Impact of Novice Teacher Professional Learning on Student Academic Achievement

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Abstract

Novice teacher professional development is essential for increasing teacher efficacy and developing effective teacher performance (Mandel, 2006). This causal-comparative research study was designed to investigate the potential influence of the optional Advanced Teaching and Learning (AT&L) professional development series for novice teachers in grades two through five as a tool to improve teacher effectiveness and further increase academic performance for elementary students during the 2016-2017 and 2017-2018 academic years. The first purpose of this study was to examine whether novice teachers' participation or lack of participation in optional AT&L sessions had an impact on the spring composite scores of students in grades two through five as measured by the Measures of Academic Progress (MAP) mathematics and reading assessments for the combined sample of the 2016-2017 and 2017-2018 academic years. The second purpose was to examine whether the number of optional AT&L sessions attended by novice teachers was related to the fall to spring composite gains scores of students in grades two through five as measured by the MAP mathematics and reading assessments for the combined sample of the 2016-2017 and 2017-2018 academic years.

This study found a statistically significant difference in student academic achievement in mathematics and reading for novice educators who attended at least one AT&L optional professional development session. However, data did not indicate a positive relationship between the number of AT&L sessions attended and student gains scores in mathematics and reading. The results of this study provide information that can assist district leaders in making decisions related to designing professional development for novice educators as part of a comprehensive induction program.

Dedication

This dissertation is dedicated to my family. To my husband, John, thank you for your never ending support of my passions. I appreciate all you do to support our family and for always agreeing when I say, "Can you help me with a something at school this weekend?" To my parents, Jan and Jim, thank you for teaching me the value of hard work and determination. During this dissertation journey, you made sure my family had dinner on Wednesday evenings and kept nudging me along. To my children, Grace and Isaac, thank you for being patient with me when I would choose dissertation work over a fun family activity. As you were taught in elementary school, I tried to work first, then play, but it was not always easy!

This dissertation is also dedicated to my school family. Thank you to Janice Craven, my second grade teacher, for inspiring me to make a career out of teaching young children. To Tanya Channell and Randy Smith, two principals in my early career, thank you for providing me with opportunities to enhance my leadership skills. To past and current staff and students, thank you for sharing yourselves with me. I am grateful to have had so many opportunities to learn from so many of you! To my Cohort 12 family, thank you for the Wednesday night laughs and the constant encouragement to finish. A special thank you to Liz and Erica for your friendship and your willingness to listen along the way!

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Table of Contents

List of Tables

List of Figures

Chapter One

Introduction

Novice teachers are, on average, less effective than more experienced ones. High-quality induction programs can accelerate novice teachers' professional growth, making them more effective sooner (Goldrick, 2016). While there is a large body of research related to overall novice teacher induction practices (Goldrick, 2007; Ingersoll & Strong, 2011; Strong, 2009), research is still emerging regarding the impact of professional learning on student achievement as part of the novice teacher induction model. A novice teacher spends much time planning and preparing for the first day of school. The novice teacher has been through the interview and selection processes and is now assuming a role that they have long desired. After recruitment and selection, induction is the "next major human resources activity geared to enable the teacher to be a success" (Smith, 2009, p. 105).

Novice teacher induction combines mentoring from more experienced teachers and professional development opportunities to improve a teacher's skills (Goldrick, 2007). Quality induction builds a bridge between teacher preparation and practice that supports the distinct learning needs of novice teachers during their initial years of teaching (Wood & Stanulis, 2009). Providing support to novice teachers through a comprehensive induction program is critical to creating successful educators who have a positive influence on student achievement.

Chapter 1 contains a description of the background for the present study. This chapter also provides a statement of the problem being addressed, and the significance and purpose of the current study. In addition, the delimitations of the study and the

research assumptions adopted are specified. Further, the research questions are stated, and operational definitions of terms are provided.

Background

The setting for this study was District A, a suburban school district located in the Midwest. As of 2018, this public school district had an enrollment of 30,145 students in pre-kindergarten through twelfth grade. The school district contained 35 elementary schools, 10 middle schools, and 5 high schools and employed over 2,500 certified teachers. During the 2016-2017 school year, the school district hired 115 elementary teachers. The school district hired an additional 118 elementary teachers for the 2017-2018 school year. Of these teachers new to the school district, 50 had zero years of experience. Teachers in their first year of teaching are considered novice teachers. Novice teachers must become familiar with the school district's mission, vision, and goals. Leadership in District A accomplishes this through the school district's induction program.

All novice teachers in District A are required to participate in a novice educator induction program. The program contains three main components that are designed to support teachers as they transition to the school district. First, all novice educators participate in a three-day orientation before the school year begins. The second component of the induction program is the assignment of a mentor to each novice educator. Mentors in District A are full-time release master teachers that mentor teachers new to the school district, provide professional development sessions for all educators in the school district, and serve the school district as instructional coaches. The third component of the novice teacher induction program consists of first-year teachers

participating in professional development during the school day to support them with curriculum and school improvement initiatives.

In addition to required professional development sessions, District A offers a series of after-school workshops that occur after contract hours and are optional for novice educators to attend. These optional workshops, referred to as Advanced Teaching and Learning (AT&L), are aligned with district teaching standards and emphasize professional development activities based on the research literature surrounding novice teacher needs. AT&L sessions are planned and delivered by instructional coaches and include topics such as classroom management, effective lesson design, grading, parent communication, and cooperative learning (Coordinator of New Teacher Induction, personal communication, July 17, 2014).

Statement of the Problem

Novice teacher professional development is essential for increasing teacher efficacy and developing effective teacher performance (Mandel, 2006). Teacher education programs prepare preservice teachers with skills and content knowledge regarding teaching and learning. However, an ongoing novice teacher induction program provides a connection between the study of teaching and learning to the practical application of teaching and learning (Ames, 2009). To support novice teachers, District A implemented a new teacher induction program. Historically, this program has been evaluated annually using teacher satisfaction surveys. No data has been collected that specifically examines the effectiveness of the optional Advanced Teaching and Learning (AT&L) after-school workshops of District A's novice teacher induction program as a factor having a potential impact on student academic achievement. Therefore, this study

examines the effectiveness of the district's optional AT&L additional professional learning opportunity as part of the novice teacher induction model.

Purpose of the Study

This study was designed to investigate the potential influence of the optional AT&L professional development opportunity for novice teachers in grades two through five as a tool to improve teacher effectiveness and further increase academic performance for elementary students during the 2016-2017 and 2017-2018 academic years. There were two purposes for this study. The first purpose was to examine whether novice teachers' participation or lack of participation in optional AT&L sessions had an impact on the spring composite scores of students in grades two through five as measured by the Measures of Academic Progress (MAP) mathematics and reading assessments for the combined sample of the 2016-2017 and 2017-2018 academic years. The second purpose was to examine whether the number of optional AT&L sessions attended by novice teachers was related to the fall to spring composite gains scores of students in grades two through five as measured by the MAP mathematics and reading assessments for the combined sample of the 2016-2017 and 2017-2018 academic years.

