance.

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DEDICATION

I want to dedicate this dissertation to my father and mother, Chester and Mary Jane, who never wavered in striving to create educational opportunities for their children. Thanks to my brothers, Tony and Gary, who challenged and encouraged me to persevere throughout this journey.

I also want to dedicate this dissertation to my wife, Misty, and my children, Sean, Lydia and Nathan. It is fitting as you have sacrificed much to make this last leg of the journey possible. It has been a long road but one I hope serves as an example for my children that hard work and perseverance toward a noble goal is worth the effort.

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SECTION ONE:

INTRODUCTION TO DISSERTATION-IN-PRACTICE

Background of Study

As the era of accountability continues to permeate the American educational system, scholars have investigated the best methods for estimating teacher effectiveness (e.g., Goldhaber & Anthony, 2007; Hewitt, 2011; House, 2013). Among the most frequent questions were: (a) should they be teacher-student interaction based (Allen, Gregory, Mikami, Lun, Hamre, & Pianta, 2013), (b) did teachers and schools have distinct characteristics that influenced effectiveness (Ellett & Teddlie, 2003), (c) were these influencers stable year after year (Polikoff, 2015), and (d) what were the distinct aspects underlying student perception surveys (Wallace, Kelsey, & Ruzek, 2016)? State legislatures demanded evidence of student growth and achievement while enacting evaluation policies that required rigorous teacher observation instruments (Goldring, Grissom, Rubin, Neumenski, Cannata, Drake, & Schuermann, 2015). These policy-makers sought to create more rigorous evaluation systems, yet, what were the ramifications for teachers in the practice of teaching itself and for the principal as the instructional leader (Herlihy, Karger, Pollard, Hill, Kraft, Williams, & Howard, 2013)?

Historically, the accountability movement in PK-20 education had been a mechanism to design performance measures to improve education (Dunn, 2003). The 2002 passage of the No Child Left Behind Act of 2001 (NCLB), the 2006 NCLB waivers, and 2009 passage of the American Recovery and Reinvestment Act that included the Race To The Top fund (RTTT), accelerated interest and activism surrounding accountability issues (Davidson, Reback, Rockoff, & Schwartz, 2015; Forte & Erpenbach, 2006; House, 2013). In terms of teacher evaluation systems, Davidson et al., (2015) noted the possibility for the 2006 NCLB waivers to, “provide states and

districts with discretion in their substantive choices of how to measure school effectiveness" (p. 356). As policy-makers and educational reform advocates sought the most valid and reliable factors to consider for teacher effectiveness, the value-added measures (VAM) approach to teachers' contributions to student learning outcomes garnered much of the attention (e.g., Herlihy et al., 2013; Hill, Kapitula, & Umland, 2011; Mihaly, McCaffrey, Sass, & Lockwood, 2012; Strong, Gargani, & Hacifazlioglu, 2011).

Despite the early preference given to VAM, in both the literature and policy implementation, principal observations of instruction became another widely used method for quantifiably justifying ranking a teacher as effective (Darling-Hammond, 2015; Goldring et al., 2015). As states and local districts responded to the NCLB and RTTT legislation with new teaching evaluation systems, VAM (with its standardized test focus) combined with classroom observation instruments (with its formative assessment focus), became prominent teacher accountability tools for measuring teaching effectiveness (Gitomer, Bell, Qi, McCaffrey, Hamre, & Pianta, 2014). Researchers have found strong connections between VAM and classroom observations (Cohen & Goldhaber, 2016). However, Goldring et al., (2015) found that while VAM were important components of assessing teacher effectiveness, more research on the consistency between observation scores and other measures of student learning could provide needed flexibility and data use choice as principals made personnel decisions.

Statement of the Problem

Specific to the current study, Goldring et al., (2015) posited that, "…data from structured teacher observations…constitute a new source of information principals and

school systems can utilize in decision making" (p. 96). These data were important for the new accountability standards and states responded in varying ways to the new tools available for teacher evaluation. States could choose from a number of empirically based observation instruments, notably the Framework for Teaching Protocol from Charlotte Danielson (Danielson, 2008) and the variations of the Teaching Through Interactions Framework known as the Classroom Assessment Scoring System (CLASS) (Hafen, Hamre, Allen, Bell, Gitomer, & Pianta, 2015). A number of large public school districts in the United States, including Cincinnati and Pittsburg, used these frameworks to build customized teacher observation instruments (Chaplin, Gill, Thompkins, & Miller 2014; Hafen et al., 2015). Highlighting the importance and magnitude of ensuring the validity of teacher observation instruments, Jacob and McGovern (2015) found that in the districts they studied, the professional development expenditure was nearly $18,000 per teacher.

Problem of Practice

Despite the prevalence of new research on teacher observation tools, Harris, Ingle and Rutledge (2014) noted a disturbing propensity for districts to use formal evaluation instruments whose outcomes contained little useful information about effectiveness and almost no information on the components principals judged as important, including personal characteristics. Much of the contemporary resistance to these subjective instruments stemmed from fears of favoritism, nepotism or even discrimination (Jacob & Walsh, 2011). Further Polikoff (2015) noted that since wide scale use of observation measures was a recent phenomenon, there remained insufficient literature on many of the stability components of these measures. Similarly, Harris et al., (2014) argued for further

research on all measures of teacher effectiveness, especially principal classroom observations, as they found, “the characteristics principals say they prefer are almost never associated with any other measure of effectiveness” (p. 80). According to Harris et al., (2014), the most prominent of these was “caring”.

Existing Literature Gap

Although studies have considered the role of student perceptions in assessing teacher effectiveness, this field is still in infancy (Wallace et al., 2016). The focus of the current study was whether principal observations miss certain aspects of instruction, such as social support and academic press. Teacher credentials, subject knowledge, overall intelligence and classroom competencies were commonly cited indicators of quality and effective instruction (Garrett & Steinberg, 2015; Harris et al., 2014). Yet, Goldhaber and Anthony (2007) found little consensus amongst researchers about the relationship of these indicators and teacher effectiveness. While they acknowledged the profound effect a quality teacher could have on student achievement, Goldhaber and Anthony (2007) found traditional indicators of teacher quality were not strongly related to observed teacher characteristics; suggesting the characteristics that made teachers effective in the classroom were not always related to the attributes being measured on the teacher effectiveness instruments. Similarly, other studies have shown that principals struggle with the optimal metrics for teacher evaluations (e.g., Bergin, Wind, Grajeda, & Tsai, 2017; Jacob & Lefgren, 2006; Popham, 2013).

Consequently, there was limited empirical evidence on how student perception surveys could predict principal observations. Wallace et al., (2016) tested the underlying factor structure of the Tripod Survey against four alternative multidimensional models of

effective teaching. Chaplin et al., (2014) tested elements of the Research-based Inclusive System of Evaluation (RISE) principal observation system (based on Danielson's Framework for Teaching), the 7C's student perception survey, and a value-added measure (VAM) from Mathematica Policy research to develop a gauge of overall teaching effectiveness. Both of these studies found low correlations between the observation instruments and the other instruments tested. As again, there were a limited number of studies in this area, the current study took elements of both previous studies to explore the predictive ability of student perception surveys to principal observations.

Purpose of the Study

The purpose of the current study was to contribute new perspective in the research of evaluations of teacher effectiveness in a high school setting and attempt to solve a problem of practice by investigating the results of a student survey and a principal observation instrument used as components in a teacher evaluation system. Accordingly, in this study, I examined two aspects of instruction – social support and academic press and their relationship with principal evaluations of classroom instruction. I then correlated student perceptions (from surveys) of these factors with scores of principal evaluations conducted from observations designed to be around 10 minutes (Bergin et al., 2017). The data for this study came from the Network for Educator Effectiveness (NEE), an organization that provided a teacher evaluation instrument and training program to schools in the state of Missouri.

During the 2014/2015 academic year, NEE collected data from over 235,000-student perception surveys from across the state of Missouri (nee.missouri.edu). The student surveys were designed to measure aspects of classroom instruction that included

components emphasized by Lee, Smith, Perry and Smylie (1999), student (social) support and academic press. Thus, I conducted an exploratory factor analysis (EFA) to reduce the dimensions of the existing student survey data and then applied a regression analysis to examine the relationship with indicators in the principal observation instrument.

To summarize, this study analyzed existing data from student surveys, and additionally, data from indicators for principal observations of teacher effectiveness. These data were used to provide answers to the following research questions:

- (RQ1) To what extent are student perceptions of academic press related with principal observations of teacher effectiveness?
- (RQ2) To what extent are student perceptions of social support related with principal observations of teacher effectiveness?

Conceptual Framework

In the same way that parents actively teach children about themselves and how they should interact with the world in order to succeed, teachers create conditions where students can attain these expectations through observational learning inherent in models of socialization (Wentzel, 2002). Essential to the issue of student achievement in any setting is the belief of the students in his/her ability to accomplish the tasks set before them, no matter how challenging (Hughes, 2011; Theall & Franklin, 2001; Wentzel, 2002). In order to understand where this underlying belief might come from, Wentzel (2002) used parent socialization models to create a framework for identifying effective teachers.

Parent Socialization Models

The specific theoretical model for the current study was parenting style (Walker, 2008). This theory was a synthesized modification by Walker (2008) of earlier works on parent-child relationships by Baumrind (1978; 1991) with teacher-student relationships by Wentzel (1997; 1999). In Figure 1 below, the diagram shows the conceptual flow of the resultant theory. According to Walker (2008), "variations along these dimensions create different styles (i.e., authoritative [high on both demands], authoritarian [high demandingness and low responsiveness], and permissive [low demandingness and high-moderate responsiveness])" (p. 219).

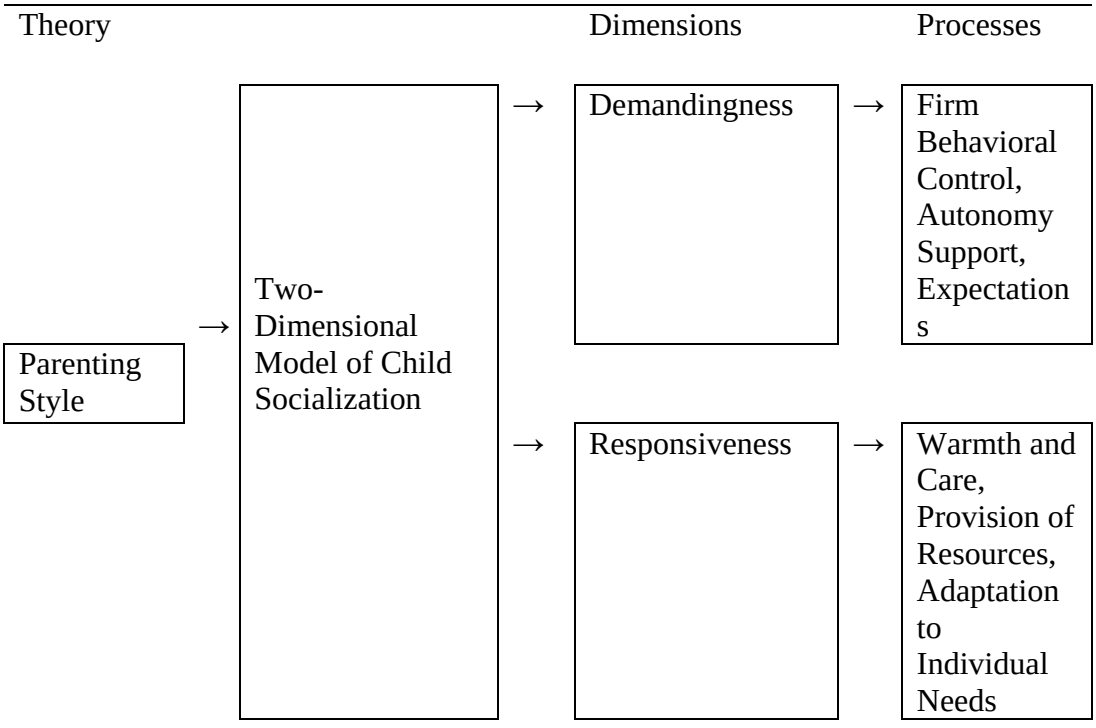

Figure 1. Diagram of Parenting Style Theory

Similar to Walker (2008), Lee (2012) and Lee and Smith (1999) found that engaged parents influenced child motivation and that schools and teachers had a similarly significant influence on student engagement and academic performance. Important to the

current study, Lee (2012) in much the same manner as Walker (2008) outlined a two-dimensional parenting style, authoritative style, and applied that to teachers and schools. According to Lee (2012), this style of parent socialization was notable for its dimensions of "…demandingness (e.g., academic press) and responsiveness (e.g., supportive relationship [social support]), [and] is expected to provide the optimal conditions to achieve best student outcomes" (p. 332). Ruzek, Hafen, Allen, Gregory, Mikami, & Pianta (2106) found that supportive interactions were critical to high quality instruction while Wentzel (2002) found that teacher modeling of these styles might partly explain student motivation toward academic goals. According to Walker (2008), the authoritative teaching style (i.e., consistent classroom management, support of student autonomy, and personal interest in students) produced the most academically and socially competent students. A synthesis of this authoritative style provided the framework for the current study to examine how social support and academic press influenced students and principals in identifying effective teachers.

Social Support and Academic Press

Crucial to the conceptual underpinnings of the current study, Lee et al., (1999) synthesized the importance and practical impact of these interactions when they classified these student-teacher relationships as social support, and defined as, "the personal relationships that students have with people [teachers] who may help them do well in school" (p. 7). They argued that students with more intentional systems of support would learn more. In order to achieve higher levels of learning, students needed social support to provide the trust, confidence and psychological safety needed to take risks, admit errors and ask for help (Lee et al., 1999). Tangible examples of social support included;

(a) high levels of trust, (b) strong values and expectations, (c) openness and relatability (d) genuine care in the person (Lee et al., 1999).

As found throughout the literature, students needed strong academic press to achieve higher levels of learning (e.g., Lee, 2012; Murphy, Weil, Hallinger, & Mitman, 1982; Wentzel & Wigfield, 1998). According to Lee et al., (1999), tangible examples of academic press included; (a) amount of homework assigned, (b) amount of time dedicated to classroom instruction, (c) level of challenge of the academic work and (d) specific standards of student achievement (Lee et al., 1999). The role of the principal in setting expectations for how teachers move through the curriculum was important as well. Wallace et al., (2016) noted that students needed to form positive connections with teachers in both the social and academic constructs in order to maximize their ability to learn.

Creating learning environments whereby students feel they are empowered to meet the high standards mandated by the new accountability standards has been the primary task of teachers and principals (Klem & Connell, 2004; Wentzel, Battle, Russell, & Looney, 2010). According to authoritative parent socialization theory, schools and teachers exhibiting high levels of both responsiveness and demandingness enhance student outcomes (Lee, 2012). Studies have found that teachers who held the entire class to higher expectations saw twice as much growth in reading as students of similar ability in classrooms with low-expectation teachers (Sandilos, Rimm-Kaufmann, & Cohen, 2016). Klem and Connell (2004) found that high levels of expectation and engagement between teachers and students were associated with higher attendance and test scores.

Lee (2012) found that the level of teacher-student relationships were a significant predictor in all the student outcomes examined.

In the face of the policy mandates of NCLB and RTTT, principals were tasked with personal decision-making dependent on numerous inputs including student outcomes (Goldring et al., 2015). A number of studies have shown the influence of components of both social support and academic press on student outcomes (e.g., Lee, 2012; Lee & Smith, 1999; Ruzek et al., 2016; Wentzel et al., 2010). Yet, the proper balance of the two, and how effective teachers exhibit them, remained challenging for principals to determine, whether using VAM or classroom observations (Cohen & Goldhaber, 2016; Harris et al., 2014). Consequently, even though principals may not be able to observe directly social support or academic press in the brief time that they are in the classroom and students may desire social support and not yet appreciate academic press, these two components can indirectly influence the more visible aspects of effective instruction. Therefore, the following three hypotheses guided the current study:

H1: Principal evaluations of the Teacher's Cognitive Engagement is positively associated with Social Support and with Academic Press.

H2: Principal evaluations of the Teacher's Instructional Strategies is positively associated with Social Support and with Academic Press.

H3: Principal evaluations of the Effect of Teacher's Instruction is positively associated with Social Support and with Academic Press.

Design of the Study

This section will briefly describe the setting of the study. Important to the current study were the NEE organization, survey participants and data collection along with the data analysis methods used to determine and interpret the findings.

Setting

As stated previously, the Network for Educator Effectiveness (NEE) provided a teacher evaluation program to schools in the state of Missouri during the period covered by the current study. NEE began in 2012, the result of national and state initiatives to improve the teacher evaluation process. A hallmark of the NEE program was its mission to help administrators, regardless of district demographics or building profile, improve the quality of their evaluations, and consequently, their teacher and leadership effectiveness. NEE sought to enhance the effectiveness of teachers through training school administrators to be evaluators in a uniform evaluation system that included multiple observation opportunities (typically 1-4 times over the school year) (C. Bergin, personal communication, November 28, 2017). NEE provided training for administrators, as well as electronic documents and consultative support during the teacher evaluation process. In participating districts, grade levels starting at higher elementary through high school utilized various components of the NEE teacher evaluation instruments (Network for Educator Effectiveness, 2016).

Participants

During the 2014/2015 academic year, NEE collected data from over 235,000 student surveys from across the state of Missouri (Network for Educator Effectiveness, 2016). The current study used an initial data set that included teacher-level, student

survey results for 2,413 teachers in 113 different high schools across the state of Missouri as well as the corresponding principal observation results for those teachers. These numbers represented about 12% of total teachers and 18% of total high schools during the 2014/2015 academic year according to the official census on the state of Missouri's Department of Elementary and Secondary Education (MODESE) website (dese.mo.gov). As NEE charged fees for their evaluation instruments, only schools with budgets that allowed such purchases participated (C. Bergin, personal communication, November 28, 2017).

Within the schools that did utilize the NEE instruments, various conditions existed that reduced the final data set. While the online student survey tool utilized by NEE collected the data in real time as the students were completing the survey, thus insuring the validity of the results because there was no transcribing, many of the surveys had incomplete responses. Additionally, not all schools used both the student survey and principal observation instruments in their teacher evaluations. Further, principals who did utilize the NEE observation instrument had nine empirically based standards (consisting of 38 unique indicators) from which to choose (Allen, 2015). In response to these conditions, the researcher chose the three indicators that were most widely used, and which had corresponding student surveys. Thus, the final data set used in the analysis consisted of teacher-level, student survey results for 793 teachers from 54 different high schools across the state of Missouri as well as the corresponding principal observation results on the three most widely used indicators for those teachers. As indicated earlier, since the principal observations ranged from 1-4 times over the school

year, the data were the average of these multiple observations (C. Bergin, personal communication, November 28, 2017).

Data Collection

The Assessment Resource Center (ARC) at the University of Missouri was responsible for the collection of the initial data for use by NEE personnel, the school districts and other affiliated researchers. The researcher obtained the data, as a secondary de-identified data source from the ARC, through a signed data use agreement protocol with NEE.

Data Analysis

Master (2014) conducted an exploratory factor analysis (EFA) using principal axis factor (PAF) extraction with a Varimax orthogonal rotation to determine the underlying factors of a teacher evaluation instrument used at private charter school that included many items borrowed from the 7C's student perception survey from Ferguson (2012). As the NEE student perception survey also included items borrowed from the 7C's, I similarly ran an exploratory factor analysis (EFA) using principal axis factor (PAF) extraction. Although principal component analysis (PCA) extraction is the most widely used factor extraction tool (Conway & Huffcutt, 2003), Field (2013) noted that the use of PAF extraction usually resulted in similar solutions. Important for the current study, Thompson and Vidal-Brown, (2001) noted that "interpretations of the factors across the two [*types of*] analysis would be comparable" (p. 7). Yong and Pearce (2013) defined the difference as coming down to a preference for finding components versus factors in one's analysis. As the current study was interested in finding factor clusters related to the Lee et al., (1999) paradigm as a framework, the preferred choice was PAF.

Regardless of the factor extraction method chosen, Yong and Pearce (2013) noted a need for factor rotation for better interpretation due to the ambiguity of unrotated factors. Thus, similar to the previously mentioned study by Master (2014), the current study employed a Varimax orthogonal rotation to enable clearer interpretation of the underlying factors. The goal of the orthogonal rotation was to rotate the factors so that they remained independent and uncorrelated (Field, 2013). The use of the Varimax method for the current study ensured the maximum dispersion of loadings within the factors (Field, 2013). Yong and Pearce (2013) noted that this method helped "…define a distinct cluster of interrelated variables so that interpretation is easier" (p. 84). These "distinct clusters" were important to the current study as it attempted to determine the underlying factors of the student perception survey.

While there were 37 total questions in the NEE student survey instrument, 33 were isolated to represent the domains integral to the current study- social support and academic press. One question (Question 20) was an instrument validity question and therefore invalid for the current study. The removal of three survey questions from the technology domain from the final factor analysis was judged appropriate because the research questions were about academic press and social support and how students and principals perceived those as factors in teacher effectiveness, and not how they perceived the use of computers in the classroom.

Limitations, Assumptions, Design Controls

The demographic variance of high schools in the state of Missouri, including socio-economic and geographic settings, are such that a need existed to utilize dummy coding to control school building as a fixed-effect to control for variances across districts

(Field, 2013). Although student demographic data was not yet available from the NEE student survey tool, its future inclusion will aid analysis of the survey findings relative to this type of factor analysis. While not a part of the current study, according to the literature considerations for socio-economic status, gender, school setting (rural, urban, etc.) and race were valid for any study on perceptions of teacher effectiveness (e.g., Dee, 2005; Fauth, Decristan, Rieser, Klieme, & Büttner, 2014; McAllister & Irvine, 2002; Peske & Haycock, 2006; Wentzel, 2002). Additionally, studies (e.g., Cohen & Goldhaber, 2016; Klem & Connell, 2004; Marshall, 2005) have shown that grade level, subject, and other class/teacher level characteristics, while absent from the current study, were valid for any study on perceptions of teacher effectiveness.

Definitions of Key Terms

Dependent variables. One of the overriding features of the NEE teacher evaluation system was its flexibility and customization option (NEE, 2016). Indicative of this was the fact that the principal observation tool had nine empirically based standards consisting of 38 unique indicators (Allen, 2015). School districts could customize the NEE system to capture better the unique environment of each district (NEE, 2016). As there was almost infinite variability in the potential number of indicators used, the current study used the number of teachers observed by principals using the same three observation indicators as the dependent variables.

(DV^1) Teacher's Cognitive Engagement (OB1.2) refers to the principal observation indicator that asked if the principal observed if the "*teacher cognitively engages students in the subject*". According to the NEE guidelines, these engagements could include both classroom curricular content as well as connectors to students' lives.

(DV²) Teacher's Instructional Strategies (OB4.1) refers to the principal observation indicator that asked if the principal observed if "*the teacher uses instructional strategies that lead students to problem-solving and critical thinking*". According to the NEE guidelines, these strategies could include independent, active learning opportunities for the students.

(DV³) Effect of Teacher's Instruction (OB7.4) refers to the principal observation indicator that asked if the principal observed if "*the teacher monitors the effect of instruction on the whole class and individual learning*". According to the NEE guidelines, active engagement with the students helped foster appropriate corrective action when needed.

Independent Variables. As discussed previously, the creators of the NEE student perception survey created an instrument that attempted to capture relevant and accurate information that would assist teachers and administrators in reaching student achievement goals. Similar to the Wallace et al., (2016) study using the Tripod survey as a basis, the current study, using the NEE student perception survey, utilized the social support/academic press (Lee et al., 1999) two-dimensional structure of factors for effective teaching as independent variables.

(IV¹) Social Support refers to the factor within the NEE student perception survey that indicated students saw evidence of "…the personal relationships that students have with people [teachers] who may help them do well in school" (Lee et al., 1999, p. 7).

(IV²) Academic Press refers to the factor within the NEE student perception survey that indicated students saw evidence of "…the normative and behavioral

environment of a school [teacher] that emphasizes academic excellence and conformity to academic standards" (Lee, 2012, pg. 331).

Significance of the Study

At the time of the current study, there was limited empirical evidence on how student perception surveys could predict principal observations. The Tripod study using data from the Measures of Effective Teaching (MET) database study (Wallace et al., 2016) and the Institute for Education Sciences (IES) study from the Pittsburg Public Schools (Chaplin et al., 2014) were among the few studies that have correlated different instruments of teacher evaluation including principal observation and student perceptions. Using the Ferguson Tripod Survey data from the MET Project, Wallace et al., (2016) tested the underlying factor structure of the Tripod Survey against four alternative multidimensional models of effective teaching. Chaplin et al., (2014) tested elements of the Research-based Inclusive System of Evaluation (RISE) principal observation system, based on Danielson's Framework for Teaching, the 7C's student perception survey, and a value-added measure (VAM) from Mathematica Policy research to develop a gauge of overall teaching effectiveness. The current study took elements of both studies to explore a new paradigm regarding the predictive ability of student perception surveys to principal observations.

Scholarship

If the student perception surveys are not correlated with principal observations, recent calls for moving toward multiple instruments e.g., MET/Tripod (Kane & Staiger, 2012) are justified as it can be inferred that different instruments capture different aspects of teaching. More critically, this would show that widely used principal observation

instruments miss key aspects of instruction. Hanushek and Rivkin (2006) noted that without further empirical evidence states might revert to methods of assessing teacher effectiveness that fail to capture teacher characteristics that lead to better student-teacher relationships.

If the student perception surveys are positively correlated with principal observations (e.g. IES/Pittsburg), then moves toward valid single instrument evaluations could increase. The confusion continues to lie in the context of the use of the instruments, whether for summative evaluations or formative feedback (Bergin et al., 2017). The consensus continues to be that a combination of evaluation instruments should be used (Wallace et al., 2016). Hence, as the focus of this study was whether principal observations miss certain aspects of instruction, such as academic press and student teacher support, this study contributes to state and national policy discusses on teacher effectiveness evaluation.

Additionally, the current study was a constructive replication study of the Tripod/MET database study (Wallace et al., 2016) and the IES study from the Pittsburg Public Schools (Chaplin et al., 2014). Adams, Ajrouch, Henderson and Heard (2005) defined constructive replication studies as an attempt to replicate conceptually a previous study. Makel and Plucker (2014) gave further clarity by defining constructive replications as studies whereby the replicator formulates their own methods of sampling, measurement and data, while acknowledging the empirical facts the original author claims to have established. Journal editors across the social sciences have called for more replication research and championing their recognition as just as important as the original works (Peters & Pereira, 2017). Since Makel and Plucker (2014) found only

0.13% of education articles were replications and that the majority of education replications successfully replicated the original studies; the current study would potentially give increased validity to the NEE instruments at a time when increased accountability in state and federal standards necessitate more options for districts in evaluating teacher effectiveness.

Practice

In response to the Missouri ESEA Waiver of 2012 mandate, all public school districts in the state had to begin using predetermined criteria to evaluate teachers (Allen, 2015). As of 2015, Missouri had only two approved evaluation instruments; the Missouri Model Teacher and Leader Standards developed by the Missouri Department of Elementary and Secondary Education (MODESE) and the NEE teacher evaluation system (Allen, 2015). During the academic year 2014/2015, the state of Missouri had 611 high schools serving approximately 270,000 students with 20,204 teachers according to statistics collected by MODESE (dese.mo.gov). In that same academic year, NEE collected 235,000 student surveys evaluating 2,413 teachers in 113 different high schools from across the state of Missouri (Network for Educator Effectiveness, 2016). Because of the emerging implementation of the NEE student survey and principal observation instruments as viable alternatives to the existing teacher evaluation instruments in the state of Missouri (Bergin et al., 2017), it was proper to test the correlation of the NEE teacher evaluation instruments.

Summary

The state of Missouri needs an educated populace to compete in the 21st century and local school districts are at the forefront of the effort. The idea of promoting growth

for teachers is honorable, yet, without empirical evidence to support the training or evaluation methods, true reform will not occur. State governments are facing increasingly disparate demands from their local constituents relative to accountability and reform in education policy making. It has become apparent that states must determine the most efficient ways to administer public education while at the same time not infringing markedly on the liberty of their local school districts in framing policy. The waivers given to states to implement innovative solutions to the NCLB criteria within the RTTT framework offered an opportunity as well for researchers to take a fresh look at teacher effectiveness in secondary education environments (Harris et al., 2014).

SECTION TWO:

PRACTITIONER SETTING FOR THE STUDY

Introduction

The current study endeavored to add knowledge to an existing research gap in evaluations of teacher effectiveness in secondary education, namely whether principal observations capture student perceptions of social support and academic press. Data from participating high schools from the five regions (Table 1) served by the Network for Educator Effectiveness (NEE) in the state of Missouri were the basis for the current study. The variance in the demographic make-up of each region internally and with each other necessitated a fixed-effects approach to the data analysis.

Table 1 *Network for Educator Effectiveness State of Missouri Regions*

Region 1	Region 2	Region 3	Region 4	Region 5
Kansas City Area and Northwest Missouri	Mid Missouri and Northeast Missouri	St. Louis and Mid Missouri	Southeast Missouri and Lake of the Ozarks Area	Southwest Missouri

nee.missouri.edu

A robust quantitative analysis of existing student surveys and principal observations positioned the study to observe the influence of teacher characteristics on student and principal perceptions of teacher effectiveness. Results will allow policymakers and educators to better formulate teacher recruitment, professional development, and retention strategies to face the challenges of the current educational environment. The ongoing quest for highly effective teachers engaging students in active learning environments with measurable gains in student outcomes demands the attention and talents of the community of educational researchers.

History of the Organization

Historically, federal initiatives, state policymaking, and local influence have been the catalyst for change in education and other social initiatives (Herlihy et al., 2013;

House, 2013). This was true in the state of Missouri, where in the early 1980's the state legislature addressed the need for teacher evaluations through the passage of statute 168.128 RSMo which required the school boards in each local district to establish comprehensive teacher evaluation procedures under the guidance of the state Department of Elementary and Secondary Education (DESE). In the subsequent two decades, DESE was instrumental in developing a number of performance-based evaluation systems for the districts. These efforts culminated in 1999 with the establishment of the Performance-Based Teacher Evaluation (PBTE). This instrument was the main tool utilized by the local districts until the federal government's release of the NCLB standards in 2002.

The tacit approval of "minimum standards" implicit in the 2001 No Child Left Behind (NCLB) federal legislation (ESEA Flexibility Waiver, 2015) caused concern for many education reformers (e.g., Corcoran, 2010; Strong et al., 2011) and Missouri responded in 2012 with the launch of the NEE initiative to improve the teacher evaluation process. NEE sought to enhance the effectiveness of teachers through training school administrators to be evaluators in a uniform evaluation system. NEE provided an online platform, which gave evaluators and teachers easy access to expectations, forms, and data. As of the academic year 2015/2016, NEE had evaluated over 25,000 teachers in more than 260 of the 533 Missouri school districts (Network for Educator Effectiveness, 2016). According to NEE, their mission is:

"There are opportunities for improvement in the professional practice of all educators.

We assist districts in identifying those opportunities for improvement in each educator so districts respond to those opportunities to go beyond the minimum requirements of compliance regulation to provide comprehensive, effective, truly helpful solutions for teachers and schools; to do all those things in a way that generates meaningful data; and ultimately to mine that data and from it learn still more about effective teacher and learning" (nee.missouri.edu).

Organizational Analysis

The concept of power and social influence extends across all types of organizations (Levi, 2013). The ability to harness the capabilities of others and use those abilities to further the mission of an organization is vital to the success of any organization. Levi (2013) identified historical studies and views on power and social influence while giving practical applications for their use in team situations. The impact of an engaged teacher on student achievement, motivation and post-graduate engagement can be transformative (Strong et al., 2011). Bolman and Deal (2008) made the assertion, "…people's skills, attitudes, energy, and commitment are vital resources that can make or break an enterprise" (pp. 121-122). When the people within an organization become demoralized, despondent or apathetic, the organization will begin to dissolve. With conflicting political priorities, scarce budget resources and perceived respect for teaching as a profession at all-time lows, DESE is a vital organization for leadership and guidance for educators in the state of Missouri. Yet, despite an impressive organizational bureaucracy, the impact of DESE on teacher effectiveness, as is the case with other state educational departments around the United States, has been somewhat muted (Schonert-Reichl, Hanson-Peterson, & Hymel, 2015). The size and scale of the Missouri Public

School System's bureaucracy necessitates creative approaches to the myriad of environments in which Missouri school students engage in learning.

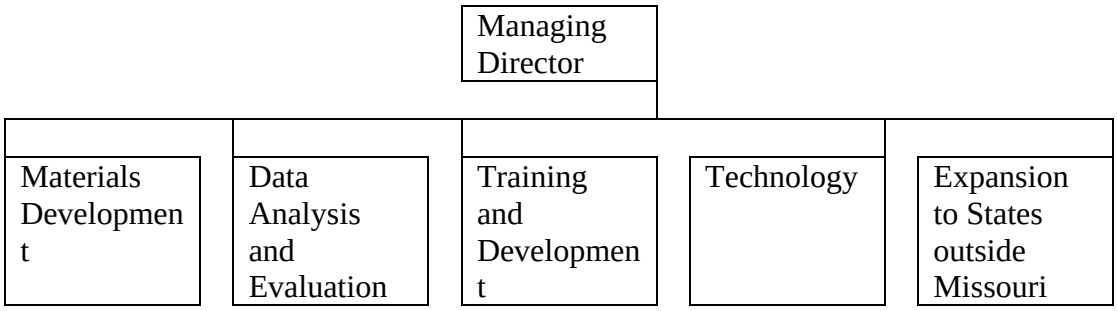

Figure 1. Organizational Chart for the Network for Educator Effectiveness

Despite being an auxiliary unit of the College of Education at the University of Missouri, the entrepreneurial nature and practical reality of the NEE organizational structure means it can be rapidly responsive to the needs of educators in the state without the negative aspects of the typical state department of education bureaucracy and thus implement change as needed. Additionally, by utilizing the resources of the University of Missouri and its Regional Professional Development Centers (RPDC) through the Extension offices required of a state Land-Grant university, NEE can leverage research-based solutions through a local network of education partners. The resources of the College of Education, as well as the Assessment Resource Center (ARC) at the University of Missouri, are also key components of the NEE organization (Network for Educator Effectiveness, 2016).

Bolman and Deal (2008) found that, "strong companies know the kinds of people they want and hire those who fit the mold" (p. 143). A problem for the field of secondary education has been how do you accomplish this with limited resources across all spectrums of the districts and states? Yes, "selecting the right people gets results"

(Bolman & Deal, 2008, p. 143), but who are those right people, where are they, and can you either convince them to stay or convince them to come to your organization. Because principals have shown limited ability to identify a number of teacher characteristics crucial to student achievement (Jacob & Lefgren, 20017), the NEE instruments are beneficial for organizational stability and advancement. The tools for measuring teacher effectiveness provided by NEE has enabled schools to identify and retain quality teachers and thus enhanced the organizational culture of the participating schools.

Leadership Analysis

The promise of educating young people in an atmosphere of creativity, care and intellectual exploration has been, in many instances, replaced by the reality of high stakes testing, burdensome accountability regulations, and dwindling resources. Changing economic realities, growing diversity in student populations and the uncertain future of public funded education as currently constituted demands new approaches to operating and leading education initiatives (Shatzer, Caldarella, Hallam, & Brown, 2013; Witziers, Bosker, & Krüger, 2003). Bolman and Deal (2008) stated, "power in organizations is basically the capacity to make things happen" (p.196). The ability to move people whether one is using the power of position or personality is fascinating and has implications in diverse educational settings (Branch, Hanushek, & Rivkin, 2013).

While there are many definitions for leadership in the literature (Denhardt & Campbell, 2006; Grint, 2005; Solansky, 2008), the current study was guided by Northouse (2013) and his principle that, "leadership is about adaptation and constructive change" (p. 16). Educational leaders from DESE, NEE and local superintendents and

principals have an opportunity and responsibility to affect change through a social justice and equity lens in order to ensure quality education for all students in the state of Missouri. The concept of servant leadership provided an appropriate lens to tackle the need for quality education in the state of Missouri and complemented the stated goals of NEE to encourage, innovatively, the professional development of educators (Northouse, 2013; Santamaría, 2014). The diverse populations of the state and the various types of urban and rural districts made a one-size fits-all approach to educator effectiveness impractical if not impossible.

Northouse (2013) defined a servant leader as someone who "put[s] followers first, share[s] control with followers, and embraces their growth" (p. 234). This perfectly encapsulated the NEE approach to teacher evaluation. The principal observation tool was meant to be a conversations starter that enabled communication with teachers and accounted for impact on students. Principals can utilize the NEE tools in way that reinforce the positive aspects of servant leadership that allow subordinates to achieve their full potential (Northouse, 2013). The formative aspects of the NEE teacher effectiveness model encourages open communication and honest dialogue amongst principals, teachers and students.

Finally, as evidenced by the myriad of teacher accountability initiatives already mentioned, the ability of principals to react to the ever-changing policy landscape has become of crucial part of their leadership characteristics. In the current environment of uncertain and potentially divisive politics, it is imperative for the principal to possess the traits needed to create an atmosphere where the uncertainty of the macro-environment does not create destabilizing effects within the schools, with the resultant negative

impacts on teachers and students. Northouse (2013) identified five major leadership traits and of those, integrity stands out as being essential to weather these uncertain times. Teachers and students need the sense of stability that surrounds a leader with integrity in order for substantial learning and effective teaching to occur.

Implications for Research in the Practitioner Setting

NEE sought to enhance the effectiveness of teachers through training school administrators to be evaluators in a uniform evaluation system. The online platform NEE provided gave evaluators and teachers real-time access to a myriad of innovative resources resulting in better decision-making opportunities (Assessment Resource Center, 2014). In the past, teacher evaluation had been summative, meaning teachers could be rehired or fired based upon their evaluations. A recent paradigm shift to formative evaluation methods to help teachers improve their teacher practice portends new initiatives and perspectives aimed toward renewed emphasis on teacher effectiveness (Harris et al., 2014) Formative evaluation encourages discussion between the evaluator and teacher to improve practice (Jacob & Lefgren, 2008). The purpose of the current study was to analyze the results of the NEE student survey data in order to determine the predictive ability of student perception surveys to principal observations and make recommendations for further study.

The findings of the current study regarding the correlations of principal observations with student perceptions of teacher effectiveness are important to practitioners as they attempt to align teacher evaluation with accountability standards. There are exciting opportunities at the state level to lead because federal educational accountability mandates continue to require assessment of student learning, yet there

continues to be little consensus as to the best approach as students may not always be able to articulate these ideals nor has the research coalesced around agreed upon best practices (Wallace et al., 2016). A goal of state education policy should be clear guidelines in order to further the mission of effectively educating the state populous and scholar/practitioner partnerships will aid in that endeavor.

By identifying the underlying characteristics of effective teachers, and how they predicted principal observations, the current study provided further evidence that multiple instruments for evaluating teachers are needed to insure that practitioners make well-informed decisions in hiring and retaining high-quality teachers. The dynamic tension between accountability efforts and teacher evaluation created a potential gap between the traditional objective academic measures and newly relevant subjective measurements of social support (Lee & Smith, 1999), yet these need not be mutually exclusive. Principals can utilize the NEE teacher evaluation instruments to further their goals of better teacher assessment and student achievement.

Summary

Effective teachers use meaningful interactions to connect with students. These opportunities for connection allow teachers to build rapport, which in turn allows the teacher to utilize instructional questioning in which students can answer without fear of degradation. Interactivity initiated by the teachers' ability to react to both verbal and nonverbal student responses while creating a mentoring environment is a crucial component of teacher effectiveness. The literature suggests that effective teachers interact with their students in meaningful ways continuously (Sakiz, Pape, Hoy, 2012). Effective teachers participate in authentic interactions with students, create personal

connections to students beyond what the curriculum requires and utilize the rapport built to ask probing questions related to the educational objectives. Meyers (2009) noted, "supportive relationships in the classroom can encourage students to become more vested in learning, enable them to extend beyond their current abilities, and form a bridge for mentorship" (p. 209). The alignment of the governmental organizational structure of education in the state of Missouri and the local school leadership personnel toward establishing, supporting, and rewarding an environment of promoting, and assessing effective teaching is vital to the success of students and the economic well-being of the state.

SECTION THREE:

SCHOLARLY REVIEW

Introduction

For over a decade, an era of accountability has permeated the American educational system (Goldhaber & Anthony, 2007; Hewitt, 2011; House, 2013). State legislatures are demanding evidence of student growth and achievement and enacting evaluation policies that require rigorous teacher observation instruments (Goldring et al., 2015). There has been a lack of consensus relative to the underlying constructs of teacher evaluation instruments and there has been a lack of consensus about how, and what to measure. Within this lack of consensus also lies a need to understand how to interpret and implement the findings of the teacher effectiveness instruments in ways that result in student gains and teacher development. To address that gap, there is a need for an overview of relevant literature pertaining to the conceptual underpinnings of teacher effectiveness, as well as the use of principal observation instruments and student perceptions surveys.

Effectiveness in the era of accountability

In the current environment of accountability, scholars have empirically researched a variety of methods for estimating teacher effectiveness (e.g., Allen et al., 2013; Ellett & Teddlie, 2003; Herlihy et al., 2013; Polikoff, 2015; Wallace et al., 2016). A significant number of studies on teacher effectiveness have focused on relationships between VAM and principal observations (e.g., Grissom & Loeb, 2016; Harris & Sass, 2009; Jacob & Lefgren, 2008; Lash, Tran, & Huang 2016). A number of studies focused on relationships between value-added measures and student perception surveys (e.g., Bacher-Hicks, Chin, Kane, & Staiger, 2015; Darling-Hammond, 2015; Kane & Staiger, 2012). Most of these studies on VAM shared a common concern, namely, that

considering the volatility of VAM ratings, other measures should either have more weight or consider new approaches (Darling-Hammond, 2015). Other studies focused on the underlying factors of the student perception surveys alone (e.g., Ferguson, 2012; Lee, 2012; Peterson, Wahlquist, & Bone, 2000; Ruzek et al., 2016; Wentzel et al., 2010). While reviewing the literature, three studies were identified that had focused on examining the measures of instruction from a student perception survey in terms of their consistency with a principal observation instrument (Chaplin et al., 2014; Goldring et al., 2015; Wallace et al., 2016).

Harris et al., (2014), noted a lack of useful information related to effectiveness in the formal evaluations used in most districts. At the state level, this was concerning because federal educational accountability policy mandated assessment of teachers as they related to student outcomes (Sandilos et al., 2016), yet students were not always be able to articulate what teacher factors contribute to their learning. Additionally, Cohen and Goldhaber, (2016) found the need for improving teacher evaluations, especially the classroom observation methods, one of the most pressing, and controversial, areas currently faced by education policymakers at a policy level and principals at the practitioner level. The construct of teacher effectiveness has vexed principals, policymakers, and researchers because of the variability inherent in students and teachers (Jacob & Lefgren, 2008); yet gives opportunity for new scholarly paradigms.

Teacher Assessment in Secondary Education

Highlighting the importance of accurately assessing effective teachers, Sanders, Wright, and Horn, (1997) found that students, when placed with highly effective teachers for three years in a row, saw a 52-percentile point difference on a state level assessment

test compared to those students placed with less effective teachers. Just over a decade later, Strong et al., (2011), in their study on identifying effective teachers, referenced a study by Hanushek (1992) who found one year's growth in student outcomes being attributable to teacher quality differences. Consequently, teacher-student interactions in the classroom are important to the dynamic of quality instruction at all levels but particularly in the secondary years (Allen et al., 2013; Darling-Hammond, 2000; Wentzel, 2002).