Significance of the Study

Support for novice teachers is critical to achieving excellence in teaching quality (Goldrick, 2007). The current study is significant in that it could provide new insights for District A and help inform other school districts designing professional development opportunities for novice teachers. Additionally, the results of this study could be of value to leadership in District A when creating professional development opportunities for novice, as well as more experienced educators. By studying the impact of optional

AT&L workshops for novice teachers in elementary grades two through five, District A could make better-informed decisions regarding how to support novice teachers and positively affect student achievement. The current study also contributes to the existing body of research regarding the effectiveness of professional development, especially for novice teachers, as it relates to student achievement.

Delimitations

According to Lunenburg and Irby (2008), "delimitations are self-imposed boundaries set by the researcher on the purpose and scope of the study" (p. 133). The current research study was delimited to the population of novice teachers in one large suburban school district in Kansas. Only elementary classroom teachers in grades two through five who were in their first year of teaching during the 2016-2017 or 2017-2018 school years participated in this study. Student achievement was measured by the spring MAP composite mathematics and reading scores, and fall to spring MAP composite score gains were used to measure student academic growth over the school year.

Assumptions

According to Lunenburg and Irby (2008), "assumptions are postulates, premises, and propositions that are accepted as operational for purposes of the research" (p. 135). For this research study, the following were assumed true:

1. Attendance was taken accurately during all optional AT&L professional development sessions.
2. AT&L professional development sessions provided for teachers included research-based practices that were shown to improve student achievement.

3. Teachers implemented their new learning from optional AT&L professional development sessions in their classrooms.
4. Teachers administered the MAP mathematics and reading assessments according to the standardized directions provided.
5. Students put forth their best effort on the MAP mathematics and reading assessments.

Research Questions

"Research questions inquire about the relationships among variables" (Creswell, 2009, p. 132). The following research questions guided this study:

RQ1. To what extent does novice teachers' participation or lack of participation in optional AT&L sessions have an impact on spring composite scores as measured by the MAP mathematics assessment for students in grades two through five for the combined sample of 2016-2017 and 2017-2018?

RQ2. To what extent do the number of optional AT&L sessions attended by novice teachers impact the fall to spring composite gains scores as measured by the MAP mathematics assessment for students in grades two through five in the combined sample of 2016-2017 and 2017-2018?

RQ3. To what extent does novice teachers' participation or lack of participation in optional AT&L sessions have an impact on spring composite scores as measured by the MAP reading assessment for students in grades two through five for the combined sample of 2016-2017 and 2017-2018?

RQ4. To what extent do the number of optional AT&L sessions attended by novice teachers impact the fall to spring composite gains scores as measured by the MAP

reading assessment for students in grades two through five in the combined sample of 2016-2017 and 2017-2018?

Definition of Terms

Ridley (2008) emphasized the importance of introducing the reader to specific vocabulary and explaining the meaning of words and phrases used in a study. Therefore, to provide clarity for the reader, these terms are defined for the present study:

Advanced Teaching and Learning. Advanced Teaching and Learning (AT&L) is an after-school series of professional growth opportunities. This optional professional development series began in District A in 2000 and is offered to novice teachers as part of a comprehensive induction program (Coordinator of New Teacher Induction, personal communication, July 17, 2014).

Induction. Induction refers to support programs for novice teachers. Induction programs often include mentoring, initial training or orientation, and on-going professional development for novice teachers (Goldrick, 2007).

Measures of Academic Performance (MAP). The Measures of Academic Performance, or MAP assessments, are computerized student-adaptive tests that "measures achievement in reading, language usage and mathematics for students in grades 2 through 12. All items are in a multiple-choice format and are administered adaptively" (Northwest Evaluation Association, 2011, p. 8).

Novice Teacher. A teacher in their first year of teaching is considered a novice teacher (Strong, 2009).

Organization of the Study

Chapter 1 provided an introduction to the study, background information, the statement of the problem, and the purpose of the study. The first chapter also presented the significance of the study, delimitations, assumptions, research questions, and definitions of terms. Chapter 2 contains an in-depth review of the literature related to the components of an effective teacher induction program, as well as research regarding the impact of induction programs and ongoing professional development on student achievement. The research design and methodology utilized in this study are outlined in Chapter 3. Chapter 4 presents the results of the study, and Chapter 5 contains the major findings of the study, including implications for practice and recommendations for future research.

Chapter Two

Review of the Literature

Researchers began to investigate the effectiveness of induction programs for novice teachers in the middle of the 1990s (Strong, 2009). The percentage of novice teachers who reported that they participated in some kind of induction program in their first year of teaching has also steadily increased during that time. In 1990, about 50% of teachers reported participating in induction programs, while over 90% of teachers reported participating in induction programs in 2008 (Ingersoll, 2012). As larger numbers of teachers are participating in induction programs, school districts have the potential to create induction programs that serve as a powerful force for educational change and professional growth for teachers. The most effective induction programs embrace this opportunity to provide comprehensive support that will positively affect teachers and students.

In recent years, the field of education has seen a rapid expansion of policies and resources devoted to teacher induction. The National Commission on Teaching and America's Future attributes such growth to the growing awareness of novice teachers' unique needs for comprehensive support and training (Carroll & Foster, 2010). Teaching is complex work, and higher education teacher preparation programs are rarely sufficient to provide all the knowledge and skill necessary for successful teaching, so a significant portion of this knowledge can only be acquired on the job. Schools must provide an environment where novice teachers can learn how to teach, survive, and succeed as teachers. Effective induction programs aim to enhance the skills of novice teachers with the ultimate goal of improving student growth and learning (Ingersoll, 2012).

Components of Teacher Induction

New teacher induction programs require a system-wide commitment to teacher development. Induction programs are most effective when new teacher induction is part of a district-wide initiative to improve teaching and learning (Moir, 2009). Components of a successful induction program include: (a) a four to five-day orientation period prior to the beginning of the school year; (b) structured mentoring from a carefully selected and trained mentor, (c) strong administrator support, and (d) ongoing professional development tailored to the needs of novice teachers (Wong, 2002; Alliance for Excellent Education, 2004). Detailed descriptions of these components of successful induction programs follow.

Orientation. Orientation is an important learning experience that helps novice teachers learn key information to fit into the culture of the school and to begin the work of teaching (Stanulis, Burrill, & Ames, 2007). An effective induction program begins with four to five days of professional development before school begins. The structure of orientation allows district leaders to provide an overview of the school district's mission and curriculum resources as well as allowing time for novice teachers to spend with master educators preparing for the first days of school. During this time, novice educators often meet their assigned mentor for the first time and begin to develop that important relationship. Orientation is an important component of new teacher induction that helps novice teachers learn vital information that will allow them to fit into the culture of the school district and successfully begin the school year (Stanulis & Floden, 2009).

Orientation, while an important beginning for successful new teacher induction, is not widely covered in the literature. In one study, Andrews, Gilbert, and Martin (2007) studied 14 induction programs in two states. The researchers surveyed 222 first year teachers to determine what induction support they received and which support they deemed to be beneficial. In contrast, Andrews et al. surveyed the administrators of the first year teachers to determine what support strategies had been provided for the novice teachers. The two groups were compared to determine whether beginning teachers' perceptions were consistent with what administrators reported was provided. Teachers reported that participating in orientation was one of two supports that were highly valued. However, Andrews, et al. focused on teacher perception of beneficial induction supports. No research has been conducted linking the component of orientation to teacher effectiveness and student achievement.