Principal Observations. As of the current study, principals had defined teacher effectiveness relative to outcome factors imposed by federal and state standards related to NCLB and RTTT (Ellett & Teddlie, 2003; Jacob & Lefgren, 2006; Strong et al., 2011). The ability of principals to evaluate teacher effectiveness through observation techniques has been the subject of intense debate in the literature for at least 30 years (Ambady & Rosenthal, 1993; Harris et al., 2014; Jacob & Lefgren, 2008; Medley & Coker, 1987). While this method has gained near universal acceptance as a component of classroom evaluation, much debate still lingered as to what they are actually measuring (Cohen & Goldhaber, 2016; Lash et al., 2016). Much of the debate centered on whether principal observation instruments should be more objective, or subjective, in nature (Grissom & Loeb, 2016). In a study sponsored by the Bill and Melinda Gates Foundation's MET Project, Ho and Kane (2013) stressed the importance of multiple observers while noting existing classroom observation instruments were still not discerning large absolute differences amongst teachers.

A longtime, practical concern regarding principal observations has been that the classroom observation instruments may undervalue certain aspects of student-teacher

relationships and academic press, which are hard to observe during a brief observation (Ambady & Rosenthal, 1993; Engel, 2013; Jacob & Lefgren, 2008). Harris and Rutledge, (2007) found that objective instruments of effectiveness measurement available to principals were too often based solely on student standardized test scores with little regard for subjective measures. Conversely, Grissom and Loeb, (2016) warned that most subjective teacher performance instruments did not accurately and sufficiently differentiate between low and high performers. Important to the development of the NEE observation parameters, Marshall (2009, as cited in Allen, 2015) posited new judging criteria, based on three factors: (a) what teaching criteria would be focused on, (b) what evidence, or lack of evidence, would be looked for by the evaluator; and (c) how would the data collected by utilized. By simplifying the criteria for observations in this manner, principals could, as Jacob and Lefgren (2008) argued, more easily observe inputs and thus ensure teachers could more effectively increase student achievement.

Student Perception Surveys. Stemming from studies on teaching effectiveness in higher education, yet with significant ramifications for K-12 education, was the question of what exactly did student surveys measure. The controversy often focused on whether these were merely "customer satisfaction surveys" or the degree to which they actually measured student learning (MacNell, Driscoll, & Hunt, 2014; Marsh & Roche, 1997; Theall & Franklin, 2001). The highest value ascribed to student survey tools seen in the literature came in the area of feedback and formative evaluation (Berk, 2005; Brand, 1983; Smith, 2009). These formative teacher evaluation tools gained increasing popularity in both higher education and K-12 school settings due to the focus on

improvement rather than the potential punitive aspects of summative evaluations (Popham, 2013).

Recent efforts to integrate student surveys into statewide initiatives on teacher effectiveness were aided by a comprehensive study sponsored by the Bill and Melinda Gates Foundation's Measures of Effective Teaching (MET) Project (MET Project, 2010). That study used data from the Tripod Project for School Improvement student perception survey instrument (7C's, noted earlier) to determine whether confidential student evaluations could be reliable supplemental forms of feedback and the results indicated a moderate positive correlation of .43 between student feedback and student achievement gains (MET Project, 2010). Similarly, as noted earlier, Chaplin et al., (2014) used the Tripod 7C's instrument as the basis for a study on whether their RISE principal observation system, based on Danielson's Framework for Teaching correlated to the student perception measures of the 7C'S. Chaplin et al., (2014) found a low positive correlation of .30 between RISE and the composite of the 7C's.

As seen in the studies referenced above, there was some progress in the literature in validating the use of confidential student perception surveys, and yet, the proper use of the student surveys has remained an important question for teachers and principals alike. The potential for abuse or misinterpretation of student survey results is high when used as a single factor in any ratings system (Berk, 2005; Onwuegbuzie, Witcher, Collins, Filer, Wiedmaier, & Moore, 2007). These concerns have led to a number of studies in K-12 settings calling for multiple measures for determining teacher effectiveness, including principal observations (e.g., Garrett & Steinberg, 2015; Harris, et al., 2014; Medley & Coker, 1987). How teachers and principals navigate these dynamics has long-term

implications on student outcomes and therefore, the role of the principal and principal observations of teacher effectiveness has gained importance (Strong et al., 2011). Inaccurate rating by principals contributed to general misconceptions on teacher effectiveness and seen as specifically unfair to teachers (Bergin et al., 2017).

NEE Principal Observation. Jacob and Lefgren (2008) asked a question that was at the heart of the NEE principal observation instrument, "…do school administrators know good teaching when they see it?" (p. 103). Marshall (2005) lamented that the existing evaluation methods were "…inefficient, ineffective, and a poor use of principals' time" (p. 727). These concerns, among others, prompted the creation of the NEE principal observation instrument. The Interstate Teacher Assessment and Support Consortium (InTASC) standards formed the basis of the principal observation rubric (Bergin et al., 2017). Additionally, the Missouri Teacher Leader Standards and best practices from across psychological disciples guided the scoring observations (Ford, 2014). While there were nine NEE teacher evaluation indicators for principals to choose from, the indicators most widely used in the state of Missouri during the 2014/2015 academic year were as follows:

> *NEE Indicator 1.2* – The teacher cognitively engages students in the subject. [Teacher's Cognitive Engagement]
>
> *NEE Indicator 4.1* – The teacher uses instructional strategies leading to student problem-solving and critical thinking skill development. [Teacher's Instructional Strategies]
>
> *NEE Indicator 7.4* - The teacher monitors the effect of instruction on the whole class and individual learning. [Effect of Teacher's Instruction] (NEE, 2016)

These indicators allowed principals to streamline evaluation processes and encouraged

professional development of their teachers.

NEE Student Survey. The creators of the NEE student perception survey created an instrument that attempted to capture relevant and accurate information that would assist teachers and administrators in reaching student achievement goals. The specific questions in the instrument were the result of best practices investigations. The Missouri School Improvement Program (MSIP) Advance Questionnaire, the Classroom Engagement Inventory (Wang, Bergin, & Bergin, 2014) and the Classroom Climate Survey (Patrick, Kaplan, & Ryan, 2011) all guided the development of the questions (C. Bergin, personal communication, November 22, 2016; Ford, 2014). The Tripod project provided additional framework with remaining questions produced internally by the research staff of NEE (C. Bergin, personal communication, November 22, 2016; Ford, 2014). The conceptual foundations for the student survey derived from works related to student-teacher relationships (C. Bergin, personal communication, October 9, 2017), most notably the various social support studies from Wentzel (1999; 2002) and works highlighting both academic press and motivation (Lee et al., 1999; Wentzel et al., 2010). Broadly, the items measured two aspects – those stressed by Lee et al. (1999) – social support and academic press.

The data/methods section describe the items and factor mapping in detail and comparison tables of the NEE survey items and conceptual foundation items are found in Appendix A, B and C. The NEE survey items, for the most part, overlapped with items used to measure social support and academic press in prior literature/research examining instructional quality using student surveys. For example, Wentzel, Battle, Russell and Looney (2010) highlighted an item, (i) my teacher really cares about me, in their study on

social support as a predictor of academic motivation that are mirrored almost word for word in the NEE survey item (7) this teacher really cares about me. Lee (2012), in a study on student engagement and academic performance that focused on student-teacher relationships and academic press, noted five items in the social support domain that again mirrored NEE survey items. One such example would be (i) teachers listen to what students have to say and (ii) treat students fairly, can be seen in the NEE survey item (15) this teacher treats me with respect.

Murphy, Weil, Hallinger and Mitman (1982), in their study on academic press and classroom practices, noted five broad categories that contributed to academic press in the classroom and many of these are mirrored in the NEE survey items. For example, (i) implement instructional practices that promote student achievement, can be seen in the NEE survey item (4) this teacher uses lots of different things to help me learn, like the internet, readings, or objects. Similarly, (ii) establish an academically demanding climate, can be seen in NEE survey item (11) this teacher pushes me to become a better thinker and problem solver. Additionally, Lee (2012) derived academic press from four broad items that were again found mirrored in the NEE survey items. For example, (i) the teacher wants students to work hard, can be seen in the NEE survey item (10) this teacher expects me to think deeply, mentally work hard, and concentrate in class. Finally, (ii) the teacher expects students to learn a lot can be seen in NEE survey item (31) in this class we learn a lot every day.

Based on the survey of prior literature, the NEE student survey items 4, 7, 8, 13, 15, 22, 28, 29, 30, 32, 37 (see Appendix A) corresponded to teacher social support according to the classifications of Wallace et al., (2016, pgs. 11-13). In the Wallace et

al., (2016) study the authors aligned the Tripod 7C's questions to the Lee et al., (1999) concepts of social support and academic press and determined linkages between specific questions and those concepts. Similarly, the current study aligned specific NEE survey items to the Tripod 7C's questions to determine proper classifications according to the social support concept for the NEE items (Appendix A).

Based on the survey of prior literature, the NEE student survey items 3, 10, 11, 14, 16, 17, 31, 36 (see Appendix B) corresponded to academic press according to the classifications of Wallace et al., (2016, pgs. 11-13). As discussed above, the Wallace et al., (2016) study aligned the Tripod 7C's questions to the Lee et al., (1999) concepts of social support and academic press and determined linkages between specific questions and those concepts. Similarly, the current study aligned specific NEE survey items to the Tripod 7C's questions to determine proper classifications according to the academic press concept for the NEE items (Appendix B). As the remaining NEE student survey items (see Appendix C) did not have clear precedents in the literature, but were the result of inspiration from the literature, an exploratory factor analysis determined final factor classifications.

Summary

The on-going quest for high quality, effective teachers engaging students in active learning environments with measurable gains in student outcomes demands the attention and talents of the community of educational researchers. The waivers given to states to implement innovative solutions to the NCLB criteria, as well as the RTTT initiative, offer an opportunity for researchers to take a fresh look at teacher effectiveness in secondary education environments through the lens of both student perception surveys and principal

observations. Both foundational and contemporary literature indicated the reliability of student surveys of teacher effectiveness and principal observations. A problem of practice existed and a robust quantitative analysis of an existing student perception survey and principals' observation instrument promised to yield thought provoking outcomes.

SECTION FOUR:

CONTRIBUTION TO PRACTICE

Plan for Dissemination of Practitioner Contribution

Upon completion of this dissertation and successful defense, the researcher plans to submit an article based on the findings to *Principal Leadership* magazine. This magazine is a publication of the National Association of Secondary School Principals (NASSP). According to the NASSP website, article manuscripts should be no more than 2,000 words, including references, but may include additional supplemental material. In accordance with the intentions of the Dissertation-in-Practice model of the Statewide Cooperative EdD Program, the researcher will simultaneously submit a scholarly version of the findings to the *Journal of School Leadership*. The researcher notes that both publications require original submission, in the case of the scholarly works acceptance, a white paper and presentation to a local secondary education association will be the mode of practitioner dissemination.

Type of Document(s)

As stated previously, *Principal Leadership* magazine manuscripts should be no more than 2,000 words, including references, but may include additional supplemental material. A magazine-style article void of technical jargon, accessible to practitioners, and disseminating best practices is the goal of this publication. An opinion piece with tips and resources is of value to the editors of *Principal Leadership* magazine and those secondary school leaders among its readership.

Rationale for this Contribution Type

As a resource for secondary school principals from across the country, an insightful magazine-style article on the findings of the current study can be a valuable tool for teacher development and positive student climate. The dissemination of the

findings of the current study to a broad cross-section of secondary school leaders furthers the goal of NEE to take its research-based teacher evaluation instrument beyond the state of Missouri. As the state and national political climate continues to stress accountability and effectiveness, principals will need the most effective tools for success they can find.

Outline of Proposed Contents

The submission guidelines for *Principal Leadership* magazine are very specific as to the content outline. A description of evident best practices and discussion of barriers to implementation are critical to acceptance. The inclusion of evidence of empirical research and replicability aid in the impact of the submission. An explanation of the practical actions available to principals along with lists of resources and examples ensures the publication of the article. The goal of the researcher is to disseminate the scholarly findings in an applied format that will invite further inquiry from practitioners across the United States.

PRINCIPAL OBSERVATIONS: WHAT FACTORS MATTER MOST?

Inspiration for Study

While conducting studies at the University of Missouri, I encountered teachers and administrators in secondary education settings from across the state of Missouri. These amazing educators constantly enlightened me on the struggles and successes facing them in their daily activities. They came from large schools and small schools; diverse schools and homogenous schools. They were committed to the success of their students and to honing their craft and becoming better as teachers and administrators. These interactions lead me to focus my research on a secondary education issue that continues to draw interest from scholars and policymakers both statewide and nationally, student and principals' perceptions of teacher effectiveness. Specifically, did students and principals discern the characteristics of teachers through a similar lens? What ramifications did those factors have on perceptions of effectiveness of the teachers? Should principals weigh these factors differently when making personnel and professional development decisions?

Evaluating Teachers

Teachers are engaging students in ways that unlock the mysteries of knowledge, give students a sense of wonder and accomplishment, and prepare them for future challenges. How you evaluate your teachers has ramifications not just for them but also their students. The on-going quest for high quality, effective teachers engaging students in active learning environments, with measurable gains in student outcomes, demands the attention and talents of the community of educational researchers. It has become apparent that states must determine the most efficient ways to administer education while

at the same time creating opportunity for quality learning to occur. Recent reform initiatives offer an opportunity for administrators and education policy researchers to take a fresh look at teacher effectiveness in secondary education environments.

NEE Initiative

In 2012, Missouri launched the Network for Educator Effectiveness (NEE), an organization that provides a teacher evaluation instrument, and training program, to schools in the state of Missouri. This initiative was in response to the NCLB federal legislation and the later implementation of the Race to the Top fund (RTTT) initiated under the American Recovery and Reinvestment Act of 2009. A hallmark of the NEE initiative is to improve the teacher evaluation process. NEE seeks to enhance the effectiveness of teachers through training school administrators to be evaluators in a uniform evaluation system. NEE provides an online platform, which gives evaluators and teachers easy access to expectations, forms, and data. NEE evaluates over 25,000 teachers in more than 260 of the 533 Missouri school districts and during the 2014/2015 academic year, collected data from over 235,000 student surveys from across the state making this the largest collection of student survey data in the United States.

When considering the wealth of data available to NEE regarding teacher evaluations, I endeavored to conduct research on which student survey items functioned as indicators for effective teaching. As NEE offers school districts both student surveys and principal observation instruments, I was curious as to how strongly correlated, if at all, the principal observations were to the student surveys. If strong correlations occurred then one measure might be enough and more study on the dominant factors identified by that measure could influence policy decisions. If no correlations were found then more

study was also needed to understand why and how the instruments diverged. Cohen and Goldhaber (2016) found a lack of clarity in the literature concerning what constituted quality practice, how teachers demonstrated it and how to ensure observers could recognize the distinctions.

Empirical Research

To address this gap the current study sought to identify underlying factors seen to influence the student experience (social support; academic press), in a specific student survey instrument of teacher effectiveness and determine if those factors might predict principal observations of teacher effectiveness as well. In order to overcome the gap I tested for evidence of factor categorization in the NEE student perception survey related to the concepts of social support and academic press that was introduced by Lee, Smith, Perry, and Smylie (1999) in their study "Improving Chicago's Schools". By identifying both these characteristics of effective teachers, I sought to contribute insight for improving the ability of practitioners to mentor pre-service teachers, improve the practice of current teachers, and assist administrators on all levels to make well-informed decisions in hiring and retaining high-quality teachers. The dynamic tension between accountability efforts and teacher training efforts creates a potential gap between the objective academic effectiveness measurements and subjective measurements of social support.

My study used an initial data set that included teacher level scores for 2,413 teachers in 113 different high schools across the state of Missouri. I sought to examine the correlation between students and principals' perceptions about social support and perceived academic press exhibited by teachers (Table 1). The scale for principal

observations in the NEE instrument was based on five points of demonstration and teachers could receive scores of 0-no demonstration, 1-limited demonstration, 3-some demonstration, 5-solid demonstration, 7-excellent demonstration. Further, principals who did utilize the NEE observation instrument had nine empirically based standards (consisting of 38 unique indicators) from which to choose. I chose the three indicators that were most widely used, and which had corresponding student surveys. Accordingly, the final data set used in the analysis consisted of teacher-level, student survey results for 793 teachers from 54 different high schools across the state of Missouri as well as the corresponding principal observation results on the three most widely used indicators for those teachers.

Table 1 *Correlations of variables*

Variables	Mean	Standard Deviation	Teacher's Cognitive Engagement	Teacher's Instructional Strategies	Effect of Teacher's Instruction	Social Support	Academic Press
Teacher's Cognitive Engagement	5.17	0.89	1				
Teacher's Instructional Strategies	4.75	0.95	0.78 *	1			
Effect of Teacher's Instruction	4.86	0.95	0.81 *	0.76 *	1		
Social Support	0.00	0.98	0.16 *	0.13 *	0.14 *	1	
Academic Press	0.00	0.97	0.13 *	0.26*	0.11*	0.05	1

* Correlation is significant at the 0.05 level (2-tailed)

As seen in Table 1, little if any correlations existed between the principal observations and student surveys, and those that did appear had small correlation effect sizes.

Because of these findings, there appears to be a need for more training to enhance teachers' ability to demonstrate social support and academic press competencies and for principals to recognize them in the short time they have to observe. According to Lee et al., (1999) high levels of trust and an openness and relatability were crucial components of social support that lead to engaged students. Similarly, Lee et al., (1999) found that teachers who challenged students academically were engaged in positive academic press.

In order to effectively engage students and enhance their cognitive connections to the subject matter teachers would be advised to create conditions whereby a balance of social support and academic press exist. In my study, I found that this authoritative style (Walker, 2008) was the optimal blend of those concepts and created conditions for student academic achievement. This has potentially important ramifications, as Lee et al., (1999) found that strong values and expectations, coupled with genuine care in the person enhanced both the individual student experience and the entire classroom. Teachers who set specific standards of student achievement and ample time dedicated to classroom instruction engage in positive academic press and should see student academic growth.

Implications for the Future

There are exciting opportunities at the state level to lead because federal educational accountability mandates continue to require assessment of student learning, yet there continues to be little consensus as to the best approach as students may not

always be able to articulate these ideals nor has the research coalesced around agreed upon best practices. I encourage administrators and policymakers to educate themselves on the relevant literature concerning the social support and academic process domains of teaching. Seek ways to collaborate with scholars in higher education to delve more deeply into the phenomenon. Work with education advocates to find ways to translate the research into best practices, implemented in meaningful ways at the building level. A goal of state education policy should be clear guidelines in order to further the mission of effectively educating the state populous and scholar/practitioner partnerships will aid in that endeavor.

What can be the outcomes of these types of partnerships? Implications for the future include the need for more care when entrusting students of all ages and abilities to classrooms where less than optimal instruction might occur. Effective teachers use meaningful interactions to connect with students. These opportunities for connection allow teachers to build rapport, which in turn allows the teacher to utilize instructional questioning in which students can answer without fear of degradation. Interactivity initiated by the teachers' ability to react to both verbal and nonverbal student responses while creating a mentoring environment is a crucial component of teacher effectiveness. Effective teachers participate in authentic interactions with students, create personal connections to students beyond what the curriculum requires and utilize the rapport built to ask probing questions related to the educational objectives. The alignment of the governmental organizational structure of education in the state of Missouri and the local school leadership personnel toward establishing, supporting, and rewarding an

environment of promoting, and assessing effective teaching is vital to the educational success of students and the economic well-being of the state and the nation.

SECTION FIVE:

CONTRIBUTION TO SCHOLARSHIP

Target Journal

Upon completion of this dissertation and successful defense, the researcher plans to submit an academic article based on the findings to the *Journal of School Leadership*. This journal is a publication of Rowman & Littlefield and disseminated by JSTOR, the digital library of academic journals, books, and primary sources. According to the *Journal of School Leadership* website, the length of scholarly manuscripts is limited to 40 pages total. This includes the title page, abstract, manuscript text, references and any figures, tables, and appendices, and include an abstract of approximately 100 words.

Rationale for this Target

As a resource for secondary school principals from across the country, an empirical scholarly article on the findings of the current study can be a valuable tool for teacher development and positive student climate because it underscores the value of the teachers' characteristics and their impact on the classroom. According to the *Journal of School Leadership* website, they seek manuscripts that focus on administrative leadership in schools and school districts, but also in manuscripts that inquire about teacher, student, parent, and community leadership and related issues. The dissemination of the findings of the current study to a broad cross-section of secondary school leaders furthers the goal of the researcher in influencing administrators and policy-makers toward better understanding and uses of teacher evaluations. Specifically, the findings suggest that an opportunity exists whereby principals can shape hiring and professional development practices around the personal and professional characteristics of teachers. As the state and national education landscapes continue to change, the creation of new knowledge around teacher evaluations will aid the work of these leaders.

Do Principal Evaluations of Instruction Capture Student Perceptions of Teacher Social Support and Academic Press? An Examination of the Network for Educator Effectiveness Instruments for Measuring Teacher Effectiveness.

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Abstract

An important educational challenge in the current era of accountability is the degree to which there is consistency between various instruments used to measure teacher effectiveness. While principal observations/evaluations have become ubiquitous, it is possible that they miss important aspects of effective instruction. Perhaps certain aspects of instruction such as teacher-student relationships and demand of the content are best evaluated by the students themselves. As many current education policy reforms focus on teacher evaluation, it is important to examine if various evaluation instruments accurately capture critical aspects of instructional quality. It is also important to understand that the relationships between various instruments of teacher evaluation are important to principals, administrators and policymakers. So far, only a few studies have examined underlying factors of student perception surveys in order to analyze their relationship to principal observation instruments. Using an exploratory factor analysis to reduce the underlying factors of the NEE student perception surveys of instruction, the current study found alignment with the concepts of social support and academic press. Using multiple regression analyses, with school building as a fixed-effect, those factors (social support and academic press) showed weak associations in predicting principals' observations of teacher effectiveness.

Keywords: teacher effectiveness, student perception surveys, principal observations, exploratory factor analysis, multiple regression, social support, academic press

Do Principal Evaluations of Instruction Capture Student Perceptions of Teacher Social Support and Academic Press? An Examination of the Network for Educator Effectiveness Instruments for Measuring Teacher Effectiveness.

As the era of accountability continues to permeate the American educational system scholars have investigated the best methods for estimating teacher effectiveness (e.g., Goldhaber & Anthony, 2007; Hewitt, 2011; House, 2013). Among the most frequent questions were: (a) should they be teacher-student interaction based (Allen, Gregory, Mikami, Lun, Hamre, & Pianta, 2013), (b) did teachers and schools have distinct characteristics that influenced effectiveness (Ellett & Teddlie, 2003), (c) were these influencers stable year after year (Polikoff, 2015), and (d) what were the distinct aspects underlying student perception surveys (Wallace, Kelsey, & Ruzek, 2016)? State legislatures demanded evidence of student growth and achievement while enacting evaluation policies that required rigorous teacher observation instruments (Goldring, Grissom, Rubin, Neumenski, Cannata, Drake, & Schuermann, 2015). These policy-makers sought to create more rigorous evaluation systems, yet, what were the ramifications for teachers in the practice of teaching itself and for the principal as the instructional leader (Herlihy, Karger, Pollard, Hill, Kraft, Williams, & Howard, 2013)?

Historically, the accountability movement in PK-20 education had been a mechanism to design performance measures to improve education (Dunn, 2003). The 2002 passage of the No Child Left Behind Act of 2001 (NCLB), the 2006 NCLB waivers, and 2009 passage of the American Recovery and Reinvestment Act that included the Race To The Top fund (RTTT), accelerated interest and activism surrounding accountability issues (Davidson, Reback, Rockoff, & Schwartz, 2015; Forte

& Erpenbach, 2006; House, 2013). In terms of teacher evaluation systems, Davidson et al., (2015) noted the possibility for the 2006 NCLB waivers to, "provide states and districts with discretion in their substantive choices of how to measure school effectiveness" (p. 356). As policy-makers and educational reform advocates sought the most valid and reliable factors to consider for teacher effectiveness, the value-added measures (VAM) approach to teachers' contributions to student learning outcomes garnered much of the attention (e.g., Herlihy et al., 2013; Hill, Kapitula, & Umland, 2011; Mihaly, McCaffrey, Sass, & Lockwood, 2012; Strong, Gargani, & Hacifazlioglu, 2011).

Despite the early preference given to VAM, in both the literature and policy implementation, principal observations of instruction became another widely used method for quantifiably justifying ranking a teacher as effective (Darling-Hammond, 2015; Goldring et al., 2015). As states and local districts responded to the NCLB and RTTT legislation with new teaching evaluation systems, VAM (with its standardized test focus) combined with classroom observation instruments (with its formative assessment focus), became prominent teacher accountability tools for measuring teaching effectiveness (Gitomer, Bell, Qi, McCaffrey, Hamre, & Pianta, 2014). Researchers have found strong connections between VAM and classroom observations (Cohen & Goldhaber, 2016). However, Goldring et al., (2015) found that while VAM were important components of assessing teacher effectiveness, more research on the consistency between observation scores and other measures of student learning could provide needed flexibility and data use choice as principals made personnel decisions.

Additionally, Goldring et al., (2015) posited that, "…data from structured teacher observations…constitute a new source of information principals and school systems can utilize in decision making" (p. 96). These data were important for the new accountability standards and states responded in varying ways to the new tools available for teacher evaluation. States could choose from a number of empirically based observation instruments, notably the Framework for Teaching Protocol from Charlotte Danielson (Danielson, 2008) and the variations of the Teaching Through Interactions Framework known as the Classroom Assessment Scoring System (CLASS) (Hafen, Hamre, Allen, Bell, Gitomer, & Pianta, 2015). A number of large public school districts in the United States, including Cincinnati and Pittsburg, used these frameworks to build customized teacher observation instruments (Chaplin, Gill, Thompkins, & Miller 2014; Hafen et al., 2015). Highlighting the importance and magnitude of ensuring the validity of teacher observation instruments, Jacob and McGovern (2015) found that in the districts they studied, the professional development expenditure was nearly $18,000 per teacher.

Despite the prevalence of new research on teacher observation tools, Harris, Ingle and Rutledge (2014) noted a disturbing propensity for districts to use formal evaluation instruments whose outcomes contained little useful information about effectiveness and almost no information on the components principals judged as important, including personal characteristics. Much of the contemporary resistance to these subjective instruments stemmed from fears of favoritism, nepotism or even discrimination (Jacob & Walsh, 2011). Further Polikoff (2015) noted that since wide scale use of observation measures was a recent phenomenon, there remained insufficient literature on many of the stability components of these measures. Similarly, Harris et al., (2014) argued for further

research on all measures of teacher effectiveness, especially principal classroom observations, as they found, “the characteristics principals say they prefer are almost never associated with any other measure of effectiveness” (p. 80). According to Harris et al., (2014), the most prominent of these was “caring”.

The ability of principals to evaluate teacher effectiveness through observation techniques has been the subject of intense debate in the literature for at least 30 years (e.g. Ambady & Rosenthal, 1993; Harris et al., 2014; Jacob & Lefgren, 2008; Medley & Coker, 1987). While this method has gained near universal acceptance as a component of classroom evaluation, much debate still lingers as to what they are actually measuring, with ramifications around reliably differentiating high and low performing teachers (Cohen & Goldhaber, 2016; Lash, Tran, & Huang, 2016). This concern, adroitly discussed in the New Teacher Project’s *The Widget Effect,* (Weisberg, Sexton, Mulhern, & Keeling, 2009) centered on the tendency of districts’ evaluation methods to reinforce the assumption that effectiveness in the classroom was the same from teacher to teacher. As much of the debate centers on whether principal observation instruments should be more objective, or subjective, in nature, reliable and valid instruments that counter the “Widget Effect” are essential components for proper teacher assessment (Grissom & Loeb, 2016; Kraft & Gilmour, 2017). The formative use of observation measures are central to creating quality environments of academic demand resulting in improvements in instruction and learning (Hallinger, Heck, & Murphy, 2014).

Although classroom observations have become more common in evaluation systems, they may miss instructional aspects of student-teacher relationships that are both complex and subtle, rendering them difficult to discern during a brief observation

(Ambady & Rosenthal, 1993; Cohen & Goldhaber, 2016). Further, Cohen and Goldhaber (2016) suggested a lack of clarity existed around what constituted quality practice of both instructional quality and positive climate, the demonstration of that practice, and how to insure observers could distinguish these distinctions. Goldring et al., (2015) asserted that a gap remained as to why, and under what circumstances, there was consistency or inconsistency between alternate measures of teaching and learning, such as student perception surveys, and principal observations and how they might aid school improvement processes. Engel (2013) lamented the paucity of evidence concerning the relationship between teacher value-added and the skills and behaviors that principals reported valuing most (e.g. classroom management and caring). As Blazar and Kraft (2017) noted, newly developed classroom observation instruments have provided new opportunities to test, empirically, existing teacher effectiveness theories.

Important to bridging the divergent objective versus subjective views on measuring teacher effectiveness, Lee, Smith, Perry and Smylie, (1999) in a study on reforming the Chicago Public School system, posited teacher effectiveness as a convergence of rigorous academic standards and curriculum with active societal support of the student; they labeled these factors as academic press and social support. While components of academic press such as standards of academic performance, maximizing instructional time, teacher certification and experience are easily measured using objective standards, the subjective nature of social support such as caring, relatability, respect and enthusiasm can be vexing for principals as they attempt to integrate these into effectiveness measures (Hattie, 2003; Sahaghi & Allipour, 2016; Sakiz, Pape, Hoy, 2012). The common misconception of these characteristics being mutually exclusive

continues to be troublesome for education advocates (Fauth, Decristan, Rieser, Klieme, & Büttner, 2014; Stronge, Ward, Tucker, & Hindman, 2007; Stronge, Ward, & Grant, 2011).

The purpose of the current study was to contribute new perspective in the research of evaluations of teacher effectiveness in a high school setting and attempt to solve a problem of practice by investigating the results of a student survey and a principal observation instrument used as components in a teacher evaluation system. Accordingly, in this study, I examined two aspects of instruction – social support and academic press and their relationship with principal evaluations of classroom instruction. I then correlated student perceptions (from surveys) of these factors with scores of principal evaluations conducted from observations designed to be around 10 minutes (Bergin, Wind, Grajeda, & Tsai, 2017). The data for this study came from the Network for Educator Effectiveness (NEE), an organization that provided a teacher evaluation instrument and training program to schools in the state of Missouri.

During the 2014/2015 academic year, NEE collected data from over 235,000-student perception surveys from across the state of Missouri (nee.missouri.edu). The student surveys were designed to measure aspects of classroom instruction that included components emphasized by Lee et al., (1999), student (social) support and academic press. Thus, I conducted an exploratory factor analysis (EFA) to reduce the dimensions of the existing student survey data and then applied a regression analysis to examine the relationship with indicators in the principal observation instrument.

To summarize, this study analyzed existing data from student surveys, and additionally, data from indicators for principal observations of teacher effectiveness. These data were used to provide answers to the following research questions:

(RQ1) To what extent are student perceptions of academic press related with principal observations of teacher effectiveness?

(RQ2) To what extent are student perceptions of social support related with principal observations of teacher effectiveness?

Significance

Importance of student perceptions

Although studies have considered the role of student perceptions in assessing teacher effectiveness, this field is still in infancy (Wallace et al., 2016). Wallace et al., (2016) examined the underlying factor structure of the Tripod Survey (based on Ferguson's 7C's of Care, Control, Clarify, Challenge, Captivate, Confer, & Consolidate) against three alternative multidimensional models of effective teaching that included the components emphasized by Lee et al. (1999) – student (social) support and academic press. Important to the current study, Wallace et al., (2016) created a table that compared the alternate factor structures that aided the validation of the NEE study survey questions in the exploratory factor analysis (see Appendix A).

The focus of the current study was to examine whether principal observations miss certain aspects of instruction, such as academic press and student teacher support. Teacher credentials, subject knowledge, overall intelligence and classroom competencies are commonly cited indicators of quality and effective instruction (Garrett & Steinberg, 2015; Harris et al., 2014). Yet, Goldhaber and Anthony (2007) found little consensus

amongst researchers about the relationship of these indicators and teacher effectiveness. While they acknowledged the profound effect a quality teacher could have on student achievement, Goldhaber and Anthony (2007) found that traditional indicators of teacher quality were not strongly related to observed teacher characteristics; suggesting the characteristics that made teachers effective in the classroom were not always related to the attributes being measured on the teacher effectiveness instruments. Similarly, other studies have shown that principals struggle with the optimal metrics for teacher evaluations (e.g., Bergin et al., 2017; Jacob & Lefgren, 2006; Popham, 2013). Additionally, available instruments may undervalue certain aspects of student-teacher relationships that are hard to observe during brief observations (Engel, 2013; Jacob & Lefgren, 2008). Finally, student perception surveys have shown the ability to capture some aspects of instruction and more school districts have used them in conjunction with principal observations to determine teacher effectiveness (Wallace et al., 2016).

As of the current study, there was limited empirical evidence on how student perception surveys could predict principal observations. In an Institute of Education Sciences (IES) study, Chaplin et al., (2014) tested elements of the Research-based Inclusive System of Evaluation (RISE) principal observation system (based on Danielson's Framework for Teaching), the Tripod Survey (based on Ferguson's 7C's), and a value-added measure (VAM) from Mathematica Policy research to develop a gauge of overall teaching effectiveness. This study found low correlations between the observation instruments and the other instruments tested (RISE to 7C's-all grades, 0.30; RISE to VAM- all grades, 0.22- high school only, .011; 7C's to VAM- all grades, 0.15- high school only, 0.21). As there were a limited number of studies in this area, the

current study took elements of both the Wallace et al., (2016) and the Chaplin et al., (2014) studies to explore the predictive ability of the NEE student perception surveys to the NEE principal observation instrument.

Importance of replication studies

In many ways, the current study can be considered a constructive replication study of the Tripod/MET database study (Wallace et al., 2016) and the IES study from the Pittsburg Public Schools (Chaplin et al., 2014). Adams, Ajrouch, Henderson and Heard (2005) defined constructive replication studies as an attempt to replicate conceptually a previous study. Makel and Plucker (2014) gave further clarity by defining constructive replications as studies whereby the replicator formulates their own methods of sampling, measurement and data, while acknowledging the empirical facts the original author claims to have established. Journal editors across the social sciences have been calling for more replication research and championing their recognition as just as important as the original works (Peters & Pereira, 2017). Since Makel and Plucker (2014) found only 0.13% of education articles were replications and that the majority of education replications successfully replicated the original studies; the current study could potentially give increased validity to the NEE instruments at a time when increased accountability in state and federal standards necessitate more options for districts in evaluating teacher effectiveness.

In response to the Missouri ESEA Waiver of 2012 mandate, all public school districts in the state had to begin using predetermined criteria to evaluate teachers (Allen, 2015). As of 2015, Missouri had only two approved evaluation instruments; the Missouri Model Teacher and Leader Standards developed by the Missouri Department of

Elementary and Secondary Education (MODESE) and the NEE teacher evaluation system (Allen, 2015). During the academic year 2014/2015, the state of Missouri had 611 high schools serving approximately 270,000 students with 20,204 teachers according to statistics collected by MODESE (dese.mo.gov). In that same academic year, NEE collected 235,000 student surveys evaluating 2,413 teachers in 113 different high schools from across the state of Missouri (Network for Educator Effectiveness, 2016). Because of the emerging implementation of the NEE student survey and principal observation instruments as viable alternatives to the existing teacher evaluation instruments in the state of Missouri (Bergin et al., 2017), it was proper to test the correlation of the NEE teacher evaluation instruments.

If the student perception surveys are not correlated with principal observations, recent calls for moving toward multiple instruments e.g., MET/Tripod (Kane & Staiger, 2012) are justified as it can be inferred that different instruments capture different aspects of teaching. More critically, this would show that widely used principal observation instruments miss key aspects of instruction. Hanushek and Rivkin (2006) noted that without further empirical evidence states might revert to methods of assessing teacher effectiveness that fail to capture teacher characteristics that lead to better student-teacher relationships.

If the student perception surveys are positively correlated with principal observations (e.g. IES/Pittsburg), then moves toward valid single instrument evaluations could increase. The confusion continues to lie in the context of the use of the instruments, whether for summative evaluations or formative feedback (Bergin et al., 2017). The consensus continues to be that a combination of evaluation instruments

should be used (Wallace et al., 2016). Hence, as the focus of this study was whether principal observations miss certain aspects of instruction, such as academic press and student teacher support, this study contributes to state and national policy discusses on teacher effectiveness evaluation.

Literature Review

For over a decade, an era of accountability has permeated the American educational system (Goldhaber & Anthony, 2007; Hewitt, 2011; House, 2013). State legislatures are demanding evidence of student growth and achievement and enacting evaluation policies that require rigorous teacher observation instruments (Goldring et al., 2015). There has been a lack of consensus relative to the underlying constructs of teacher evaluation instruments and there has been a lack of consensus about how, and what to measure. Within this lack of consensus also lies a need to understand how to interpret and implement the findings of the teacher effectiveness instruments in ways that result in student gains and teacher development. To address that gap, there is a need for an overview of relevant literature pertaining to the conceptual underpinnings of teacher effectiveness, as well as the use of principal observation instruments and student perceptions surveys.

Effectiveness in the era of accountability

In the current environment of accountability, scholars have empirically researched a variety of methods for estimating teacher effectiveness (e.g., Allen et al., 2013; Ellett & Teddlie, 2003; Herlihy et al., 2013; Polikoff, 2015; Wallace et al., 2016). A significant number of studies on teacher effectiveness have focused on relationships between VAM and principal observations (e.g., Grissom & Loeb, 2016; Harris & Sass, 2009; Jacob &

Lefgren, 2008; Lash, Tran, & Huang 2016). A number of studies focused on relationships between value-added measures and student perception surveys (e.g., Bacher-Hicks, Chin, Kane, & Staiger, 2015; Darling-Hammond, 2015; Kane & Staiger, 2012). Most of these studies on VAM shared a common concern, namely, that considering the volatility of VAM ratings, other measures should either have more weight or consider new approaches (Darling-Hammond, 2015). Other studies focused on the underlying factors of the student perception surveys alone (e.g., Ferguson, 2012; Lee, 2012; Peterson, Wahlquist, & Bone, 2000; Ruzek et al., 2016; Wentzel et al., 2010). While reviewing the literature, three studies were identified that had focused on examining the measures of instruction from a student perception survey in terms of their consistency with a principal observation instrument (Chaplin et al., 2014; Goldring et al., 2015; Wallace et al., 2016).

Harris et al., (2014), noted a lack of useful information related to effectiveness in the formal evaluations used in most districts. At the state level, this was concerning because federal educational accountability policy mandated assessment of teachers as they related to student outcomes (Sandilos et al., 2016), yet students were not always be able to articulate what teacher factors contribute to their learning. Additionally, Cohen and Goldhaber, (2016) found the need for improving teacher evaluations, especially the classroom observation methods, one of the most pressing, and controversial, areas currently faced by education policymakers at a policy level and principals at the practitioner level. The construct of teacher effectiveness has vexed principals, policymakers, and researchers because of the variability inherent in students and teachers (Jacob & Lefgren, 2008); yet gives opportunity for new scholarly paradigms.

Teacher Assessment in Secondary Education

Highlighting the importance of accurately assessing effective teachers, Sanders, Wright, and Horn, (1997) found that students, when placed with highly effective teachers for three years in a row, saw a 52-percentile point difference on a state level assessment test compared to those students placed with less effective teachers. Just over a decade later, Strong et al., (2011), in their study on identifying effective teachers, referenced a study by Hanushek (1992) who found one year's growth in student outcomes being attributable to teacher quality differences. Consequently, teacher-student interactions in the classroom are important to the dynamic of quality instruction at all levels but particularly in the secondary years (Allen et al., 2013; Darling-Hammond, 2000; Wentzel, 2002).

Principal Observations. As of the current study, principals had defined teacher effectiveness relative to outcome factors imposed by federal and state standards related to NCLB and RTTT (Ellett & Teddlie, 2003; Jacob & Lefgren, 2006; Strong et al., 2011). The ability of principals to evaluate teacher effectiveness through observation techniques has been the subject of intense debate in the literature for at least 30 years (Ambady & Rosenthal, 1993; Harris et al., 2014; Jacob & Lefgren, 2008; Medley & Coker, 1987). While this method has gained near universal acceptance as a component of classroom evaluation, much debate still lingered as to what they are actually measuring (Cohen & Goldhaber, 2016; Lash et al., 2016). Much of the debate centered on whether principal observation instruments should be more objective, or subjective, in nature (Grissom & Loeb, 2016). In a study sponsored by the Bill and Melinda Gates Foundation's MET Project, Ho and Kane (2013) stressed the importance of multiple observers while noting

existing classroom observation instruments were still not discerning large absolute differences amongst teachers.

A longtime, practical concern regarding principal observations has been that the classroom observation instruments may undervalue certain aspects of student-teacher relationships and academic press, which are hard to observe during a brief observation (Ambady & Rosenthal, 1993; Engel, 2013; Jacob & Lefgren, 2008). Harris and Rutledge, (2007) found that objective instruments of effectiveness measurement available to principals were too often based solely on student standardized test scores with little regard for subjective measures. Conversely, Grissom and Loeb, (2016) warned that most subjective teacher performance instruments did not accurately and sufficiently differentiate between low and high performers. Important to the development of the NEE observation parameters, Marshall (2009, as cited in Allen, 2015) posited new judging criteria, based on three factors: (a) what teaching criteria would be focused on, (b) what evidence, or lack of evidence, would be looked for by the evaluator; and (c) how would the data collected by utilized. By simplifying the criteria for observations in this manner, principals could, as Jacob and Lefgren (2008) argued, more easily observe inputs and thus ensure teachers could more effectively increase student achievement.

Student Perception Surveys. Stemming from studies on teaching effectiveness in higher education, yet with significant ramifications for K-12 education, was the question of what exactly did student surveys measure. The controversy often focused on whether these were merely "customer satisfaction surveys" or the degree to which they actually measured student learning (MacNell, Driscoll, & Hunt, 2014; Marsh & Roche, 1997; Theall & Franklin, 2001). The highest value ascribed to student survey tools seen

in the literature came in the area of feedback and formative evaluation (Berk, 2005; Brand, 1983; Smith, 2009). These formative teacher evaluation tools gained increasing popularity in both higher education and K-12 school settings due to the focus on improvement rather than the potential punitive aspects of summative evaluations (Popham, 2013).

Recent efforts to integrate student surveys into statewide initiatives on teacher effectiveness were aided by a comprehensive study sponsored by the Bill and Melinda Gates Foundation's Measures of Effective Teaching (MET) Project (MET Project, 2010). That study used data from the Tripod Project for School Improvement student perception survey instrument (7C's, noted earlier) to determine whether confidential student evaluations could be reliable supplemental forms of feedback and the results indicated a moderate positive correlation of .43 between student feedback and student achievement gains (MET Project, 2010). Similarly, as noted earlier, Chaplin et al., (2014) used the Tripod 7C's instrument as the basis for a study on whether their RISE principal observation system, based on Danielson's Framework for Teaching correlated to the student perception measures of the 7C'S. Chaplin et al., (2014) found a low positive correlation of .30 between RISE and the composite of the 7C's.

As seen in the studies referenced above, there was some progress in the literature in validating the use of confidential student perception surveys, and yet, the proper use of the student surveys has remained an important question for teachers and principals alike. The potential for abuse or misinterpretation of student survey results is high when used as a single factor in any ratings system (Berk, 2005; Onwuegbuzie, Witcher, Collins, Filer, Wiedmaier, & Moore, 2007). These concerns have led to a number of studies in K-12

settings calling for multiple measures for determining teacher effectiveness, including principal observations (e.g., Garrett & Steinberg, 2015; Harris, et al., 2014; Medley & Coker, 1987). How teachers and principals navigate these dynamics has long-term implications on student outcomes and therefore, the role of the principal and principal observations of teacher effectiveness has gained importance (Strong et al., 2011). Inaccurate rating by principals contributed to general misconceptions on teacher effectiveness and seen as specifically unfair to teachers (Bergin et al., 2017).