While orientation is an important component, it is not the only component of a successful induction program. The Alliance for Excellent Education found that in 2004, many novice teachers did not participate in induction programs beyond a one-time orientation. To be successful, new teacher induction must contain multiple components, beginning with an orientation period. In addition, mentoring, administrator support, and professional development are critical components of successful new teacher induction programs.

Mentoring. With the increase in the prevalence of new teacher induction in schools, mentoring has become one of the focus areas of induction programs (Ingersoll, 2012). However, there is often confusion and misuse of the terms induction and mentoring. Induction is a process organized by a school district to train and support

novice educators. Mentoring is the process of a veteran educator supporting a novice educator. Mentoring is not effective as the exclusive support for novice teachers. Rather, mentoring is a component of an effective induction program (Wong, 2004). A school district that only provides mentoring for novice educators will not be as successful as school districts with a comprehensive induction program with mentoring as a component. The novice teacher will experience greater success in the classroom with more mentoring support provided as part of an induction program (Ingersoll, 2012).

An induction program that provides mentoring helps to support novice teachers as they put their training into practice. Mentors use their knowledge and expertise to support novice teachers in ways that are responsive to their unique needs (Moir, 2009). In less effective programs, the mentor assumes the role of "buddy," only providing emotional support for the novice educator. In successful induction programs, a mentor provides a great deal more. Mentor support can combine personal and emotional guidance while also helping the novice educator to be reflective regarding their teaching practice (Stansbury & Zimmerman, 2002). Mentors must have a clear understanding of effective instructional practices and must be able to balance novice teachers' immediate concerns with the ultimate goal of improving teacher effectiveness. While mentoring occurs in many formats, the ultimate goal of mentoring is to provide quality learning and experiences for the novice teacher (Schwille, 2008).

Leaders of effective induction programs recognize that mentors serve an important role. Glazerman et al., (2010) conducted a study of 418 elementary schools in 17 large, urban, low-income public school districts. As part of the study, schools were assigned as a treatment group whose novice teachers were provided a comprehensive

teacher induction and mentoring program or schools were assigned as a control group with a less formal induction program. The researchers found that successful comprehensive induction programs carefully selected and trained full-time mentors. The programs sought mentors with a minimum of five years of teaching experience and experience with providing professional development to other teachers.

In another study, Fletcher and Strong (2009) surveyed 18 novice teachers employed in one large urban school district during the 2006-2007 school year. The researchers compared satisfaction of novice teachers with full-release mentors and those with mentors who had classroom-teaching responsibilities. Novice teachers with full-release mentors reported greater job satisfaction. Full-release mentors, while an investment for a school district, can provide much more support to the novice teacher. Moir (2003) recommends that novice teachers should have a mentor in their classroom for at least two hours each week. Because of this time commitment for a full-release mentor, Moir (2003) recommends that mentors work with no more than 15 novice teachers at once.

Just as the classroom teacher is a critical factor to student success, a qualified mentor is critical to the success of a novice teacher. Quality mentoring requires careful selection, training, and ongoing support (Moir, 2003). Not every highly qualified classroom teacher is the best mentor for novice educators. The best mentors are those who have a strong desire to help other teachers. Mentors should be chosen for their strong interpersonal skills, credibility with peers and administrators, skill in presenting professional development, and a desire to learn alongside novice educators. The mentor

teacher should be a veteran educator "with strong interpersonal skills, respect for multiple perspectives and outstanding classroom practice" (Moir & Gless, 2001, p. 112).

Mentoring is a bridge to teacher effectiveness, a concept that describes the quality of teachers regarding the outcomes of their teaching on student learning and achievement (Strong, 2009). Effective induction programs utilize mentors who are master teachers and use their expertise to help support novice teacher development in ways that encourage professional growth with the purpose of improving core instruction and increasing student achievement. Through thoughtful discussion and reflection, a mentor can assist a novice educator in defining clear and measurable goals for student learning (Sweeney, 2011). Effective mentors can assist with problem-solving student and curriculum challenges. Mentors help novice teachers make decisions about lesson plans, teaching strategies, and assessment. During instructional coaching sessions, mentors help novice teachers set professional goals, plan lessons, analyze student work, and reflect on their progress. Mentors may teach a lesson while the novice teacher observes in order to learn to differentiate instruction to meet the varied needs of learners (Sweeney, 2011). Mentors can "perform demonstration lessons in the classroom, observe the novice teaching, assist with curriculum development, as well as classroom management and other on-the-job skills" (Moir, 2003, p. 7) With this kind of intensive instructional support from the start, novice teachers focus less on day-to-day survival and more on ensuring that every student makes progress (Atchinstein & Athanses, 2006).

Administrator Support. Another component of successful induction programs is the support of school principals. School leaders support induction programs by building time into teaching schedules for meetings between novice educators and their mentors

(Fletcher, Strong, & Villar, 2008). School leaders also provide opportunities for novice teachers to collaborate with other teachers, and they provide novice educators with ongoing professional development. The support of building principals throughout the induction process can make induction much more effective. "More than any other person in the school, the principal is the one who sets the tone of how easily or difficult it is for novice teachers to be accepted into the school learning community" (Wood & Stanulis, 2009, p. 12).

Effective school leaders must support novice teachers throughout induction to improve teaching and ultimately improve student outcomes (Graczewski, Knudson, & Holtzman, 2009). Principals should provide comprehensive professional development opportunities for novice teachers (Johnson & Kardos, 2002). Professional development may be provided around topics such as classroom management, curriculum, instructional strategies, and lesson planning (Brock & Grady, 2007). Principals can focus on the improvement of teaching and learning by visiting classrooms and providing feedback to novice educators. Principals are a critical component of an induction program as they promote adult learning and support ongoing professional development. In addition, they are skilled at observing and providing feedback to novice educators (Moir, 2009). Novice teachers need to learn specific instructional strategies to be effective. Principals facilitate the growth of novice teachers by combining support, resources, mentoring, and professional development while sharing insight into school culture (Gimbert & Fultz, 2009). Feiman-Nemser (2001) found the following:

> When school leaders provide new teachers with clear curricular guidelines, a transparent teacher evaluation process, opportunities to observe and be observed,

> and easy access to colleagues' guidance, they not only help new teachers succeed but also they make induction a schoolwide responsibility. (p. 26)

The positive impact of a school leader is evident to all, including novice teachers. Effective implementation of new teacher induction depends heavily on the support of the building administrator. While novice teachers cite that the support of a mentor is important to their success, many novice teachers cite having a supportive principal as critical support to their entry into teaching (Wood, 2005; Haberman, 2005). Consistent administrator support is a common thread to success for the novice teacher (Bartell, 2005; Breaux & Wong, 2003; Ingersoll & Smith, 2004). Bowsher, Sparks, and Hoyer (2018) examined data from a teacher questionnaire completed by 587,100 public school teachers whose first year of teaching occurred between the 2007-2008 school year and the 2010-2011 school year. While about 75% of novice educators reported having regular communication with their principals, novice teachers who rarely interacted with their administrators reported diminished perceptions of success early in their career.

In addition to a strong relationship between principal and novice teacher, another key component of an effective induction program is a strong relationship between the administrator and the mentor teacher. Principals can inform mentors about school needs, policies, and procedures. They can keep mentors aware of concerns and offer suggestions for support. In turn, mentors can share resources with principals and articulate expectations for novice teachers. Novice teachers benefit from this alignment between administrator and mentor support (Goldrick, 2016). Effective school administrators not only assign highly qualified mentors, but they also provide the time necessary for mentors and novice educators to interact (Roberson & Roberson, 2009).

Principals play a critical role in induction by providing the time and resources needed to make mentoring work. When principals understand the goals of the induction program, they are more likely to support teacher/mentor collaboration which supports the development of novice educators.

Professional Development. The task of designing professional development opportunities to meet the needs of novice educators is challenging. The needs of novice educators are different from the needs of the more experienced teacher (Mandel, 2006) and require a strategic professional learning focus. Professional development for novice teachers should expand content knowledge, encourage collaboration, and provide opportunities to ask questions and seek answers (Sun, 2012). DeAngelis, Wall, and Che (2013) surveyed 1,159 first and second year teachers who completed a four-year undergraduate teaching program from 12 higher education universities in a large, diverse state. The 22-question survey asked novice teachers to report on their perception of pre-service learning, mentoring, and professional development. The researchers found that the planning of professional development for novice teachers, and the opportunity for new learning opportunities, have a positive impact on novice teachers' perception of success in the beginning years of teaching.

Effective professional development for novice teachers is built around expanding content knowledge and should be scheduled multiple times throughout the year to allow novice teachers to advance in knowledge and skills (Stanulis & Floden, 2009). Induction programs that provide ongoing professional development must ensure that novice teachers have a high level of engagement with new professional learning. Researchers have found that teachers are more likely to try instructional strategies that have been

modeled for them during professional development sessions. Likewise, teachers report that professional development is most valuable when it provides opportunities for hands-on learning (Snow-Renner & Lauer, 2005; Penuel, Fishman, Yamaguchi, & Gallagher, 2007; Darling-Hammond, Wei, Andree, Richardson, & Orphanos, 2009).

The learning curve of the novice teacher is enhanced by forming strong connections with colleagues, mentors, and other professionals who make valuable contributions to the novice teacher's professional growth (Moir, 2010). When teachers across experience levels have regular opportunities to analyze student work, discuss classroom problems, or participate in peer observations, novice teachers have the opportunity to learn from the practical knowledge of more experienced colleagues. This collaboration can also build the professional community and strengthen teaching practices for all involved. Induction programs that include opportunities to engage with others have been shown to have a positive impact on teacher effectiveness (Berry, Daughtrey, & Weider, 2010; Ingersoll & Strong, 2011; Kelley, 2004; Wong, 2003). Breaux and Wong, (2003) found the following:

> New teachers want more than just a job. They want hope. They want to contribute to a group. They want to make a difference. Induction programs provide that connection because they are structured around a learning community where new and veteran teachers are treated with respect and their contributions are valued. (p.12)

Well-designed professional development can influence teacher practice and student performance. Professional development should focus on student learning and address the teaching of specific curriculum content. Intensive professional development,

especially when it includes the application of knowledge to teachers' planning and instruction, has a greater chance of influencing teaching practice, and in turn, leads to gains in student learning (Knapp, 2003; Cohen & Hill, 2001; Weiss & Pasley, 2006; Darling-Hammond et al., 2009). Darling-Hammond and her colleagues examined data from the National Center for Education Statistics' 2003-2004 Schools and Staffing Survey (SASS). The SASS was a sample of 130,000 teachers across the country; however, Darling-Hammond, et al. limited their study to four states (Alabama, Arizona, Georgia, and Missouri). Data collected from this survey found that professional development using "scientifically rigorous methodologies" and of a certain duration (30 to 100 hours over six months to a year) was more likely to positively impact student achievement (Darling-Hammond et al., 2009). Collaborative teacher learning was the key to improving student achievement.

State Policies on Teacher Induction

Orientation, mentoring, administrator support, and professional development are all components of effective induction programs. While the research clearly outlines the importance of high-quality induction for novice educators, few states have outlined comprehensive induction policies. Goldrick (2016), the Director of Policy at The New Teacher Center, studied state induction policies in 2016. Induction for novice educators was an initiative that benefits from policies at the state level. Goldrick's review of state policies on novice educator induction and mentoring states:

> State-led induction program standards, program tools, and infrastructure can provide flexibility to local school systems to design and develop support systems for beginning educators that fit their context without sacrificing excellence in

> program design. States are critical in providing school districts with the guidance and support to implement high-quality induction for early-career teachers. (p. 3)

Goldrick (2016) studied state induction policies based on different criteria. The criteria of educators served, mentor quality, amount of time, program quality, and educator licensure directly correlate to previously identified elements of successful induction programs. The first set of criterion examined included the types of educators served in state induction programs and the length of such programs for novice educators. Goldrick found that 29 states had a form of induction or mentoring required for all novice teachers. Of those 29 states, 15 provide induction for two years or more. Based on the state induction policy criterion, state policies should require a two-year induction for all novice teachers.

The training of mentor teachers was another criterion studied. More than 30 states require some type of mentor training, but only 22 states have policies providing for on-going mentor support and training. Five states require full-time release mentors, while eight additional states require some release time for mentors to work with novice educators. State policies should require a specific mentor selection process, provide professional development for mentors, and ensure that mentors have a manageable caseload (Goldrick, 2016).

Another criterion studied was the amount of time novice teachers spend with a trained mentor. The frequency and duration of mentor contact time with novice teachers is one element of induction that affects student learning (Glazerman, et al., 2010). However, only 12 states have established a minimum amount of time a mentor and novice teacher should spend together. Effective state policies on induction should

provide release time for mentor teachers and dedicated novice teacher and mentor teacher contact time (Goldrick, 2016).

The fourth criterion studied was program quality. State policies that meet expectations in this area provide novice educators the opportunity to be observed with feedback provided by the mentor teacher. In addition, novice educators are provided an opportunity to observe in experienced teachers' classrooms as a form of professional learning. The program quality criterion suggests a reduced teaching load for novice teachers and encourages forming a network of support for novice educators (Stanulis & Floden, 2009).

The final criterion studied was educator licensure. At least 24 states require a novice educator's participation in an induction program in order to obtain a professional teaching license. Eleven states add an additional stipulation that the novice educator participates in an induction program for two years to move from an initial teaching license to a professional license (Goldrick, 2016). Effective state policies require novice educators to complete an induction program to move from an initial license to a professional license. The recommended state policies reflect best practice in teacher induction programs.

Teacher Induction in Kansas

School District A, the subject for this study, is located in Kansas. Upon reviewing the recommended state policies for new teacher induction, Kansas state policies were found to meet the expectations for best practice in novice teacher induction for four of the five criteria examined. School districts in Kansas are required to have a

formal induction program approved by the Kansas State Department of Education (KSDE).