NEE Principal Observation. Jacob and Lefgren (2008) asked a question that was at the heart of the NEE principal observation instrument, "…do school administrators know good teaching when they see it?" (p. 103). Marshall (2005) lamented that the existing evaluation methods were "…inefficient, ineffective, and a poor use of principals' time" (p. 727). These concerns, among others, prompted the creation of the NEE principal observation instrument. The Interstate Teacher Assessment and Support Consortium (InTASC) standards formed the basis of the principal observation rubric (Bergin et al., 2017). Additionally, the Missouri Teacher Leader Standards and best practices from across psychological disciples guided the scoring observations (Ford, 2014). While there were nine NEE teacher evaluation indicators for principals to choose from, the indicators most widely used in the state of Missouri during the 2014/2015 academic year were as follows:

> *NEE Indicator 1.2* – The teacher cognitively engages students in the subject. [Teacher's Cognitive Engagement]

> *NEE Indicator 4.1* – The teacher uses instructional strategies leading to student problem-solving and critical thinking skill development. [Teacher's Instructional Strategies]

> *NEE Indicator 7.4* - The teacher monitors the effect of instruction on the whole class and individual learning. [Effect of Teacher's Instruction] (NEE, 2016)

These indicators allowed principals to streamline evaluation processes and encouraged professional development of their teachers.

NEE Student Survey. The creators of the NEE student perception survey created an instrument that attempted to capture relevant and accurate information that would assist teachers and administrators in reaching student achievement goals. The specific questions in the instrument were the result of best practices investigations. The Missouri School Improvement Program (MSIP) Advance Questionnaire, the Classroom Engagement Inventory (Wang, Bergin, & Bergin, 2014) and the Classroom Climate Survey (Patrick, Kaplan, & Ryan, 2011) all guided the development of the questions (C. Bergin, personal communication, November 22, 2016; Ford, 2014). The Tripod project provided additional framework with remaining questions produced internally by the research staff of NEE (C. Bergin, personal communication, November 22, 2016; Ford, 2014). The conceptual foundations for the student survey derived from works related to student-teacher relationships (C. Bergin, personal communication, October 9, 2017), most notably the various social support studies from Wentzel (1999; 2002) and works highlighting both academic press and motivation (Lee et al., 1999; Wentzel et al., 2010). Broadly, the items measured two aspects – those stressed by Lee et al. (1999) – social support and academic press.

The data/methods section describe the items and factor mapping in detail and comparison tables of the NEE survey items and conceptual foundation items are found in Appendix A, B and C. The NEE survey items, for the most part, overlapped with items

used to measure social support and academic press in prior literature/research examining instructional quality using student surveys. For example, Wentzel, Battle, Russell and Looney (2010) highlighted an item, (i) my teacher really cares about me, in their study on social support as a predictor of academic motivation that are mirrored almost word for word in the NEE survey item (7) this teacher really cares about me. Lee (2012), in a study on student engagement and academic performance that focused on student-teacher relationships and academic press, noted five items in the social support domain that again mirrored NEE survey items. One such example would be (i) teachers listen to what students have to say and (ii) treat students fairly, can be seen in the NEE survey item (15) this teacher treats me with respect.

Murphy, Weil, Hallinger and Mitman (1982), in their study on academic press and classroom practices, noted five broad categories that contributed to academic press in the classroom and many of these are mirrored in the NEE survey items. For example, (i) implement instructional practices that promote student achievement, can be seen in the NEE survey item (4) this teacher uses lots of different things to help me learn, like the internet, readings, or objects. Similarly, (ii) establish an academically demanding climate, can be seen in NEE survey item (11) this teacher pushes me to become a better thinker and problem solver. Additionally, Lee (2012) derived academic press from four broad items that were again found mirrored in the NEE survey items. For example, (i) the teacher wants students to work hard, can be seen in the NEE survey item (10) this teacher expects me to think deeply, mentally work hard, and concentrate in class. Finally, (ii) the teacher expects students to learn a lot can be seen in NEE survey item (31) in this class we learn a lot every day.

Based on the survey of prior literature, the NEE student survey items 4, 7, 8, 13, 15, 22, 28, 29, 30, 32, 37 (see Appendix A) corresponded to teacher social support according to the classifications of Wallace et al., (2016, pgs. 11-13). In the Wallace et al., (2016) study the authors aligned the Tripod 7C's questions to the Lee et al., (1999) concepts of social support and academic press and determined linkages between specific questions and those concepts. Similarly, the current study aligned specific NEE survey items to the Tripod 7C's questions to determine proper classifications according to the social support concept for the NEE items (Appendix A).

Based on the survey of prior literature, the NEE student survey items 3, 10, 11, 14, 16, 17, 31, 36 (see Appendix B) corresponded to academic press according to the classifications of Wallace et al., (2016, pgs. 11-13). As discussed above, the Wallace et al., (2016) study aligned the Tripod 7C's questions to the Lee et al., (1999) concepts of social support and academic press and determined linkages between specific questions and those concepts. Similarly, the current study aligned specific NEE survey items to the Tripod 7C's questions to determine proper classifications according to the academic press concept for the NEE items (Appendix B). As the remaining NEE student survey items (see Appendix C) did not have clear precedents in the literature, but were the result of inspiration from the literature, an exploratory factor analysis determined final factor classifications.

Conceptual Framework

In the same way that parents actively teach children about themselves and how they should interact with the world in order to succeed, teachers create conditions where students can attain these expectations through observational learning inherent in models

of socialization (Wentzel, 2002). Essential to the issue of student achievement in any setting is the belief of the students in his/her ability to accomplish the tasks set before them, no matter how challenging (Hughes, 2011; Theall & Franklin, 2001; Wentzel, 2002). In order to understand where this underlying belief might come from, Wentzel (2002) used parent socialization models to create a framework for identifying effective teachers.

Parent Socialization Models

The specific theoretical model for the current study was parenting style (Walker, 2008). This theory was a synthesized modification by Walker (2008) of earlier works on parent-child relationships by Baumrind (1978; 1991) with teacher-student relationships by Wentzel (1997; 1999). In Figure 1 below, the diagram shows the conceptual flow of the resultant theory. According to Walker (2008), "variations along these dimensions create different styles (i.e., authoritative [high on both demands], authoritarian [high demandingness and low responsiveness], and permissive [low demandingness and high-moderate responsiveness])" (p. 219).

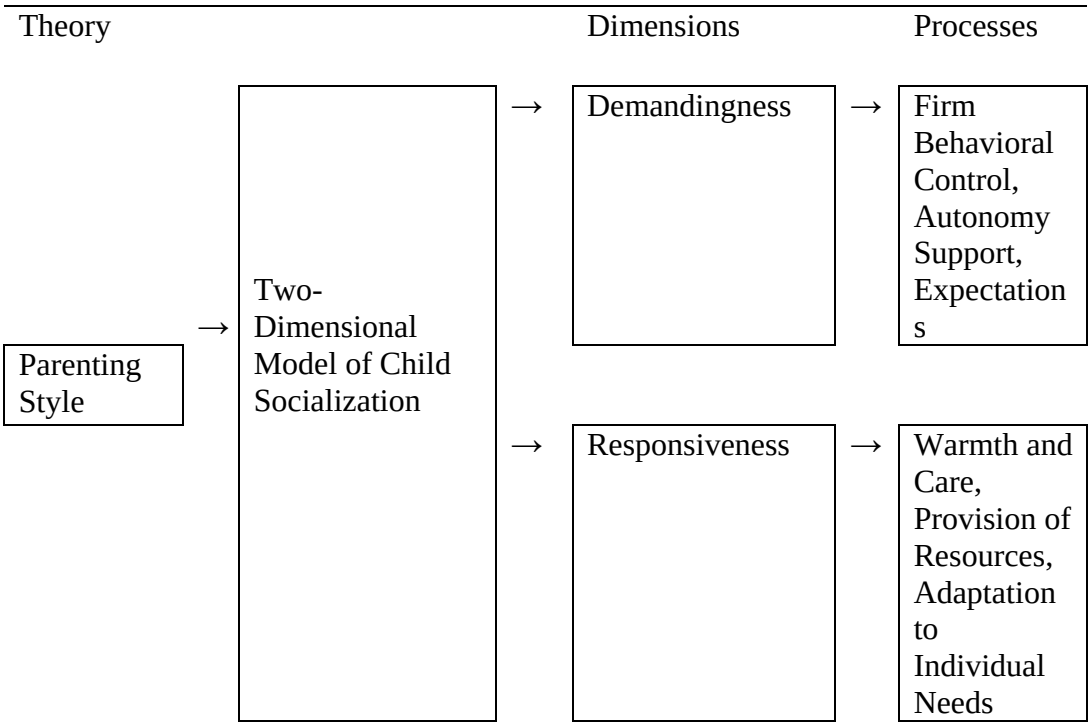

Figure 1. Diagram of Parenting Style Theory

Similar to Walker (2008), Lee (2012) and Lee and Smith (1999) found that engaged parents influenced child motivation and that schools and teachers had a similarly significant influence on student engagement and academic performance. Important to the current study, Lee (2012) in much the same manner as Walker (2008) outlined a two-dimensional parenting style, authoritative style, and applied that to teachers and schools. According to Lee (2012), this style of parent socialization was notable for its dimensions of "…demandingness (e.g., academic press) and responsiveness (e.g., supportive relationship [social support]), [and] is expected to provide the optimal conditions to achieve best student outcomes" (p. 332). Ruzek, Hafen, Allen, Gregory, Mikami, & Pianta (2106) found that supportive interactions were critical to high quality instruction while Wentzel (2002) found that teacher modeling of these styles might partly explain student motivation toward academic goals. According to Walker (2008), the

authoritative teaching style (i.e., consistent classroom management, support of student autonomy, and personal interest in students) produced the most academically and socially competent students. A synthesis of this authoritative style provided the framework for the current study to examine how social support and academic press influenced students and principals in identifying effective teachers.

Social Support and Academic Press

Crucial to the conceptual underpinnings of the current study, Lee et al., (1999) synthesized the importance and practical impact of these interactions when they classified these student-teacher relationships as social support, and defined as, "the personal relationships that students have with people [teachers] who may help them do well in school" (p. 7). They argued that students with more intentional systems of support would learn more. In order to achieve higher levels of learning, students needed social support to provide the trust, confidence and psychological safety needed to take risks, admit errors and ask for help (Lee et al., 1999). Tangible examples of social support included; (a) high levels of trust, (b) strong values and expectations, (c) openness and relatability (d) genuine care in the person (Lee et al., 1999).

As found throughout the literature, students needed strong academic press to achieve higher levels of learning (e.g., Lee, 2012; Murphy et al., 1982; Wentzel & Wigfield, 1998). According to Lee et al., (1999), tangible examples of academic press included; (a) amount of homework assigned, (b) amount of time dedicated to classroom instruction, (c) level of challenge of the academic work and (d) specific standards of student achievement (Lee et al., 1999). The role of the principal in setting expectations for how teachers move through the curriculum was important as well. Wallace et al.,

(2016) noted that students needed to form positive connections with teachers in both the social and academic constructs in order to maximize their ability to learn.

Creating learning environments whereby students feel they are empowered to meet the high standards mandated by the new accountability standards has been the primary task of teachers and principals (Klem & Connell, 2004; Wentzel et al., 2010). According to authoritative parent socialization theory, schools and teachers exhibiting high levels of both responsiveness and demandingness enhance student outcomes (Lee, 2012). Studies have found that teachers who held the entire class to higher expectations saw twice as much growth in reading as students of similar ability in classrooms with low-expectation teachers (Sandilos, Rimm-Kaufmann, & Cohen, 2016). Klem and Connell (2004) found that high levels of expectation and engagement between teachers and students were associated with higher attendance and test scores. Lee (2012) found that the level of teacher-student relationships were a significant predictor in all the student outcomes examined.

In the face of the policy mandates of NCLB and RTTT, principals are tasked with personal decision-making dependent on numerous inputs including student outcomes (Goldring et al., 2015). A number of studies have shown the influence of components of both social support and academic press on student outcomes (e.g., Lee, 2012; Lee & Smith, 1999; Ruzek et al., 2016; Wentzel et al., 2010). Yet, the proper balance of the two, and how effective teachers exhibit them, remained challenging for principals to determine, whether using VAM or classroom observations (Cohen & Goldhaber, 2016; Harris et al., 2014). Consequently, even though principals may not be able to observe directly social support or academic press in the brief time that they are in the classroom

and students may desire social support and not yet appreciate academic press, these two components can indirectly influence the more visible aspects of effective instruction. Therefore, the following three hypotheses guided the current study:

H1: Principal evaluations of the Teacher's Cognitive Engagement is positively associated with Social Support and with Academic Press.

H2: Principal evaluations of the Teacher's Instructional Strategies is positively associated with Social Support and with Academic Press.

H3: Principal evaluations of the Effect of Teacher's Instruction is positively associated with Social Support and with Academic Press.

Empirical Methods

I first examined the underlying factor structure of the NEE student perception survey to determine if, relevant to the part of the RQ that considered student perceptions of social support and academic press, the NEE survey questions mirrored the Lee et al., (1999) categorizations of social support and academic press in the specific questions. Additionally, I examined to what extent are student perceptions of social support and academic press correlated with principal observations of teacher effectiveness. Taken in total, the empirical methods of the current study were constructive replications of the Chaplin et al., (2016) and Wallace et al., (2016) studies of teacher effectiveness.

Data

The Assessment Resource Center (ARC) at the University of Missouri was responsible for the collection of the initial data for use by NEE personnel, the school districts and other affiliated researchers. The researcher obtained the data, as a secondary

de-identified data source from the ARC, through a signed data use agreement protocol with NEE.

During the 2014/2015 academic year, NEE collected data from over 235,000 student surveys from across the state of Missouri (Network for Educator Effectiveness, 2016). The current study used an initial data set that included teacher-level, student survey results for 2,413 teachers in 113 different high schools across the state of Missouri as well as the corresponding principal observation results for those teachers. These numbers represented about 12% of total teachers and 18% of total high schools during the 2014/2015 academic year according to the official census on the state of Missouri's Department of Elementary and Secondary Education (MODESE) website (dese.mo.gov). As NEE charged fees for their evaluation instruments, only schools with budgets that allowed such purchases participated (C. Bergin, personal communication, November 28, 2017).

Within the schools that did utilize the NEE instruments, various conditions existed that reduced the final data set. While the online student survey tool utilized by NEE collected the data in real time as the students were completing the survey, thus insuring the validity of the results because there was no transcribing, many of the surveys had incomplete responses. Additionally, not all schools used both the student survey and principal observation instruments in their teacher evaluations. Further, principals who did utilize the NEE observation instrument had nine empirically based standards (consisting of 38 unique indicators) from which to choose (Allen, 2015). In response to these conditions, the researcher chose the three indicators that were most widely used, and which had corresponding student surveys. The principal observations ranged from 1-

4 times over the school year, thus, the data were the average of these multiple observations (C. Bergin, personal communication, November 28, 2017). Accordingly, the final data set used in the analysis consisted of teacher-level, student survey results for 793 teachers from 54 different high schools across the state of Missouri as well as the corresponding principal observation results on the three most widely used indicators for those teachers.

Definitions of Key Terms

Dependent variables. One of the overriding features of the NEE teacher evaluation system was its flexibility and customization option (NEE, 2016). Indicative of this was the fact that the principal observation tool had nine empirically based standards consisting of 38 unique indicators (Allen, 2015). School districts could customize the NEE system to capture better the unique environment of each district (NEE, 2016). As there was almost infinite variability in the potential number of indicators used, the current study used the number of teachers observed by principals using the same three observation indicators as the dependent variables.

(DV^1) Teacher's Cognitive Engagement (OB1.2) refers to the principal observation indicator that asked if the principal observed if the "*teacher cognitively engages students in the subject*". According to the NEE guidelines, these engagements could include both classroom curricular content as well as connectors to students' lives.

(DV^2) Teacher's Instructional Strategies (OB4.1) refers to the principal observation indicator that asked if the principal observed if "*the teacher uses instructional strategies that lead students to problem-solving and critical thinking*".

According to the NEE guidelines, these strategies could include independent, active learning opportunities for the students.

(DV³) Effect of Teacher's Instruction (OB7.4) refers to the principal observation indicator that asked if the principal observed if "*the teacher monitors the effect of instruction on the whole class and individual learning*". According to the NEE guidelines, active engagement with the students helped foster appropriate corrective action when needed.

Independent Variables. As discussed previously, the creators of the NEE student perception survey created an instrument that attempted to capture relevant and accurate information that would assist teachers and administrators in reaching student achievement goals. Similar to the Wallace et al., (2016) study using the Tripod survey as a basis, the current study, using the NEE student perception survey, utilized the social support/academic press (Lee et al., 1999) two-dimensional structure of factors for effective teaching as independent variables.

(IV¹) Social Support refers to the factor within the NEE student perception survey that indicated students saw evidence of "…the personal relationships that students have with people [teachers] who may help them do well in school" (Lee et al., 1999, p. 7).

(IV²) Academic Press refers to the factor within the NEE student perception survey that indicated students saw evidence of "…the normative and behavioral environment of a school [teacher] that emphasizes academic excellence and conformity to academic standards" (Lee, 2012, pg. 331).

Data Analysis

Master (2014) conducted an exploratory factor analysis (EFA) using principal axis factor (PAF) extraction with a Varimax orthogonal rotation to determine the underlying factors of a teacher evaluation instrument used at private charter school that included many items borrowed from the 7C's student perception survey from Ferguson (2012). As the NEE student perception survey also included items borrowed from the 7C's, I similarly ran an exploratory factor analysis (EFA) using principal axis factor (PAF) extraction. Although principal component analysis (PCA) extraction is the most widely used factor extraction tool (Conway & Huffcutt, 2003), Field (2013) noted that the use of PAF extraction usually resulted in similar solutions. Important for the current study, Thompson and Vidal-Brown, (2001) noted that "interpretations of the factors across the two [*types of*] analysis would be comparable" (p. 7). Yong and Pearce (2013) defined the difference as coming down to a preference for finding components versus factors in one's analysis. As the current study was interested in finding factor clusters related to the Lee et al., (1999) paradigm as a framework, the preferred choice was PAF.

Regardless of the factor extraction method chosen, Yong and Pearce (2013) noted a need for factor rotation for better interpretation due to the ambiguity of unrotated factors. Thus, similar to the previously mentioned study by Master (2014), the current study employed a Varimax orthogonal rotation to enable clearer interpretation of the underlying factors. The goal of the orthogonal rotation was to rotate the factors so that they remained independent and uncorrelated (Field, 2013). The use of the Varimax method for the current study ensured the maximum dispersion of loadings within the factors (Field, 2013). Yong and Pearce (2013) noted that this method helped "…define a

distinct cluster of interrelated variables so that interpretation is easier" (p. 84). These "distinct clusters" were important to the current study as it attempted to determine the underlying factors of the student perception survey.

While there were 37 total questions in the NEE student survey instrument, 33 were isolated to represent the domains integral to the current study- social support and academic press. One question (Question 20) was an instrument validity question and therefore invalid for the current study. The removal of three survey questions from the technology domain (see Table 1) from the final factor analysis was judged appropriate because the research questions were about academic press and social support and how students and principals perceived those as factors in teacher effectiveness, and not how they perceived the use of computers in the classroom.

Empirical Strategy

After running the EFA and obtaining the resultant data, I employed multiple linear regression analysis to test for the predictive nature of the student surveys. The independent variables (IV^1, IV^2) were the two orthogonal factors of academic press and social support extracted from the EFA. The scores from the most commonly used principal observation indicators (see Table 3 below) were used as dependent variables (DV^1, DV^2, DV^3). The demographic variance of high schools in the state of Missouri, including socio-economic and geographic settings, are such that a need existed to utilize dummy coding to control school building as a fixed-effect to control for variances across districts (Field, 2013). According to Polikoff (2015), this was important in order "to account for the heterogeneity of scores and patterns of correlation across districts" (p. 192). The fixed effects coefficients were not displayed in the interest of space.

Regression equations. As stated previously, the following three hypotheses guided the current study:

H1: Principal evaluations of the Teacher's Cognitive Engagement is positively associated with Social Support and with Academic Press - Stated mathematically the regression equation was:

Teacher's Cognitive Engagement = β_0 + β_1. Social Support + β_2. Academic Press *(1)*

H2: Principal evaluations of the Teacher's Instructional Strategies is positively associated with Social Support and with Academic Press - Stated mathematically the regression equation was:

Teacher's Instructional Strategies = γ_0 + γ_1. Social Support + γ_2. Academic Press *(2)*

H3: Principal evaluations of the Effect of Teacher's Instruction is positively associated with Social Support and with Academic Press - Stated mathematically the regression equation is:

Effect of Teacher's Instruction = δ_0 + δ_1. Social Support + δ_2. Academic Press *(3)*

Results

Descriptive Statistics

As noted previously, the removal of three survey questions from the computer/internet domain from the final factor analysis was judged appropriate. Table 1 below provided examples of omitted questions with descriptive statistics.

Table 1 *Descriptive Statistics of Omitted NEE Student Survey Questions, n=793*

	Mean	Std. Deviation	Min.	Max.
12. I am learning how to judge the quality of information on the internet	3.37	.54	1.76	4.79
21. This teacher is helping me learn to use computers and other technology better	3.30	.61	1.44	4.95
27. This teacher often has us use the computer in a way that helps us learn	3.52	.67	1.61	4.95
20. Validity question	N/A	N/A	N/A	N/A

Value Range for Survey Likert Scale: 1= Strongly Disagree to 5= Strongly Agree

Within the final sample group, 793 teachers representing 54 high schools matched the criteria for the study. Table 2 provided descriptive statistics of the teacher-level results from the NEE student survey.