The first set of criteria examined included the types of educators served in state induction programs and the length of such programs for novice educators. Based on the state induction policy criteria, state policies should require a two-year induction for all novice teachers (Goldrick, 2016). According to KSDE (2015), school districts are required to provide "one year of structured, intensive support for new teachers/specialists, with a documented plan for providing a second year of support if needed" (p.6). The state of Kansas does not meet this criterion due to the lack of a required two-year induction period for all novice educators.

The training of mentor teachers was another criterion studied. State policies should require a specific mentor selection process, provide professional development for mentors, and ensure that mentors have a manageable caseload of novice teachers (Goldrick, 2016). Kansas state policy defines a mentor teacher as a certificated teacher who has completed at least three consecutive school years of employment in the school district (KSDE, 2015). The state of Kansas meets this criterion by having criteria established for selecting mentors and by providing professional development for mentor teachers. State law requires that mentor teachers complete a training program that includes ongoing professional development. The professional development must address the mentor's role in

- developing strategies for building relationships with new teachers;
- developing skills for observation of the new teacher's practice;
- assessing the needs of new teachers;

- identifying strategies to address those needs;
- coaching language and practice;
- developing strategies for guiding new teachers to use reflection in their practice;
- developing skills for guiding new teachers in using various types of formative assessment to focus instruction and differentiate for student needs;
- guiding new teachers in their use of content standards when planning lessons/units; and
- skills in using the professional education standards as a model of assessing teacher practice (KSDE, 2015, p. 8).

Other criteria studied were the amount of time novice teachers spend with a trained mentor and program quality. Effective state policies on induction should provide release time for mentor teachers and dedicated novice and mentor teacher contact time (Goldrick, 2016). In addition, state policies that meet expectations in this area provide novice educators the opportunity to be observed with feedback provided by the mentor teacher. In turn, novice educators are provided an opportunity to observe in experienced teachers' classrooms as a form of professional learning. The Kansas Model Mentor and Induction Guidelines (2015) require that mentors engage in weekly communication with novice educators. In addition, mentors are required to observe novice educators three times a year and provide feedback. Because of these established guidelines, the state of Kansas meets these criteria for the time novice teachers spend with a trained mentor and program quality.

The final criterion studied was educator licensure. State policies should require novice educators to complete an induction program to move from an initial license to a

professional license. Regarding educator licensure, Kansas state policy meets this criterion because mentoring support is required for novice educators to move from an initial teaching license to a professional license (KSDE, 2015). "The performance assessment required in Kansas to move from an initial to a professional license has been defined as successful completion of at least a year of mentoring in an approved program based on model mentoring program guidelines" (KSDE, 2015, p. 4).

Kansas state policies meet many of the expectations of best practice in novice teacher induction. While state policies do not meet the expectations for length of induction program, policies do meet expectations in the identified criteria of mentor quality, time, program quality, and educator licensure. These criteria directly correlate to elements of successful induction programs that lead to increased teacher quality and increased student achievement.

Induction, Teacher Effectiveness, and Student Achievement

"The quality of our nation's schools depends on the quality of our nation's teachers" (Feiman-Nemser, 2001, p. 1013). We must transform the way we support the newest educators in our schools. It is critical to the success of our schools and the success of our students. Numerous researchers have discovered that novice teachers are not as effective as experienced teachers (Harris & Sass, 2007; Ladd, 2008; Rivkin, Hanushek, & Kain, 2005). Therefore, induction programs must provide support to novice teachers in order for them to be effective and for students to be successful.

Novice teachers become more effective with experience, typically making the greatest performance gains between their first and second years. Clotfelter, Ladd, and Vigdor (2007) studied reading and math assessment scores of all students in grades 3, 4,

and 5 in North Carolina during the years 1995-2004. They discovered that teachers in their second and third years of teaching outperformed first-year teachers. Teacher experience is unrelated to effectiveness, except during the initial years in the profession (Rivkin, et al., 2005). High-quality induction programs accelerate novice teachers' professional growth, making them more effective sooner.

Rockoff (2008) examined the effects of mentoring on student achievement. He utilized student standardized test scores of 1,281 teachers from 2000-2006 to compare beginning teachers with other newly hired teachers who had prior teaching experience and hence were not eligible for mentoring. Factors studied were the hours of mentoring received, mentor caseload, and the novice teacher's evaluation of the mentor. Rockoff (2008) found that novice teachers who spent ten additional hours a year with a mentor showed greater student gains in student achievement in reading and math.

Fletcher et al., (2008) studied 29,000 beginning teachers who were part of the California Beginning Teacher Support and Assessment program in 2001. Three public school districts in California provided student and teacher data for novice teachers in grades two through six. Student data was linked to the assigned teachers and researchers reviewed the mentor component of induction as it related to student achievement. The researchers found a correlation between the amount of time a mentor spent with a novice teacher and the academic achievement of students.

In the largest induction study to date, Glazerman, et al., (2010) conducted a study of 418 elementary schools in 17 large, urban, low-income public school districts. As part of the study, schools were assigned as a treatment group whose novice teachers were provided a comprehensive teacher induction program or schools were assigned as a

control group with a less formal induction program. As part of the study, 1,009 teachers participated for three years beginning with the 2005-2006 school year. Unlike other studies that collected data through teacher surveys, this research was collected using classroom observations and student assessment data. Glazerman and colleagues found that comprehensive induction in year one and two did not have a significant impact on teaching practices or student achievement. However, after three years of induction support, significant gains in student achievement were observed. "These impacts are the equivalent of moving the average student from the 50th percentile up 4 percentile points in reading and 8 percentile points in math" (Glazerman et al., 2010, p.92).

In another comprehensive research project, Ingersoll and Strong (2011) reviewed 500 studies focusing on the effects of new teacher induction programs on teacher effectiveness and student achievement. The purpose of the study was to respond to the fact that "there have been few efforts to provide comprehensive and critical reviews of empirical studies on the effect of induction" (p. 5). This study revealed that students of novice teachers who participated in an induction program scored higher on standardized tests. Ingersoll and Strong found that novice teachers who participated in an induction program experienced improved skills in the areas of differentiating instruction and classroom management and were more likely to incorporate instructional methods that promoted student growth and as a result, had increased student achievement.

Although studies have found positive relationships between the components of induction and student achievement, Ingersoll (2012) warned other researchers about the limitations of the research conducted. "Since the activities of an induction program are at least one step removed from the students, it is challenging to design research that can test

the existence of a causal relationship between new teacher induction and student achievement" (p. 220). Ingersoll (2012) concluded:

> Most of the studies that we reviewed of teachers' classroom practices showed that beginning teachers who participated in some kind of induction performed better at various aspects of teaching, such as keeping students on task, developing workable lesson plans, using effective student questioning practices, adjusting classroom activities to meet students' interests, maintaining a positive classroom atmosphere, and demonstrating successful classroom management. Finally, for student achievement, most of the studies also showed that students of beginning teachers who participated in some kind of induction had higher scores, or gains, on academic achievement tests. (p. 51)

High-quality induction can enhance teaching practice at the time when teachers need it most. Based on research surrounding new teacher induction and student achievement, it is clear that teachers benefit from induction and on the job training in their early years of teaching. High-quality induction programs accelerate novice teacher effectiveness, fast-tracking their progress so they can impact student achievement (Moir, 2009). Providing high quality induction supports the newest educators in our schools. A comprehensive induction program is critical to the success of teachers and students.

Summary

The importance of comprehensive induction programs for novice teachers was explored in this chapter. In addition, the components of successful induction programs and state requirements of induction programs were outlined. Furthermore, literature

related to the impact of successful induction programs on teacher effectiveness and student achievement was reviewed.

Chapter Three

Methods

The current study was designed to investigate the potential impact of the optional AT&L professional development opportunity for novice teachers in grades two through five as a tool to improve teacher effectiveness and further increase academic performance for elementary students during the 2016-2017 and 2017-2018 academic years. There were two purposes for this study. The first purpose was to examine whether novice teachers' participation or lack of participation in optional AT&L sessions had an impact on the spring composite scores of students in grades two through five as measured by the Measures of Academic Performance (MAP) mathematics and reading assessments for the combined sample of the 2016-2017 and 2017-2018 academic years. The second purpose was to examine whether the number of optional AT&L sessions attended by novice teachers was related to the fall to spring composite gains scores of students in grades two through five as measured by the MAP mathematics and reading assessments for the combined sample of the 2016-2017 and 2017-2018 academic years. This chapter describes the methodology employed for the current study and includes the research design, selection of participants, measurement instruments, data collection procedures, data analysis, and limitations of the study.

Research Design

The current study was conducted using a causal-comparative quantitative research design to examine archival data. Creswell (2009) described causal-comparative quantitative research as "research in which the investigator compares two or more groups in terms of a cause or independent variable that has already happened" (p. 12). Causal-

comparative studies can also be used to examine a comparison between a control group and an experimental group. The assignment of participants to the control and experimental groups is not random in this type of research design. Independent variables for this study included teacher participation status and the level of teacher engagement in the optional professional development represented by the number of AT&L sessions attended. Teacher participation status was dichotomously defined as novice teachers during the 2016-2017 and 2017-2018 academic years who participated in optional AT&L by attending at least one session, and novice teachers who did not participate in optional AT&L, as they attended no sessions. Dependent variables for this study were the student spring composite scores and the student fall to spring composite gains scores on the MAP mathematics and reading assessments for students in the second through fifth grades who were instructed by a novice teacher in District A during the 2016-2017 and 2017-2018 academic years.

Selection of Participants

This study employed purposive sampling. According to Lunenburg and Irby (2008), purposive sampling "involves selecting a sample based on the researcher's experience or knowledge of the group to be sampled" (p.175). Novice teachers of elementary general education for grades two through five in District A were the target population for this research. The sample for the current study consisted of 50 novice teachers of grades two through five in District A during the 2016-2017 and 2017-2018 academic years. One group of participants included novice teachers of grades two through five in District A during the 2016-2017 and 2017-2018 academic years and participated in at least one optional AT&L professional development session during their

first year in the school district. The other group was comprised of novice teachers of grades two through five in District A during the 2016-2017 and 2017-2018 academic years who did not participate in any optional AT&L professional development sessions. For novice teachers who did participate in at least one AT&L session, the level of engagement in AT&L was represented by the number of sessions attended.

Measurement

Participating novice teachers in grades two through five administered The Measures of Academic Progress (MAP) mathematics and reading assessment to their students at the beginning, middle, and end of the academic year. The MAP assessment was developed by the Northwest Evaluation Association (NWEA) in 2000 and measures student achievement in relation to state standards during an academic year. The assessment consists of a multiple-choice item format and is computer adaptive, in which the test adjusts for each student as they progress through the questions. All students begin with grade-level questions. If a student answers a question incorrectly, the test adjusts to provide a less challenging question. If a student answers a question correctly, the test presents a more challenging question. Through this adaptive process, the MAP assessment identifies a student's zone of proximal development in both mathematics and reading and the data provides teachers with the opportunity to identify areas of need for students (NWEA, 2011).

The MAP assessment uses a Rausch Unit scale (RIT) to interpret test scores (NWEA, 2011). The RIT scale is an equal-interval scale with scores ranging from 100 to 300. There are composite RIT scores rendered for the overall mathematics and reading assessments. In addition, sub-scale RIT scores are provided for constructs that are

assessed in each content area. For this study, the composite RIT scores from the spring administration, as well as the fall to spring composite RIT gains scores, were utilized for statistical analysis.

According to Lunenburg and Irby (2008), "validity is the degree to which an instrument measures what it purports to measure…most standardized achievement tests have good content validity…" (p. 181). The Measures of Academic Progress (MAP) assessment is valid in that it measures what it purports to measure, which is student achievement status in accordance with state standards (NWEA, 2011). In the area of validity, NWEA ensured validity by "carefully mapping existing content standards from a state into a test blueprint" (NWEA, 2011, p. 4). The majority of the evidence for validity for the MAP assessment comes in the form of concurrent validity. Concurrent validity addresses "how well do the scores from this test reference the RIT scale in this subject area correspond to the scores obtained from an established test that references some other scale in the same subject area?" (NWEA, 2011, p. 5).

The NWEA MAP assessment has strong concurrent validity and reliability scores falling in the mid-.80s (NWEA, 2011). The MAP assessment has also shown strong test-retest reliability. NWEA's reliability analysis for the MAP was based on an approach that blended test-retest reliability with a type of parallel form of reliability. The alternate form of the MAP test administered mid-year is very similar in structure and content but differs in difficulty. According to NWEA (2011), most of the resulting reliability coefficients for the parallel forms of the MAP assessment are in the middle .80s to low .90s even when the different test forms are administered with several months between administrations. Given the strong reliability and validity evidence, the MAP assessment

was utilized for this study to measure students' end-of-year achievement and student academic growth from fall to spring in mathematics and reading.

Data Collection Procedures

Before conducting the research for this study, permission was secured to obtain and analyze archival MAP reading and mathematics assessment data from the 2016-2017 and 2017-2018 academic years by completing a District A Research Application Request. The completed research proposal form was electronically mailed to the Director of Assessment and Research in District A. The proposal was approved, and permission was granted to use archival MAP assessment data on August 16, 2018 (see Appendix A). Following approval from District A, a request to conduct the study was submitted to the Baker University Institutional Review Board (IRB) on June 20, 2019. On July 2, 2019, Baker University approved the research request. A copy of the letter granting permission is included as Appendix B.

District A's assessment department compiled the requested student fall and spring MAP composite reading and mathematics scores for grades two through five. The assessment department developed an Excel spreadsheet that included the variables of academic school year, grade level the novice teacher instructed, and the number of optional AT&L sessions attended by each novice teacher. A random identification number was assigned to each teacher to ensure confidentiality. This data was provided via email on July 8, 2019, and was stored electronically on a password-protected computer. Data will be destroyed three years after completion of this study.

Data Analysis and Hypothesis Testing

The research questions posed for this study addressed whether teacher participation in optional professional development sessions, as part of a novice teacher induction program, had an impact on the spring mathematics and reading achievement on the MAP assessment composite scores for elementary school students in grades two through five for the combined 2016-2017 and 2017-2018 academic years. Additionally, the research questions examined the relationship between novice teacher engagement levels in the optional professional development, represented by the number of sessions attended, and fall to spring student growth on the MAP assessment composite scores in mathematics and reading through calculated gains scores. The statistical analysis procedures utilized for the current study included independent-samples *t*-tests and simple linear regression analysis. The following research questions, hypotheses, and procedures for statistical analysis, as well as information regarding the variables and level of significance for each analysis is provided.