Table 2 *Descriptive Statistics of NEE Student Survey Questions, n=793*

	Mean	Std. Deviation	Min.	Max.
1. This teacher knows a lot about the subject of this class.	4.57	.34	2.62	5.00
2. This teacher's lessons make me think deeply.	3.83	.47	2.05	4.89
3. This teacher wants me to explain my answers -- why I think what I think.	4.01	.44	2.41	4.87
4. This teacher uses lots of different things to help me learn, like the internet, readings, or objects.	3.91	.51	1.72	4.90

5. This teacher points out how this topic is important to my life.	3.79	.52	1.78	4.96
6. This teacher is well prepared when class starts.	4.20	.43	2.00	5.00
7. This teacher really cares about me.	3.96	.49	2.23	4.94
8. This teacher checks to make sure we understand what s/he is teacher us.	4.08	.48	2.40	4.94
9. This teacher helps me learn to use the correct vocabulary terms in this subject.	4.00	.43	2.57	4.88
10. This teacher expects me to think deeply, mentally work hard, and concentrate in this class.	4.18	.35	2.76	4.93
11. This teacher pushes me to become a better thinker and problem solver.	3.91	.44	2.33	4.94
13. This teacher sometimes lets me choose my own learning activities.	3.26	.59	1.44	4.84
14. Our class stays focused and does not waste time.	3.54	.52	1.40	4.76
15. This teacher treats me with respect.	4.24	.43	2.30	4.94
16. This teacher asks questions to be sure we are following along when s/he is teacher.	4.13	.40	2.56	4.94

17. I learn a lot in this class.	4.05	.48	2.05	4.96
18. This teacher expects me to compare things I am learning with things I already knew.	3.92	.39	2.33	4.82
19. This teacher makes us think first, before he/she answers our questions.	3.96	.40	2.23	4.83
22. This teacher makes lessons interesting.	3.81	.59	1.56	4.89
23. The space in our classroom is well organized.	4.11	.39	2.43	5.00
24. This teacher welcomes questions if anyone gets confused.	4.29	.39	2.33	5.00
25. This teacher expects me to judge the quality of my ideas or work during class activities.	3.96	.37	2.41	4.89
26. This teacher makes us apply what we learn to real world problems.	3.79	.46	2.11	4.91
28. This teacher makes learning enjoyable.	3.83	.63	1.61	5.00
29. If a student has a problem, this teacher will listen and help.	4.20	.44	2.33	4.96
30. This teacher knows when the class understands, and when we do not.	3.96	.46	2.12	4.93
31. In this class, we learn a lot every day.	3.89	.47	1.95	4.83
32. This teacher waits a while before letting us answer	3.90	.40	2.52	4.94

questions, so we have time to think.				
33. This teacher uses technology in a way that helps us learn better.	3.70	.53	2.00	4.87
34. This teacher tells us that we can all be successful if we try hard.	4.13	.40	2.58	4.96
35. I know where to find all the materials I need in this classroom.	4.21	.33	2.82	4.87
36. This teacher cares about how much I learn.	4.16	.43	2.29	4.96
37. This teacher explains difficult things clearly.	3.99	.51	1.98	4.96

Value Range for Survey Likert Scale: 1= Strongly Disagree to 5= Strongly Agree

In general, students responded between Agree and Strongly Agree on most social support items (items 1, 5-8, 13-15, 17, 22-24, 28-30, 34-37). Yet, there was still some variation in individual items on the student evaluations across social support items. For example, on item 13 ‘this teacher sometimes lets me choose my own learning activities’, the average was 3.26, but there was some variation in the responses. The standard deviation of 0.59 showed that about 68% of the students answered in the range (3.26 +/- 0.59). In contrast, on other items such as item 1, ‘this teacher knows a lot about the subject of this class’, the average was 4.57, there was less variation in the responses. The standard deviation of 0.34 showed that about 68% of the students answered in the range (4.57 +/- 0.34).

As seen in the items related to academic press above, in general, students responded between Agree and Strongly Agree on most academic press items (items 2-4,

9-11, 16, 18-19, 25-26, 31-33). Similar to social support above, there was still some variation in individual items on the student evaluations across academic press items. For example, on item 33, 'this teacher uses technology in a way that helps us learn better', the average was 3.70, but there was some variation in the responses. The standard deviation of 0.53 showed that about 68% of the students answered in the range (3.70 +/- 0.53). In contrast, on other items such as item 10 'this teacher expects me to think deeply, mentally work hard, and concentrate in this class', the average was 4.18, although there was less variation in the responses. The standard deviation of 0.35 showed that about 68% of the students answered in the range (4.18 +/- 0.35).

Table 3 provided descriptive statistics of the observation indicators from the NEE principal observation instrument.

Table 3 *Descriptive Statistics of NEE Principal Observation Indicators, n=793*

Principal Observation Indicator	Mean	Standard Deviation	Min.	Max.
Teacher's Cognitive Engagement	5.17	0.89	1.60	7.00
Teacher's Instructional Strategies	4.75	0.95	1.00	7.00
Effect of Teacher's Instruction	4.86	0.95	1.40	7.00

The scale for principal observations in the NEE instrument was based on five points of demonstration and teachers could receive scores of 0-no demonstration, 1-limited demonstration, 3-some demonstration, 5-solid demonstration, 7-excellent demonstration (NEE, 2016). While the descriptive statistics indicated some variation, principals tended to rate teachers as showing solid demonstration (5) of the three

indicators used in the current study (see Appendix B for frequency distribution of principals' observation scores). As seen above, the standard deviation of 0.89 for Teacher's Cognitive Engagement showed that about 68% of the principal observations were in the range (5.17 +/- 0.89), denoting moderate variation in that observation indicator. The standard deviation of 0.95 for both Teacher's Instructional Strategies (4.75 +/- 0.95) and Effect of Teacher's Instruction (4.86 +/- 0.95) showed that slightly more than 68% of the principal observations were in the range and denoted moderate variation in those observation indicators.

Theoretically Driven Exploratory Factor Analysis

As shown in Table 4 below, I employed a principal axis factor (PAF) extraction with a Varimax orthogonal rotation on the 33 items from Table 2 above. To insure sampling adequacy for the analysis, I chose a Kaiser-Meyer-Olkin (KMO) measure of adequacy. The KMO measure was stated as the ratio of the squared correlations to the squared partial correlations of variables such that a value close to zero (0) indicated diffusion of correlation making factor analysis likely inappropriate; to a value close to 1 indicating compact correlation patterns yielding reliable factors (Kaiser, 1970, as cited in Field, 2013). In the current study the overall KMO = .977, and all KMO values for individual items were greater than .52, above the acceptable limit of .5 (Field, 2013). The PAF analysis was run such that fixed number of factors, two, were extracted. Those two factors had eigenvalues over Kaiser's criterion of 1.0, and combined to explain 77.99% of the variance. In addition to Kaiser's criterion, the Scree Plot for the original unrotated factors in Figure 2 below aided in final factor extraction decision making.

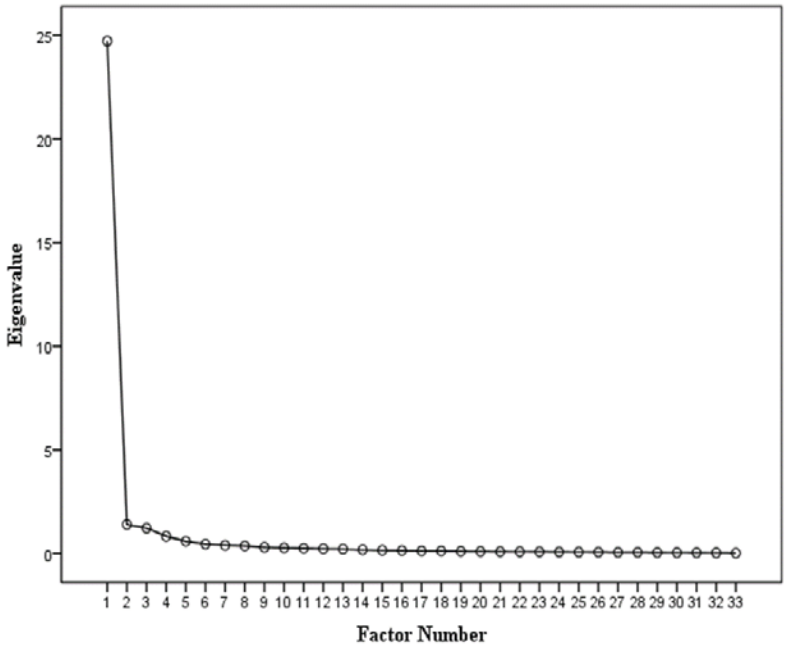

Figure 2. Scree Plot for theoretically driven exploratory factor analysis.

Table 4 *Summary of Exploratory Factor Analysis Results for Network for Educator Effectiveness Student Survey Instrument Using Principal Axis Factor extraction with Varimax rotation (N = 793)*

	Factor Loadings	
Item	Social Support	Academic Press
28. This teacher makes learning enjoyable	**.87**	.37
37. This teacher explains difficult things clearly	**.84**	.46
15. This teacher treats me with respect	**.83**	.40
29. If a student has a problem, this teacher will listen and help	**.82**	.45
22. This teacher makes lessons interesting	**.81**	.42
7. This teacher really cares about me	**.81**	.42
30. This teacher knows when the class understands, and when we do not	**.81**	.49
8. This teacher checks to make sure we understand what s/he is teacher us	**.80**	.49
36. This teacher cares about how much I learn	**.78**	.52
34. This teacher tells us that we can all be successful if we try hard	**.77**	.47
24. This teacher welcomes questions if anyone gets confused	**.75**	.49
17. I learn a lot in this class	**.72**	.60

35. I know where to find all the materials I need in this classroom	**.71**	.45
13. This teacher sometimes lets me choose my own learning activities	**.64**	.37
5. This teacher points out how this topic is important to my life	**.64**	.44
6. This teacher is well prepared when class starts	**.64**	.50
1. This teacher knows a lot about the subject of this class	**.61**	.53
23. The space in our classroom is well organized	**.58**	.49
14. Our class stays focused and does not waste time	**.52**	.48
3. This teacher wants me to explain my answers -- why I think what I think	.20	**.88**
19. This teacher makes us think first, before he/she answers our questions	.47	**.82**
2. This teacher's lessons make me think deeply	.49	**.80**
11. This teacher pushes me to become a better thinker and problem solver	.55	**.76**
32. This teacher waits a while before letting us answer questions, so we have time to think	.57	**.74**
10. This teacher expects me to think deeply, mentally work hard, and concentrate in this class	.49	**.74**
18. This teacher expects me to compare things I am learning with things I already knew	.57	**.74**
9. This teacher helps me learn to use the correct vocabulary terms in this subject	.46	**.71**
16. This teacher asks questions to be sure we are following along when s/he is teacher	.64	**.68**
25. This teacher expects me to judge the quality of my ideas or work during class activities	.63	**.67**
31. In this class we learn a lot every day	.65	**.66**
4. This teacher uses lots of different things to help me learn, like the internet, readings, or objects	.52	**.63**
26. This teacher makes us apply what we learn to real world problems	.55	**.61**
33. This teacher uses technology in a way that helps us learn better	.43	**.58**
Eigenvalues (Rotation Sums of Squared Loadings)	*14.35*	*11.39*
% of variance (Rotation Sums of Squared Loadings)	*43.48*	*34.51*

As stated previously, the NEE survey items mainly came from The Missouri School Improvement Program (MSIP) Advance Questionnaire, the Classroom Engagement Inventory (Wang et al., 2014) and the Classroom Climate Survey (Patrick et al., 2011). The Ferguson (2010) Tripod project provided additional framework with remaining questions produced internally by the research staff of NEE (C. Bergin, personal communication, November 22, 2016; Ford, 2014). As shown in Appendix A, NEE survey items 4, 7, 8, 13, 15, 22, 28, 29, 30, 32, 37 corresponded to teacher social support according to the classifications of Wallace et al., (2016, pgs. 11-13). As shown in Appendix B, NEE survey items 3, 10, 11, 14, 16, 17, 31, 36 corresponded to academic press according to the classifications of Wallace et al., (2016, pgs. 11-13).

There was some divergence in the current study with that of Wallace et al., (2016). Items 4 and 32 loaded on academic press whereas in the Wallace et al., (2016) study they loaded on social support. Conversely, items 14, 17 and 36 loaded on social support in the current study and on academic press in the Wallace et al., (2016) study. An explanation for these discrepancies can be that the actual wording of the questions were not a precise match causing students to react differently to the question(s) in the different circumstances. As for the remaining questions in the NEE student survey, Field (2013) noted that factor analysis is an exploratory tool and thus a guide in helping the researcher make decisions, not a final arbiter. As there was a lack of precedence in the literature for factor grouping of this kind, I decided, based on the definitions in Lee (2012) and Lee et al., (1999) for academic press and social support, to proceed with the item loadings as the current factor analysis revealed (see Appendix C).

Descriptive Analysis of Correlations

Table 5 represented the bivariate correlations among the constructs of interest and highlighted the findings of the EFA and regressions that showed a statistically significant correlation existed among the variables. According to Hinkle, Wiersma, & Jurs (2003) a standard rule of thumb for interpreting the size of a correlation coefficient is 0.00 – 0.30 = little if any correlation, 0.30 – 0.50 = low (positive) correlation, 0.50 – 0.70 = moderate (positive) correlation, and 0.70 – 0.90 = high (positive) correlation. On all variables examined, as per Hinkle et al., (2003) only little if any correlations existed.

Table 5 *Correlations of variables*

Variables	Mean	Standard Deviation	Teacher's Cognitive Engagement	Teacher's Instructional Strategies	Effect of Teacher's Instruction	Social Support	Academic Press
Teacher's Cognitive Engagement	5.17	0.89	1				
Teacher's Instructional Strategies	4.75	0.95	0.78 *	1			
Effect of Teacher's Instruction	4.86	0.95	0.81 *	0.76 *	1		
Social Support	0.00	0.98	0.16 *	0.13 *	0.14 *	1	
Academic Press	0.00	0.97	0.13 *	0.26*	0.11*	0.05	1

* Correlation is significant at the 0.05 level (2-tailed)

Multiple Linear Regression

The resultant standardized scores from the two factors revealed by the EFA represented the independent variables (IV) for the multiple linear regression analysis in

the current study (see Appendix C for frequency distribution of standardized regression scores). In order to account for variances in schools, I created 53 dummy variables according to fixed effect regression procedures (Field, 2013). I then regressed principal observation scores from the most commonly used Observation Indicators (see Table 3 above), as the three dependent variables (DV), separately to aid in analysis of the results. In each of the three regression analyses, the approach employed social support and academic press as independent variables (IV). Effect size of regression correlation was important to understanding the results of the analysis. According to Cohen (1992), regression correlations with an effect size of 0.10 is small, 0.30 is medium, and 0.50 is large. The current study employed that rule of thumb for analysis. The following three tables (Tables 6, 7, 8) display the results of the regressions of the principal observations scores and aided in the answering of the following research questions:

(RQ1) To what extent are student perceptions of academic press related with principal observations of teacher effectiveness?

(RQ2) To what extent are student perceptions of social support related with principal observations of teacher effectiveness?

Table 6 *Relationship between Student Survey Factors and Teacher's Cognitive Engagement (n=793)*

	Unstandardized Coefficients		Standardized Coefficients		
Model Predictor	B	Std. Error	Beta	t	Sig.
(Constant) β_0	4.52	.25		18.23	.000
Social Support β_1	.11	.03	.12	4.15	.000
Academic Press β_2	.13	.03	.15	4.67	.000
Total R^2	.42				

For the first regression analysis (Table 6) with Teacher's Cognitive Engagement as the DV[1], R^2 had a value of .418 ($F_{(55,754)}$=9.622, $p<.05$). This indicated that nearly 42% of the variance in the dependent variable (Teacher's Cognitive Engagement) was explained by the independent variables in the Model in *Equation (1)*. From Table 6, the intercept (4.52) can be interpreted as the expected value of the outcome (Teacher's Cognitive Engagement) when all predictors (social support and academic press) are equal to zero. This represented an average teacher from the excluded school, with the social support and academic press variables standardized in the data set. The slope for social support (β_1=.11) can be interpreted as the expected change in the outcome (Teacher's Cognitive Engagement) when the predictor (Social Support) changes by 1 unit (or 1 standard deviation) holding constant Academic Press and all school characteristics. The correlation effect size was calculated as 0.12 by dividing the slope (.11) by the standard deviation of the outcome (.89), thus a small correlation effect size according to Cohen (1992). The slope for academic press (β_2=.13) can be interpreted as the expected change in the outcome (Teacher's Cognitive Engagement) when the predictor (Academic Press) changes by 1 unit (or 1 standard deviation) holding constant Social Support and all school characteristics. The correlation effect size was calculated as 0.15 by dividing the slope (.13) by the standard deviation of the outcome (.89), thus a small correlation effect size according to Cohen (1992).

Table 7 *Relationship between Student Survey Factors and Teacher's Instructional Strategies (n=793)*

	Unstandardized Coefficients		Standardized Coefficients		
Model Predictor	B	Std. Error	Beta	t	Sig.
(Constant) γ_0	4.19	.27		15.35	.000
Social Support γ_1	.07	.03	.07	2.47	.014
Academic Press γ_2	.27	.03	.28	8.62	.000
Total R^2	.39				

For the second regression analysis (Table 7) with Teacher's Instructional Strategies as the DV², R^2 had a value of .385 ($F_{(55,754)}$=8.385, p<.05). This indicated that nearly 39% of the variance in the dependent variable (Teacher's Instructional Strategies) was explained by the independent variables in the Model in *Equation (2)*. From Table 7, the intercept (4.19) can be interpreted as the expected value of the outcome (Teacher's Instructional Strategies) when all predictors (social support and academic press) are equal to zero. This represented an average teacher from the excluded school, with the social support and academic press variables standardized in the data set. The slope for social support (γ_1=.07) can be interpreted as the expected change in the outcome (Teacher's Instructional Strategies) when the predictor (Social Support) changes by 1 unit (or 1 standard deviation) holding constant Academic Press and all school characteristics. The correlation effect size was calculated as 0.07 by dividing the slope (.07) by the standard deviation of the outcome (.95), thus a small correlation effect size according to Cohen (1992). The slope for academic press (γ_2=.27) can be interpreted as the expected change in the outcome (Teacher's Instructional Strategies) when the predictor (Academic Press) changes by 1 unit (or 1 standard deviation) holding constant Social Support and all school

characteristics. The correlation effect size was calculated as 0.28 by dividing the slope (.27) by the standard deviation of the outcome (.95), thus a small to medium correlation effect size according to Cohen (1992).

Table 8 *Relationship between Student Survey Factors and Effect of Teacher's Instruction (n=793)*

	Unstandardized Coefficients		Standardized Coefficients		
Model Predictor	B	Std. Error	Beta	t	Sig.
(Constant) $\boldsymbol{\delta_0}$	4.40	.28		15.87	.000
Social Support $\boldsymbol{\delta_1}$	.10	.03	.10	3.19	.001
Academic Press $\boldsymbol{\delta_2}$	.13	.03	.14	4.16	.000
Total R^2	.37				

Finally, for the third regression analysis (Table 8) with Effect of Teacher's Instruction as the DV[3], R^2 had a value of .365 ($F_{(55,754)}$=7.703, $p<.05$). This indicated that nearly 37% of the variance in the dependent variable (Effect of Teacher's Instruction) was explained by the independent variables in the Model in *Equation (3)*. From Table 8, the intercept (4.40) can be interpreted as the expected value of the outcome (Effect of Teacher's Instruction) when all predictors (social support and academic press) are equal to zero. This represented an average teacher from the excluded school, with the social support and academic press variables standardized in the data set. The slope for social support (δ_1=.10) can be interpreted as the expected value the outcome (Effect of Teacher's Instruction) when the predictor (Social Support) changes by 1 unit (or 1 standard deviation) holding constant Academic Press and all school characteristics. The correlation effect size was calculated as 0.11 by dividing the slope (.10) by the standard deviation of the outcome (.95), thus a small correlation effect size according to Cohen

(1992). The slope for academic press (δ_2=.13) can be interpreted as the expected change in the outcome (Effect of Teacher's Instruction) when the predictor (Academic Press) changes by 1 unit (or 1 standard deviation) holding constant Social Support and all school characteristics. The correlation effect size was calculated as 0.14 by dividing the slope (.13) by the standard deviation of the outcome (.95), thus a small correlation effect size according to Cohen (1992).

In regards to the RQ, for each regression analyses, although the data revealed that statistically significant relationships caused by something other than random chance existed between both student survey factors (social support and academic press) and the principals' observations, the data also revealed little if any strength of correlations amongst the variables tested. Therefore, while some degree of certainty existed that a relationship between the variables of interest to the current study existed, caution is advised in interpreting the results to mean that one or the other instrument could be used reliably as a single, independent measure of teacher effectiveness.

Empirically Driven Exploratory Factor Analysis

After examining the results of the theoretically driven 2-factor model, it became apparent that one underlying latent factor might be driving the item loadings. The close loadings of so many of the items in Table 4 above indicated that some combination of social support and academic press existed. Walker (2008) found that the most socially and academically competent students had experienced teachers who used an authoritative teaching style consisting of elements seen in both social support and academic press (i.e., consistent classroom management, support of student autonomy, and personal interest in students). Consistent with the Walker (2008) findings, the data in the current study

indicated that only one factor existed and therefore I endeavored to determine if it might correlate with the principal observations unlike the theoretically driven 2-factor model.

Therefore, as shown in Table 9 below, I conducted another principal axis factor (PAF) extraction on the 33 items from Table 2 above forcing a one-factor extraction to mirror the data from the results of the theoretically driven 2-factor model. To insure sampling adequacy for the analysis of the empirically driven 1-factor model, I again chose a Kaiser-Meyer-Olkin (KMO) measure of adequacy. In the empirically driven exploratory factor analysis, again the overall KMO = .977, yet all KMO values for individual items were greater than .70, well above the acceptable limit of .5 (Field, 2013) and indicated strong loadings on the underlying latent factor. This factor had an eigenvalue over Kaiser's criterion of 1.0, and explained 74.17% of the variance. In addition to Kaiser's criterion, the Scree Plot for the original unrotated factors in Figure 3 below aided in final factor extraction decision making.