RQ1. To what extent does novice teachers' participation or lack of participation in optional AT&L sessions have an impact on spring composite scores as measured by the MAP mathematics assessment for students in grades two through five for the combined sample of 2016-2017 and 2017-2018?

H1. There is a statistically significant difference in the mean spring MAP composite mathematics scores for students in grades two through five between novice teachers who participated in the optional AT&L professional development sessions and novice teachers who did not participate in AT&L for the combined sample of 2016-2017 and 2017-2018.

An independent-samples *t*-test was conducted to address H1. Data was analyzed from a combined sample of 2016-2017 and 2017-2018, which included novice teachers and their students in grades two through five. The categorical independent variable of novice teacher AT&L participation status (participated in at least one session or did not participate in any sessions) was used to group the dependent variable of spring student composite scores on the MAP mathematics assessment. The group means between novice teachers who participated and those who did not participate were compared. The level of significance was set at .05.

RQ2. To what extent do the number of optional AT&L sessions attended by novice teachers impact the fall to spring composite gains scores as measured by the MAP mathematics assessment for students in grades two through five in the combined sample of 2016-2017 and 2017-2018?

H2. There is a relationship between the number of optional AT&L professional development sessions attended by novice teachers and the fall to spring student composite gains scores on the MAP mathematics assessment for students in grades two through five for the combined sample of 2016-2017 and 2017-2018.

Simple linear regression analysis was conducted to address H2. Data was analyzed from a combined sample of 2016-2017 and 2017-2018, which included novice teachers and their students in grades two through five. The independent variable of engagement level in the optional professional development was the number of optional AT&L sessions attended by the novice teachers (from one to ten), and the dependent variable was student fall to spring composite gains scores on the MAP mathematics assessment. The relationship between the number of optional AT&L professional

development sessions attended by novice teachers and MAP mathematics gains scores was examined. A one-sample *t*-test was conducted to test the statistical significance of the slope for the resulting regression equation. The level of significance was set at .05.

RQ3. To what extent does novice teachers' participation or lack of participation in optional AT&L sessions have an impact on spring composite scores as measured by the MAP assessment for students in grades two through five for the combined sample of 2016-2017 and 2017-2018?

H3. There is a statistically significant difference in the mean spring MAP composite reading scores for students in grades two through five between novice teachers who participated in the optional AT&L professional development sessions and novice teachers who did not participate in AT&L for the combined sample of 2016-2017 and 2017-2018.

An independent-samples *t*-test was conducted to address H3. Data was analyzed from a combined sample of 2016-2017 and 2017-2018, which included novice teachers and their students in grades two through five. The categorical independent variable of novice teacher AT&L participation status (participated in at least one session or did not participate in any sessions) was used to group the dependent variable of spring student composite scores on the MAP reading assessment. The group means between novice teachers who participated and those who did not participate were compared. The level of significance was set at .05.

RQ4. To what extent do the number of optional AT&L sessions attended by novice teachers impact the fall to spring composite gains scores as measured by the MAP

reading assessment for students in grades two through five in the combined sample of 2016-2017 and 2017-2018?

H4. There is a relationship between the number of optional AT&L professional development sessions attended by novice teachers and the fall to spring composite gains scores on the MAP reading assessment for students in grades two through five for the combined sample of 2016-2017 and 2017-2018.

Simple linear regression analysis was conducted to address H4. Data was analyzed from a combined sample of 2016-2017 and 2017-2018, which included novice teachers and their students in grades two through five. The independent variable of engagement level in the optional professional development was the number of optional AT&L sessions attended by the novice teachers (from one to ten), and the dependent variable was student fall to spring composite gains scores on the MAP reading assessment. The relationship between the number of optional AT&L professional development sessions attended by novice teachers and MAP reading gains scores was examined. A one-sample *t*-test was conducted to test the statistical significance of the slope for the resulting regression equation. The level of significance was set at .05.

Limitations

The limitations of a research study are "factors that may have an effect on the interpretation of the finding or the generalizability of the results" (Lunenburg & Irby, 2008, p. 133). This study included the following limitations:

1. Only general education elementary classroom novice teachers in grades two through five in District A participated in this study. Therefore, the results may

not be generalizable beyond the specific population from which this sample was collected.

2. Teacher level of understanding and quality of the professional development might have varied from session to session.
3. No classroom observations were conducted related to the novice teachers' demonstration of increased knowledge after the AT&L sessions, and no data was collected regarding the implementation of the novice teachers' new learning from the optional professional development sessions transferring into the classroom.
4. Only one measure of student achievement and growth in mathematics and reading, MAP Assessment spring composite scores and fall to spring composite gains scores, was analyzed for this study.
5. Outside factors, including student motivation, health, and attitude could have affected student achievement scores as measured by the MAP assessments.

Summary

The purpose of this study was to examine the differences in mathematics and reading spring composite scores on the MAP Assessments between students whose novice teachers participated in an optional professional development series (AT&L) and students whose novice teachers did not participate in AT&L. Student fall to spring gains scores on the MAP mathematics and reading assessments for students whose teachers participated in the optional AT&L series were studied related to the number of sessions attended. Chapter 3 presented the research study's instrumentation, including validity and reliability information regarding the MAP assessment used for measuring mathematics and reading performance. A description of the data collection procedures

and the statistical data analysis methods were outlined. The results of the statistical tests conducted for this study are presented in Chapter 4.

Chapter Four

Results

This quantitative causal-comparative study was designed to investigate the potential influence of the optional AT&L professional development opportunity for novice teachers in grades two through five as a tool to improve teacher effectiveness and further increase academic performance for these novice teachers' elementary students during the 2016-2017 and 2017-2018 academic years. The first purpose of the current study was to examine whether novice teachers' participation or lack of participation in optional AT&L sessions had an impact on the spring composite scores of students in grades two through five as measured by the MAP mathematics and reading assessments for the combined sample of the 2016-2017 and 2017-2018 academic years. The second purpose of the study was to examine whether the novice teachers' level of engagement, as measured by the number of optional AT&L sessions attended by novice teachers, was related to the fall to spring composite gains scores of students in grades two through five as measured by the MAP mathematics and reading assessments for the combined sample of the 2016-2017 and 2017-2018 academic years.

Descriptive Statistics

The sample for this study consisted of 968 students in grades two through five who were instructed by 50 novice teachers in District A during the 2016-2017 and 2017-2018 academic years. Of this combined sample analyzed, 513 student records (53% of the sample) were from the 2016-2017 school year and 455 student records (47% of the sample) were from the 2017-2018 school year. Of the total 50 novice teachers for the two academic years, 27 teachers were novice teachers during the 2016-2017 school year

(54% of the combined sample), and 23 were novice teachers during the 2017-2018 school year (46% of the combined sample). Novice teachers during the 2016-2017 school year taught at 16 different elementary schools in District A. During the 2017-2018 school year, the novice teachers were from 14 different district elementary schools. See Table 1 for the frequencies and percentages of student records associated with these novice teachers by grade and year pertaining to the study's data analysis.