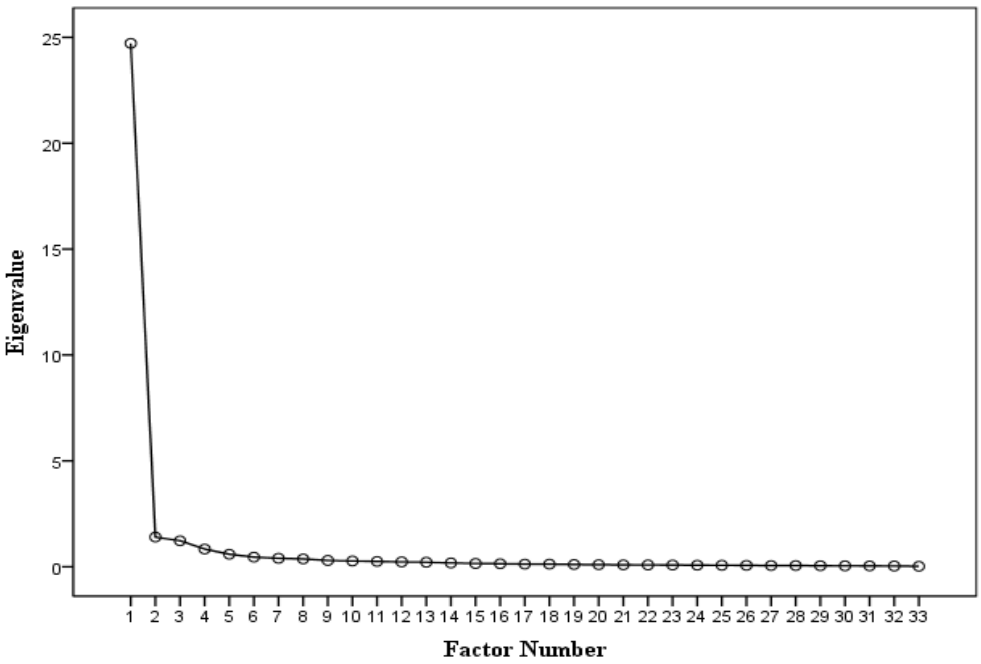

Figure 3. Scree Plot for empirically driven exploratory factor analysis.

Table 9 *Summary of Exploratory Factor Analysis Results for Network for Educator Effectiveness Student Survey Instrument Using Principal Axis Factor extraction with Varimax rotation (N = 793)*

	Factor Loadings
Item	Authoritative Factor
17. I learn a lot in this class	.94
30. This teacher knows when the class understands, and when we do not	.94
37. This teacher explains difficult things clearly	.93
36. This teacher cares about how much I learn	.93
8. This teacher checks to make sure we understand what s/he is teacher us	.92
31. In this class we learn a lot every day	.92
16. This teacher asks questions to be sure we are following along when s/he is teacher	.92
18. This teacher expects me to compare things I am learning with things I already knew	.92
11. This teacher pushes me to become a better thinker and problem solver	.92
32. This teacher waits a while before letting us answer questions, so we have time to think	.91
25. This teacher expects me to judge the quality of my ideas or work during class activities	.91
29. If a student has a problem, this teacher will listen and help	.91
28. This teacher makes learning enjoyable	.90
2. This teacher's lessons make me think deeply	.89
19. This teacher makes us think first, before he/she answers our questions	.89
22. This teacher makes lessons interesting	.89
15. This teacher treats me with respect	.89
34. This teacher tells us that we can all be successful if we try hard	.89
7. This teacher really cares about me	.89
24. This teacher welcomes questions if anyone gets confused	.88
10. This teacher expects me to think deeply, mentally work hard, and concentrate in this class	.86
35. I know where to find all the materials I need in this classroom	.83
26. This teacher makes us apply what we learn to real world problems	.82

9. This teacher helps me learn to use the correct vocabulary terms in this subject	.81
6. This teacher is well prepared when class starts	.81
1. This teacher knows a lot about the subject of this class	.81
4. This teacher uses lots of different things to help me learn, like the internet, readings, or objects	.81
5. This teacher points out how this topic is important to my life	.77
23. The space in our classroom is well organized	.76
3. This teacher wants me to explain my answers -- why I think what I think	.73
13. This teacher sometimes lets me choose my own learning activities	.72
14. Our class stays focused and does not waste time	.71
33. This teacher uses technology in a way that helps us learn better	.70
Eigenvalues (Rotation Sums of Squared Loadings)	*24.48*
% of variance (Rotation Sums of Squared Loadings)	*74.17*

Descriptive Analysis of Correlations

Table 10 represented the bivariate correlations among the constructs of interest and highlighted the findings of the empirically driven EFA and regressions that showed a statistically significant correlation existed among the variables. According to Hinkle, Wiersma, & Jurs (2003) a standard rule of thumb for interpreting the size of a correlation coefficient is 0.00 – 0.30 = little if any correlation, 0.30 – 0.50 = low (positive) correlation, 0.50 – 0.70 = moderate (positive) correlation, and 0.70 – 0.90 = high (positive) correlation. On all variables examined, as per Hinkle et al., (2003) only little if any correlations existed.

Table 10 *Correlations of variables*

Variables	Mean	Standard Deviation	Teacher's Cognitive Engagement	Teacher's Instructional Strategies	Effect of Teacher's Instruction	Authoritative Factor
Teacher's Cognitive Engagement	5.17	0.89	1			
Teacher's Instructional Strategies	4.75	0.95	0.78 *	1		
Effect of Teacher's Instruction	4.86	0.95	0.81 *	0.76 *	1	
Authoritative Factor	0.00	1.00	0.20 *	0.26 *	0.17 *	

* Correlation is significant at the 0.05 level (2-tailed)

Multiple Linear Regression

The resultant standardized scores from the 1-factor extraction represented the independent variable (IV) for the multiple linear regression analysis (see Appendix C for frequency distribution of standardized regression scores). I again regressed principal observation scores from the most commonly used Observation Indicators (see Table 10 above), as the three dependent variables (DV), separately to aid in analysis of the results. In each of the three regression analyses, the approach employed authoritative style as the independent variable (IV). Effect size of regression correlation was important to understanding the results of the analysis. According to Cohen (1992), regression correlations with an effect size of 0.10 is small, 0.30 is medium, and 0.50 is large. The current study employed that rule of thumb for analysis. The following three tables

(Tables 11, 12, 13) display the results of the regressions of the principal observations scores and aided in the answering of the following supplemental research question: (RQ3) To what extent are student perceptions of authoritative style related with principal observations of teacher effectiveness?

Table 11 *Relationship between Student Survey Factor and Teacher's Cognitive Engagement (n=793)*

	Unstandardized Coefficients		Standardized Coefficients		
Model Predictor	B	Std. Error	Beta	t	Sig.
(Constant) β_0	4.52	.25		18.23	.000
Authoritative Style β_1	.17	.03	.19	6.30	.000
Total R^2	.42				

For the first regression analysis (Table 11) with Teacher's Cognitive Engagement as the DV[1], R^2 had a value of .417 ($F_{(55,754)}$=9.777, $p<.05$). This indicated that nearly 42% of the variance in the dependent variable (Teacher's Cognitive Engagement) was explained by the independent variable in the Model in *Equation (1)*. From Table 11, the intercept (4.52) can be interpreted as the expected value of the outcome (Teacher's Cognitive Engagement) when the predictor (authoritative style) is equal to zero. This represented an average teacher from the excluded school, with the authoritative style variable standardized in the data set. The slope for authoritative style (β_1=.17) can be interpreted as the expected change in the outcome (Teacher's Cognitive Engagement) when the predictor (Authoritative Style) changes by 1 unit (or 1 standard deviation) holding constant all school characteristics. The correlation effect size was calculated as 0.19 by dividing the slope (.17) by the standard deviation of the outcome (.89), thus a small correlation effect size according to Cohen (1992).

Table 12 *Relationship between Student Survey Factor and Teacher's Instructional Strategies (n=793)*

	Unstandardized Coefficients		Standardized Coefficients		
Model Predictor	B	Std. Error	Beta	t	Sig.
(Constant) γ_0	4.19	.28		15.10	.000
Authoritative Style γ_1	.22	.03	.24	7.44	.000
Total R^2	.36				

For the second regression analysis (Table 12) with Teacher's Instructional Strategies as the DV², R^2 had a value of .364 ($F_{(55,754)}=7.813$, $p<.05$). This indicated that approximately 36% of the variance in the dependent variable (Teacher's Instructional Strategies) was explained by the independent variable in the Model in *Equation (2)*. From Table 12, the intercept (4.19) can be interpreted as the expected value of the outcome (Teacher's Instructional Strategies) when the predictor (authoritative style) is equal to zero. This represented an average teacher from the excluded school, with the authoritative style variable standardized in the data set. The slope for authoritative style ($\gamma_1=.22$) can be interpreted as the expected change in the outcome (Teacher's Instructional Strategies) when the predictor (Authoritative Style) changes by 1 unit (or 1 standard deviation) holding constant all school characteristics. The correlation effect size was calculated as 0.23 by dividing the slope (.22) by the standard deviation of the outcome (.95), thus a small correlation effect size according to Cohen (1992).

Table 13 *Relationship between Student Survey Factor and Effect of Teacher's Instruction (n=793)*

	Unstandardized Coefficients		Standardized Coefficients		
Model Predictor	B	Std. Error	Beta	t	Sig.
(Constant) $\boldsymbol{\delta_0}$	4.40	.28		15.88	.000
Authoritative Style $\boldsymbol{\delta_1}$	.16	.03	.17	5.27	.000
Total R^2	.36				

Finally, for the third regression analysis (Table 13) with Effect of Teacher's Instruction as the DV[3], R^2 had a value of .365 ($F_{(55,754)}$=7.829, $p<.05$). This indicated that approximately 36% of the variance in the dependent variable (Effect of Teacher's Instruction) was explained by the independent variable in the Model in *Equation (3).* From Table 13, the intercept (4.40) can be interpreted as the expected value of the outcome (Effect of Teacher's Instruction) when the predictor (authoritative style) is equal to zero. This represented an average teacher from the excluded school, with the authoritative style variable standardized in the data set. The slope for authoritative style (δ_1=.16) can be interpreted as the expected value the outcome (Effect of Teacher's Instruction) when the predictor (Authoritative Style) changes by 1 unit (or 1 standard deviation) holding constant all school characteristics. The correlation effect size was calculated as 0.17 by dividing the slope (.16) by the standard deviation of the outcome (.95), thus a small correlation effect size according to Cohen (1992).

In regards to the supplemental RQ, for each regression analyses, although the data revealed that statistically significant relationships caused by something other than random chance existed between the student survey factor (authoritative style) and the principals' observations, the data also revealed little if any strength of correlations amongst the

variables tested. Therefore, while some degree of certainty existed that a relationship between the variables of interest to the current study existed, caution is advised in interpreting the results to mean that one or the other instrument might be used as a single, independent measure of teacher effectiveness. Having found similar results for both the theoretically driven 2-factor approach and the empirically (data) driven 1-factor approach, the results of the theoretically driven 2-factor approach will be discussed.

Discussion

Using two-dimensional authoritative parent socialization theory (Lee, 2012; Lee et al., 1999), the current study examined relationships between the student perceived factors of teacher effectiveness (social support and academic press) and principal observation indicators of teacher effectiveness as measured by the NEE teacher evaluation instruments. The focus of the current study was whether principal observations missed certain aspects of instruction, such as social support and academic press. This is an important issue given principals are defining teacher effectiveness relative to outcome factors imposed by federal and state standards related to NCLB and RTTT. Despite the prevalence of new research on teacher observation tools, Harris et al., (2014) noted an alarming tendency for districts to use formal evaluation instruments whose outcomes contained little useful information about effectiveness and almost no information on the components principals judged as important.

As stated previously, even though principals may not be able to observe directly social support or academic press in the brief time that they are in the classroom, these two components can indirectly influence the more visible aspects of good instruction. Replicating aspects of the Wallace et al., (2016) study allowed the current study to match

the NEE student survey questions to another empirically based student survey instrument (Tripod 7C's) according to the factors of social support and academic press. In this way, the current study added to the literature by answering the research questions below and finding support for the usefulness of these factors as latent indicators of teacher effectiveness.

(RQ1) To what extent are student perceptions of academic press related with principal observations of teacher effectiveness?

(RQ2) To what extent are student perceptions of social support related with principal observations of teacher effectiveness?

Additionally, the current study replicated aspects of the Chaplin et. al., (2014) IES study, which used the empirically based student survey instrument (Tripod 7C'S) to examine possible correlations to their empirically based RISE principal observations instrument, and added to the literature by testing for correlations between another widely used set of teacher evaluation tools, the NEE student perception survey and the NEE principal observation instrument. While Chaplin et al., (2014) found a low statistically positive correlation of .30 between RISE and the composite of the 7C's, the current study found that though statistically positive, little if any correlations existed on any of the variables of interest in the NEE teacher evaluation instruments. A discussion of the findings relative to each of the hypothesis will aid in further understanding the results of the current study.

***H1*:** Principal evaluations of the Teacher's Cognitive Engagement is positively associated with Social Support and with Academic Press.

On the NEE indicator 1.2, the teacher cognitively engages students in the subject; the data revealed statistically positive low correlations between the principal indicator and both social support (0.16) and academic press (0.13). According to Lee et al., (1999) high levels of trust and an openness and relatability were crucial components of social support that lead to engaged students. Similarly, Lee et al., (1999) found that teachers who challenged students academically were engaged in positive academic press. In order to effectively engage students and enhance their cognitive connections to the subject matter teachers need to create these conditions. Because little if any correlations were revealed by the data, there appeared to be a need for more training to enhance teachers' ability to demonstrate these competencies and for principals to recognize them in the short time they have to observe.

H2: Principal evaluations of the Teacher's Instructional Strategies is positively associated with Social Support and with Academic Press.

On NEE indicator 4.1, the teacher uses instructional strategies leading to student problem-solving and critical thinking skill development; the data revealed statistically positive low correlations existed between the principal indicator and both social support (0.13) and academic press (0.26). Teacher strategies whereby they listen to what student have to say and provide them with extra help when needed were seen as examples of social support in the literature (e.g., Lee, 2012; Lee et al., 1999). Additionally, according to Lee (2012), academic press created expectations of behaviors of teachers and students related to strategies for both instruction and learning. Based on the relatively stronger

correlations of the variables, the principal observation instrument appeared to be slightly more capable of capturing academic press as it related to instructional strategies.

H3: Principal evaluations of the Effect of Teacher's Instruction is positively associated with Social Support and with Academic Press.

On NEE indicator 7.4, the teacher monitors the effect of instruction on the whole class and individual learning; the data revealed statistically positive low correlations existed between the principal indicator and both social support (0.14) and academic press (0.11). According to Lee et al., (1999), strong values and expectations, coupled with genuine care in the person enhanced both the individual student experience and the entire classroom. Similarly, Lee et al., (1999) found that teachers who set specific standards of student achievement and ample time dedicated to classroom instruction engaged in positive academic press. Because little if any correlations were revealed by the data, there appeared to be a slight misalignment as to how students and principals perceive the teachers effect of instruction on the whole class and individual learning.

Overall, the current study found a statistically significant correlation between the student surveys and the principal observations, yet, the strength of correlations between the variables of interest were such that caution is suggested as to the appropriateness of using either instrument as a single measure of overall teaching effectiveness. In the current study, the focus was on whether principal observations missed certain factors, such as social support and academic press. While the current study suggested the NEE principal observation instrument did ostensibly capture the social support and academic press factors of the student perception survey, the low correlations amongst the variables

indicted there was a need for more research to determine if one factor or the other was more essential to determinants of teacher effectiveness in these particular instruments.

Limitations

The variability of the students themselves plays a role in measuring teacher effectiveness. Although student demographic data is not yet available from the NEE student survey tool, its future inclusion will aid analysis of the survey findings relative to this type of factor analysis. As such, considerations for socio-economic status, student gender, school setting (rural, urban, etc.) and race are valid for any study on student's perceptions of teacher effectiveness (Fauth et al., 2014; McAllister & Irvine, 2002; Peske & Haycock, 2006; Wentzel, 2002) and while not a part of the current study, will aid future studies on the NEE student survey. Additionally, considerations regarding teacher gender are not in the current study and yet, studies suggest gender is a factor in student and principal perceptions of teacher effectiveness (Dee, 2005; Sprague & Massoni, 2005).

Caution is advised in making too many casual inferences from the current study as stability issues (Polikoff, 2015) are a concern as the current study was limited by using only a one-year snapshot of data. Chaplin et al., (2014) in the IES study cited generalizability as a potential limitation as its scope was limited to the Pittsburg Public School district. Similarly, the scope limit of the state of Missouri for the current study invites caution about generalizability. As the NEE instruments are fee-based, schools with higher budgets and potentially better-credentialed teachers tend to be users of NEE and this would raise generalizability concerns as well. The variable periods for the administration of both the student surveys and the principals' observations are a limiting

factor as better-organized schools could make the data collection a higher priority and insure that principals are making the optimal number of classroom observations according to NEE guidelines.

The data for both the student surveys and the principal observations were treated as continuous variables for the linear regressions in the current study, yet the data could be considered categorical variables based on the Likert-type scales involved and an ordinal regression study could be appropriate. Additionally, studies have found that student survey instruments suffer from the impact of ceiling and floor effects due to the insufficient range of possible scores (Keeley, English, Irons & Henslee, 2013). To account for these issues, a Tobit model of statistical investigation might be more capable of making coirrect inferences than the traditional linear regression method (McBee, 2010).

Further, the popularity of the principal observation indicators used by the most schools in the given year determined the choice of principal observation indicators for the current study, not by which aligned best with social support and academic press. Better alignment may have resulted in higher strength of correlation. Lastly, while the current study examined two factors based on the prior literature, the unrotated scree plot revealed one overriding factor influencing the data. Although the current study mentioned the results of the 1-factor phenomenon, there is a need for more discussion and research in that regard.

Implications for Research

The ability to assess accurately teacher effectiveness is imperative in the wake of federal accountability policies. To meet these demands, many influential education

scholars (e.g., Ferguson & Danielson, 2014; Hattie, 2003) continue to advocate the validity of student-perception survey instruments and their use as part of a comprehensive approach to teacher development. Wallace et al., (2016) posited a need for more research on which student survey items functioned as indicators for effective teaching. By the same measure, scholars (e.g., Lash et al., 2016; Jacob & Lefgren, 2008) have advocated the validity of classroom observation instruments. Yet, Cohen and Goldhaber (2016) found a lack of clarity in the literature concerning what constituted quality practice, how teachers demonstrated it and how to ensure observers could recognize the distinctions.

To address this gap of what constituted quality practice, the current study sought to identify underlying factors seen to influence the student experience (social support; academic press), in a specific student survey instrument of teacher effectiveness and determine if the corresponding principal observation instrument captured those factors as well. The incremental contribution of the current study was to fill that gap by systematically investigating the NEE data set from 2014/2015, with its large number of observations, and make recommendations as to implications and further study. While no one has conducted a study of this nature using data from NEE affiliated high schools in the state of Missouri, the current study was a constructive replication of the Tripod/MET database study (Wallace et al., 2016) and the IES study from the Pittsburg Public Schools (Chaplin et al., 2014). More replication studies of this type would continue to grow the body of knowledge and increase the acceptance of these instruments as valid and reliable measures of teacher effectiveness.

The findings of the current study add to the current literature on correlations between principal observation instruments and student perception instruments by

corroborating previous studies findings of weak correlations between the factors of interest and principal observation scores. The current study can be used as another validating data point consistent with the findings of the Tripod/MET database study (Wallace et al., 2016) and the IES study from the Pittsburg Public Schools (Chaplin et al., 2014). Additionally, while the correlations were found to be weak, the correlation effects had enough variance as to beg further review. On the NEE indicator 1.2, the teacher cognitively engages students in the subject, and on NEE indicator 7.4, the teacher monitors the effect of instruction on the whole class and individual learning- there were very similar correlation effect sizes for both social support and academic press suggesting near uniform influence of these on both students and teachers. However, on the NEE indicator 4.1, the teacher uses instructional strategies leading to student problem-solving and critical thinking skill development, the effect size was markedly different as academic press had a much higher effect (four times higher) than social support. More research into this phenomenon is needed to determine what, if any, underlying factors might be driving these results.

Implications for Practice

Within the practitioner setting, the findings of the current study can lead to better alignment of teacher evaluation instruments with accountability standards. There are exciting opportunities at the state level to lead because federal educational accountability mandates continue to require assessment of student learning, yet there continues to be little consensus as to the best approach as students may not always be able to articulate these ideals nor has the research coalesced around agreed upon best practices (Wallace et al., 2016). A goal of state education policy should be clear guidelines in order to further

the mission of effectively educating the state populous and scholar/practitioner partnerships will aid in that endeavor.

The dynamic tension between accountability efforts and teacher training efforts creates a potential gap between the traditional objective academic press domains and newly relevant subjective domains of social support, yet these need not be mutually exclusive (Lee & Smith, 1999). By identifying the underlying factors of effective teaching, and how they predict principal observations, this study provides insight for improving the ability of practitioners to mentor pre-service teachers on the components of social support and academic press needed to be effective. Additionally, formative evaluations based on the results of the NEE instruments can improve the practice of current teachers by providing tangible steps to improvement. Lastly, this study provides insight to assist administrators on all levels to make well-informed decisions in hiring and retaining high-quality teachers by aiding in the identification of characteristics desired in, and exhibited by, effective teachers. Principals can utilize the NEE teacher evaluation instruments to further their goals of teacher development and student achievement.

While I expected to find much stronger correlations between the principal observations and the student survey factors of social support and academic press, the existence of even low correlations give support to practitioners attempting to determine the proper balance of these constructs in both their teaching and school administration. The current study adds perspective to the debate over optimal school environments and the balance of social support and academic press. Similar to the findings of Lee (2012), the current study partially supported the advantage of the authoritative school model as exemplified by demandingness (i.e., academic press) and responsiveness (i.e., social

support). These findings can aid principals and teachers as they seek to align evaluation policy mandates with the educational needs of their specific schools and students.

Recommendations for Future Studies

What makes someone an effective teacher? The very question elicits passionate debate amongst teachers, administrators, policy-makers, and scholars. Students and parents are also obvious stakeholders in the debate. The concept of teacher effectiveness is rife with individualized expectations and lived experiences. An important component of the social support factor seen in the current study dealt with the concept of care. Is it important for students to feel that teachers care for them? Should principals encourage teachers toward more obvious displays of caring? The intersection of teacher-student relationships and concepts like care require a consideration of the relevant theories germane to studies of measuring teacher effectiveness. An environment of caring (exemplified by empathy), concern, encouragement and respect, all traits within social support are necessary for student engagement and realizing the highest potential of each student (Ferguson, 2012; Rowe, 2000; Teven, 2001; Teven & McCroskey, 1997). The conceptual lens of parenting style (Walker, 2008) offers a fascinating paradigm to explore. Does the authoritative teaching style consisting of elements seen in both social support and academic press (i.e., consistent classroom management, support of student autonomy, and personal interest in students) offer a clearer path to effective teaching methods that deliver the student outcome results demanded in this era of accountability? More research in this area of parenting style as applied to teacher-student relationships, and accurately captured in principal observation instruments, could yield findings with significant implications in both the academic literature and teacher practice.

SECTION SIX:

SCHOLARLY PRACTITIONER REFLECTION

Influence of Dissertation on My Practice as an Educational Leader

"I am just a sales guy who teaches" has been the way I have described my role in education for the past decade. As a non-traditional college student who made a successful career in sales and marketing translate into a teacher career, the idea of "teacher effectiveness" fascinates me. With the preceding sentences, I began this dissertation journey and here as I finish, I reflect again on these words. The characteristics of effective leaders continues to fascinate me. One of my goals in joining the Statewide Cooperative EdD program at the University of Missouri was to further my knowledge in the area of leadership development and identification. I hope to use my past business experiences and couple those with my time in academia to be a leader of an educational institution. Many of the same issues I faced in business are now affecting education. Bolman and Deal (2008) understood that, "…global competition, turbulence, and rapid change have heightened an enduring organizational dilemma: Is it better to be lean and mean or invest in people?" (p.137). The political climate facing education today requires innovative solutions and truly effective teachers to implement them.

Transformational Leadership

My goal in preparing this dissertation was to create more knowledge in the domain of teacher effectiveness whereby new paradigms of performance measurement might influence education leaders to explore new perspectives of leadership and thus engender more trust from the teachers in their buildings. The ability to harness the capabilities of others and use those abilities to further the mission of an organization is vital to the success of any organization. O'Toole (1996) stated, "leaders are able to develop performance-oriented organizations utilizing a leader's greatest source of power,

the trust that he/she derives from followers" (as cited in Landis, 2011, p. 110). The results of the current study highlight the need for more discussion amongst educational leaders to insure attainment of these goals.

Because of the coursework and dissertation process of the Doctorate of Education program, I now understand better that as a leader, I bring a sense of self-confidence yet need to always be mindful of the needs of others to help bring out their best (Northouse, 2013). Central to the idea of transformational leadership, I feel I am "attentive to the needs and motives of followers and tries to help followers reach their fullest potential" (Northouse, 2013, p. 186). While the focus of my dissertation was the secondary education setting, I will take much of what I have learned and readily apply the principles to my role in higher education. The challenges in both settings are similar; how do you accomplish transformation with limited resources across all spectrums of the organization? Who are the right people, where are they, and can you either convince them to stay or convince them to come to your organization?

Higher Education Setting

The constraints of dwindling economic resources is forcing higher education institutions to reexamine the credentials and competencies desired in leadership (Smith & Wolverton, 2010). The current political conditions and the uncertain future of higher education demands that we seek new approaches to operating institutions of higher education. These issues are now coming into sharp relief as a wave of retirements is beginning to hit the senior levels of higher education administration across the United States (Hammond, 2013). The current focus of administrators is to consider the paths and

obstacles to developing the next generation of leaders for institutions of higher education and highlighting the need to develop leaders from within our organizations.

As stated previously, my future goals include leadership at higher levels within the higher education setting. Through the dissertation process, I understand more profoundly the need for a holistic approach to evaluating teacher effectiveness. Better education and better educators does not stop in secondary school settings. Higher education has an opportunity to reinvent itself to better align with the needs of its students and stakeholders and its changing role in the public discourse. With these dramatic changes moving quickly, should teachers and instructors fear for their roles in the process? Denhardt and Campbell (2006) would argue no, as evidenced by this quote, "change can be achieved through a process that leaves the participants better and more capable, concerned with shared values, and capable of engaged, enlightened participation in the future" (p. 569). I believe that together, secondary and higher education leaders can work to do what is best for students, provide the settings where true learning can occur. I hope to be among the leaders striving to bridge the gap and make this future possible.

Influence of Dissertation on My Scholarly Practice

How can the educational leader use data to help in the decision-making process to find the correct fit for an effective researcher and/or teacher? This question was at the heart of a paper I wrote a few years ago concerning educational leaders. As I started to reflect on how the dissertation process had begun to influence me as a scholar, that question arose again. For much of my career in both business and education I have relied on experience and intuition in making decisions. The dissertation process has impressed

on me the need for a more empirically based approach to ground more decisions in the best science and the most current theory.

Research Methods

From the outset of the dissertation process, I endeavored to let the data speak for itself and was intentional in relaying any potential biases that needed to be reflexively identified (Creswell, 2009). Merriam (2009) advised, "…investigators need to explain their biases, dispositions…" (p. 219), in order to make the reader fully aware of the researcher's position regarding the content of a study. I feel that I have both made my biases clear and have allowed the data to inform and in some instances redirect my biases. This process has taught me that although I may hold the social support traits of effective teachers to be most important to the perception of teacher effectiveness amongst students, I must allow the data to reveal itself and be rational and logical in my interpretation of the results.

The dissertation process revealed numerous statistical methods used to measure teacher effectiveness. I found examples of factor analysis, Chi-Square, t-tests, multiple linear regressions using fixed-effects and other quantitative methods. The use of qualitative studies were, although not as numerous, intriguing and insightful. Case studies and focus groups shed light on perceptions of teacher effectiveness from numerous sources. My focus on the influence of certain factors on students' perceptions of teacher effectiveness ultimately lead me to the current quantitative study. The work of Creswell (2009) guided this study from the perspective of how to set up a quantitative study. The guidance of my committee has insured proper procedures as well.

Current and Future Contributions

Although my current administrative role and teaching appointment do not carry a research responsibility, I have always valued research as a critical part of the educators' role. As such, I have been fortunate to collaborate with Dr. Andrew Tawfik of Memphis University on a number of his research studies and we have had a number of these accepted to top-tier journals. I hope to continue this collaboration and expand my opportunities with colleagues at the University of Missouri. I am committed to progressing as a scholar and contributing more to the discussion on teacher effectiveness. This issue is too critical to the process of educating our citizens. There is more research needed in this field and in my current and future roles, I am committed to creating a sense of urgency for more scholarly research to help guide the training and development of the next generation of teachers.

Conclusion

As I near completion of the dissertation process, the many fantastic teachers it has been my pleasure to encounter along my journey are at the forefront of my thoughts. From elementary and junior high teachers, through high school and junior college, to my many attempts to complete my bachelors and finally my masters and doctorate, effective teachers have motivated and inspired me. Their academic press and social support woven together to transform students through knowledge discovery inspired me to overcome each challenge I faced along the journey. They challenged me to give back and endeavor to educate and inspire others. The teachers and administrators I met in Cohort 9 of the Statewide Cooperative EdD Program in Missouri personally have inspired me. I am eternally grateful to each of you for your example and camaraderie. As each of us

completes this journey, we will join our ELPA faculty as scholars, and join past and future cohorts as “effective” teachers and leaders.

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Appendix A

Student Perception Survey Item Comparison -Social Support Dimension

Network for Educator Effectiveness	**Tripod Survey-Secondary (Ferguson, 2010)***
4. This teacher uses lots of different things to help me learn, like the internet, readings, or objects.	My teacher has several good ways to explain each topic that we cover in class. If you don't understand something, my teacher explains it another way.
7. This teacher really cares about me.	My teacher in this class makes me feel that s/he really cares about me.
8. This teacher checks to make sure we understand what s/he is teaching us.	My teacher knows when the class understands, and when we do not.
13. This teacher sometimes lets me choose my own learning activities.	Students get to decide how activities are done in this class.
15. This teacher treats me with respect.	My teacher respects my ideas and suggestions.
22. This teacher makes lessons interesting.	My teacher makes lessons interesting.
28. This teacher makes learning enjoyable.	My teacher makes learning enjoyable.
29. If a student has a problem, this teacher will listen and help.	My teacher really tries to understand how students feel about things.
30. This teacher knows when the class understands, and when we do not.	My teacher knows when the class understands, and when we do not.
32. This teacher waits a while before letting us answer questions, so we have time to think.	My teacher gives us time to explain our ideas.
37. This teacher explains difficult things clearly.	My teacher explains difficult things clearly.

*Note: Designation of Tripod Survey items as social support as cited in Wallace et al., (2016)

Appendix B

Student Perception Survey Item Comparison -Academic Press Dimension

Network for Educator Effectiveness	**Tripod Survey-Secondary (Ferguson, 2010)***
3. This teacher wants me to explain my answers -- why I think what I think.	My teacher wants me to explain my answers-why I think what I think. My teacher asks students to explain more about answers they give.
10. This teacher expects me to think deeply, mentally work hard, and concentrate in this class.	My teacher wants us to use our thinking skills, not just memorize things.
11. This teacher pushes me to become a better thinker and problem solver.	My teacher wants us to use our thinking skills, not just memorize things.
14. Our class stays focused and does not waste time.	Our class stays busy and doesn't waste time.
16. This teacher asks questions to be sure we are following along when s/he is teacher.	My teacher asks questions to be sure we are following along when s/he is teaching.
17. I learn a lot in this class.	In this class, we learn a lot almost every day.
31. In this class, we learn a lot every day.	In this class, we learn a lot almost every day.
36. This teacher cares about how much I learn.	In this class, my teacher accepts nothing less than our full effort.

*Note: Designation of Tripod Survey items as academic press as cited in Wallace et al., (2016)

Appendix C

Student Perception Survey Item -Theoretical Factor Dimension

Network for Educator Effectiveness	Two Factor (Lee et al., 1999 as cited in Wallace et al., 2016)	
23. The space in our classroom is well organized.	Social Support	
25. This teacher expects me to judge the quality of my ideas or work during class activities.		Academic Press
26. This teacher makes us apply what we learn to real world problems.		Academic Press
33. This teacher uses technology in a way that helps us learn better.		Academic Press
34. This teacher tells us that we can all be successful if we try hard.	Social Support	
35. I know where to find all the materials I need in this classroom.	Social Support	

Appendix D

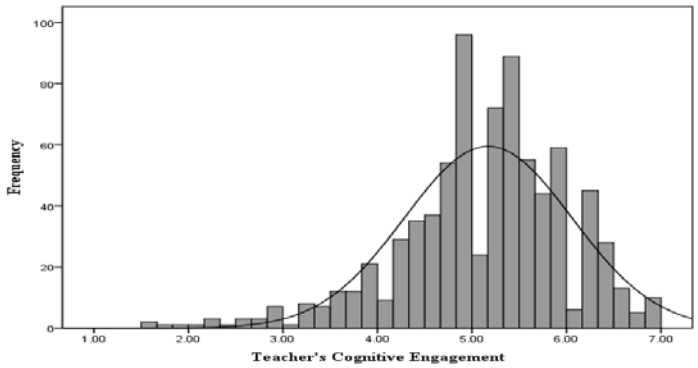

Figure 4. Frequency distribution of principals' observation scores for Teacher's Cognitive Engagement.

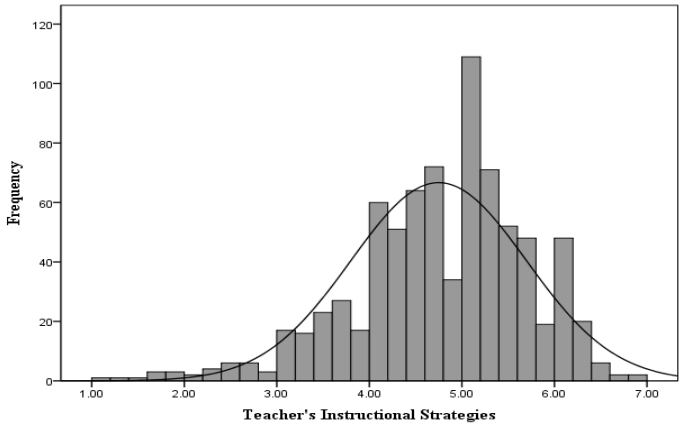

Figure 5. Frequency distribution of principals' observation scores for Teacher's Instructional Strategies.

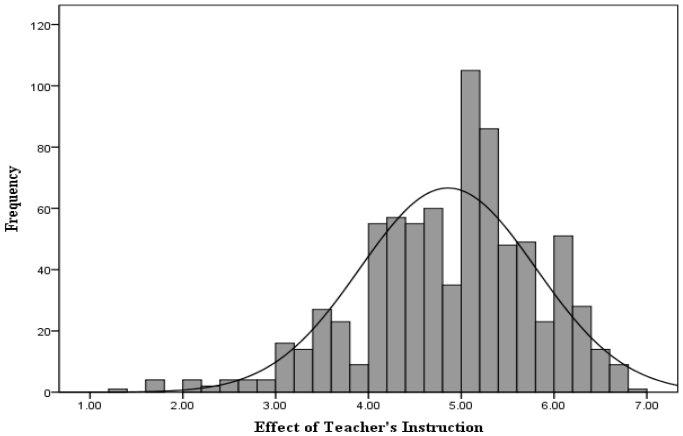

Figure 6. Frequency distribution of principals' observation scores for Effect of Teacher's Instruction.

Appendix E

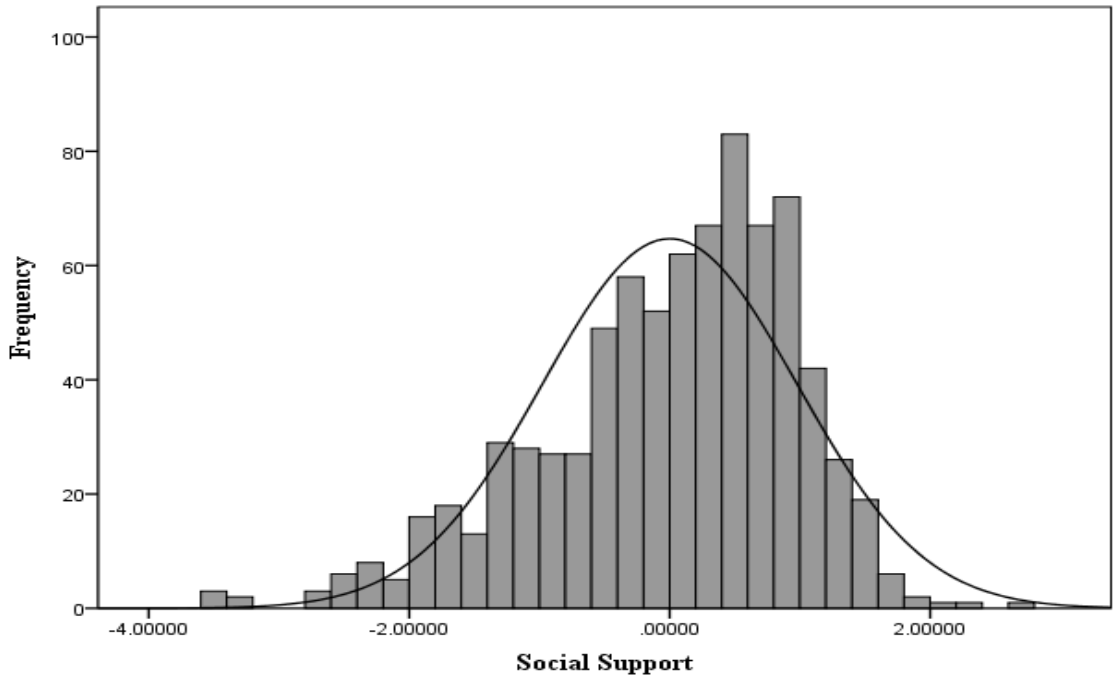

Figure 7. Frequency distribution of standardized regression scores for Social Support.

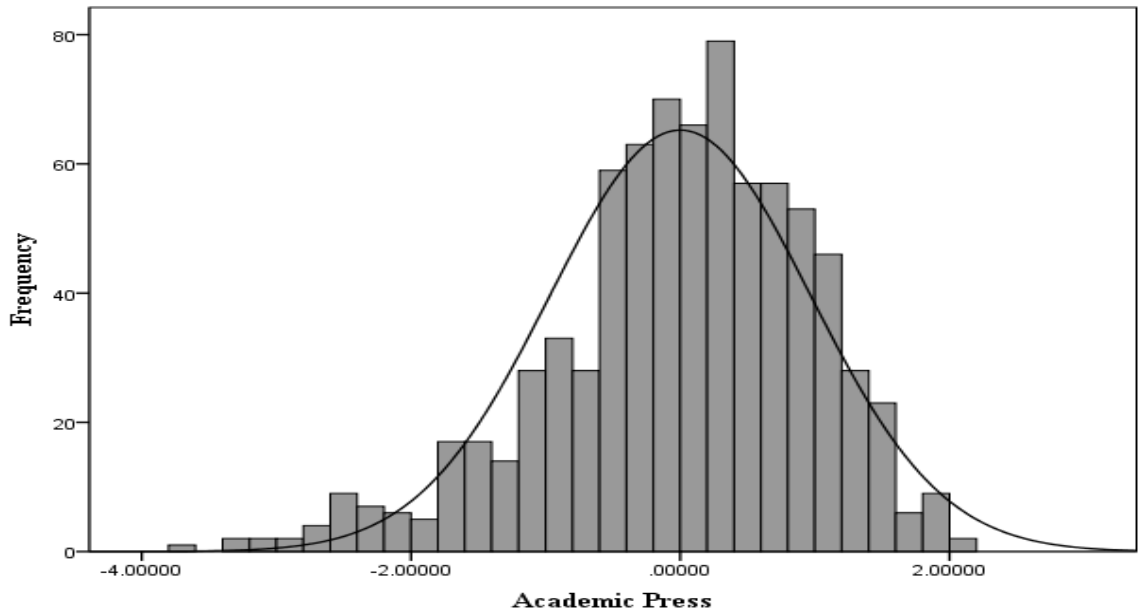

Figure 8. Frequency distribution of standardized regression scores for Academic Press.

Appendix F

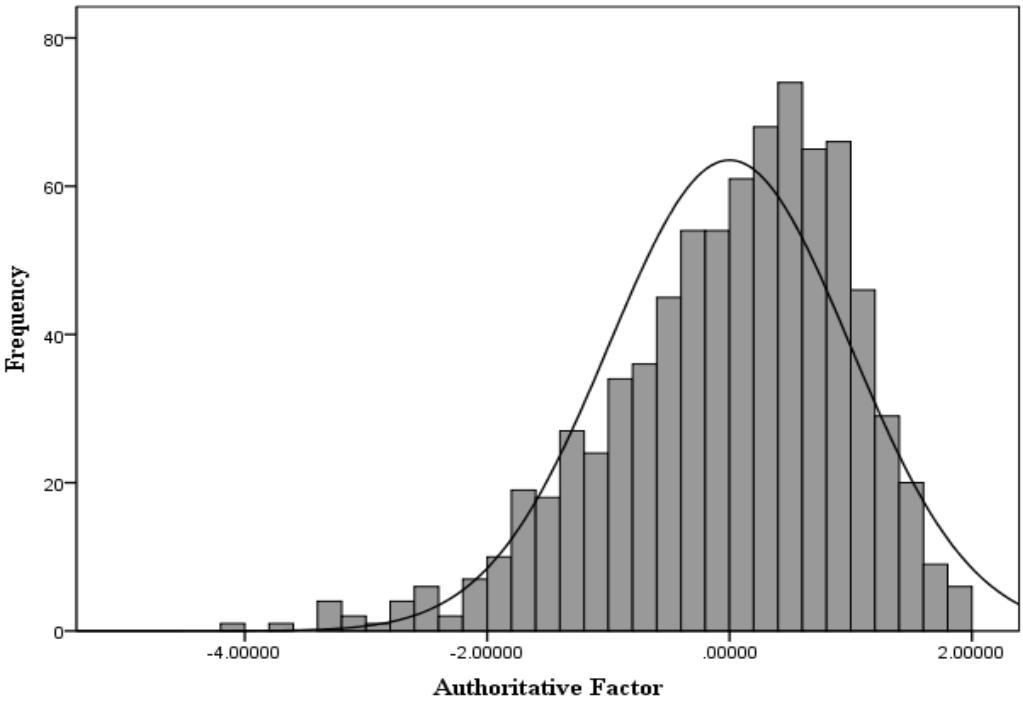

Figure 9. Frequency distribution of standardized regression scores for Authoritative Factor.

VITA

The author of this quantitative study, Charles W. Keene, has a bachelor's degree from Fontbonne College, an M.B.A. from Fontbonne University, and is currently completing a Doctorate in Educational Leadership from the University of Missouri. Charles currently serves as the Director of the Center for Sales and Customer Development at the University of Missouri and lives in Columbia, MO with his wife and three children. Concurrent to his role in higher education administration, Charles serves as an Associate Teacher Professor, Department of Marketing in the Trulaske College of Business at the University of Missouri. Charles' past business career involved many administrative leadership positions.

It has been said that everything good in this life is on the other side of hard work:

This is the other side ☺