Table 1

Student Record Frequencies and Percentages by Grade and Year

Grade Level	Within 2016-2017	Within 2017-2018	Total (Both Years)
Grade 2	35 (6.8%)	56 (12.3%)	91 (9.4%)
Grade 3	109 (21.2%)	137 (30.1%)	246 (25.4%)
Grade 4	222 (43.3%)	82 (18.0 %)	304 (31.4%)
Grade 5	147 (28.7%)	180 (39.6%)	327 (33.8%)
Total (All Grades)	513 (53.0%)	455 (47.0%)	968 (100%)

For analysis, the student records were grouped by whether their novice teacher participated in the optional AT&L professional development series or not. The AT&L group was comprised of 711 student records from 37 novice teachers in grades two through five in District A during the 2016-2017 and 2017-2018 academic years who participated in at least one optional AT&L professional development session during their first year in the school district. Sixty-four percent (n = 458) of student records were from students in grades two through five in District A during the 2016-2017 academic year and

36% (n = 253) of the student records were from the 2017-2018 academic year. The non-AT&L group was comprised of 257 student records from 23 novice teachers in grades two through five in District A during the 2016-2017 and 2017-2018 academic years who did not participate in any of the optional AT&L professional development series. Fifty-five student records (11%) were from students in grades two through five in District A during the 2016-2017 academic year and 202 student records (44%) were from the 2017-2018 academic year.

In addition to examining the data by whether teachers participated in the optional AT&L series or not, the student records were analyzed by the number of optional AT&L professional development sessions their novice teacher attended. See Table 2 for the frequencies and percentages of student records associated with these novice teachers by number of AT&L sessions attended pertaining to the study's data analysis. Student fall to spring gains scores on the MAP mathematics and reading assessments were analyzed for the combined 2016-2017 and 2017-2018 academic years. The fall to spring gains scores on the MAP mathematics assessment ranged from -40 to 41 (M = 10.28, SD = 7.98 n = 968). The fall to spring gains scores on the MAP reading assessment ranged from -33 to 53 (M = 6.87, SD = 9.23, n = 968).

Table 2

Student Record Frequencies and Percentages by Number of AT&L Sessions Attended

Number AT&L	Within 2016-2017	Within 2017-2018	Total (Both Years)
0	55 (10.7%)	202 (44.4%)	257 (26.5%)
1	107 (20.9%)	14 (3.1%)	121 (12.5%)
2	51 (9.9%)	58 (12.7 %)	109 (11.3%)
3	73 (14.2%)	42 (9.2%)	115 (11.9%)
4	0 (0%)	0 (0%)	0 (0%)
5	28 (55%)	21 (4.6%)	49 (5.1%)
6	0 (0%)	42 (9.2%)	42 (4.3%)
7	0 (0%)	0 (0%)	0 (0%)
8	0 (0%)	25 (5.5%)	25 (2.6%)
9	38 (7.4%)	21 (4.6%)	59 (6.1%)
10	161 (31.4%)	30 (6.6%)	191 (19.7%)
Total Within Year	513 (52.9%)	455 (41.1%)	969 (100%)

Hypothesis Testing

Data from the MAP mathematics and reading assessments and teacher attendance for AT&L sessions were received in an excel file format from the district assessment

office and imported into IBM® SPSS® Statistics Faculty Pack 25 for Windows. The analysis of the data focused on four research questions. Each research question is delineated below with its corresponding hypotheses and results of the statistical analysis procedures conducted.

RQ1. To what extent does novice teachers' participation or lack of participation in optional AT&L sessions have an impact on spring composite scores as measured by the MAP mathematics assessment for students in grades two through five for the combined sample of 2016-2017 and 2017-2018?

H1. There is a statistically significant difference in the mean spring MAP composite mathematics scores for students in grades two through five between novice teachers who participated in the optional AT&L professional development sessions and novice teachers who did not participate in AT&L for the combined sample of 2016-2017 and 2017-2018.

An independent-samples *t*-test was conducted to address H1. Spring student composite scores on the MAP mathematics assessment of novice teachers who participated in at least one session of AT&L were compared to spring student composite scores on the MAP mathematics assessment for novice teachers who did not participate in AT&L. The independent-samples *t*-test was chosen for the hypothesis testing because the statistical procedure compares two independent group means and the dependent variable is measured on a continuous numerical scale. The level of significance was set at .05. Levene's test for homogeneity of variance between groups, which is a statistical assumption for the analysis, was significant for mathematics ($p = .003$), therefore results without equal variances assumed were reported.

The results of the independent-samples *t*-test indicated a statistically significant difference between the mean student spring MAP composite mathematics scores of novice teachers who participated in at least one session and the non-AT&L group who did not participate t (527.63) = 4.298, $p < .001$ with a Cohen's *d* effect size of 0.30, which would be a difference of small magnitude. The AT&L group mean (M = 211.72, SD = 18.60, n = 711) for spring MAP composite mathematics scores for students of novice teachers who participated in at least one AT&L session was significantly higher than the non-AT&L group mean (M = 206.53, SD = 15.80, n = 257) for students of novice teachers who did not participate. Hypothesis 1 was supported with a small effect size. The results indicated that second to fifth grade students of novice teachers who participated in at least one optional AT&L professional development session rendered significantly higher student spring MAP composite mathematics scores than did the students of novice teachers who had no participation in the optional AT&L sessions.

RQ2. To what extent do the number of optional AT&L sessions attended by novice teachers impact the fall to spring composite gains scores as measured by the MAP mathematics assessment for students in grades two through five in the combined sample of 2016-2017 and 2017-2018?

H2. There is a relationship between the number of optional AT&L professional development sessions attended by novice teachers and the fall to spring student composite gains scores on the MAP mathematics assessment for students in grades two through five for the combined sample of 2016-2017 and 2017-2018.

A simple linear regression analysis was conducted to address H2. The association between the number of optional AT&L sessions attended by the novice teachers who

participated in AT&L and their grade two through five students' fall to spring composite gains scores on the MAP mathematics assessment was examined. Simple linear regression was chosen for the hypothesis testing because the statistical procedure examines the relationship between and predictive value of a dependent continuous numerical variable from an independent continuous variable. The level of significance was set at .05.

The results of the simple linear regression revealed that a non-significant regression equation was found, F (1,709) = 1.85, p = .174. Therefore, there was not a significant predictive association between the number of AT&L sessions attended by a novice teacher and their grade two through five students' fall to spring student composite gains scores on the MAP mathematics assessment. The slope coefficient was deemed to be non-significant with B = -0.112, t = -1.361, p = .174. The correlation between the number of AT&L sessions attended by a novice teacher and fall to spring student composite gains scores on the MAP mathematics assessment was r = -.051, p = .087, n = 711. This non-significant correlation resulted in a very small negative relationship; as the number of AT&L sessions increased, math gains scores decreased slightly, but not by a signifcant amount. Figure 1 compares the number of AT&L sessions attended by novice teachers and student fall to spring MAP mathematics gains scores. Student gains scores clustered around the limited continuous scale for the number of sessions attended. Figure 1 shows the lack of a linear assocation between the vairables.

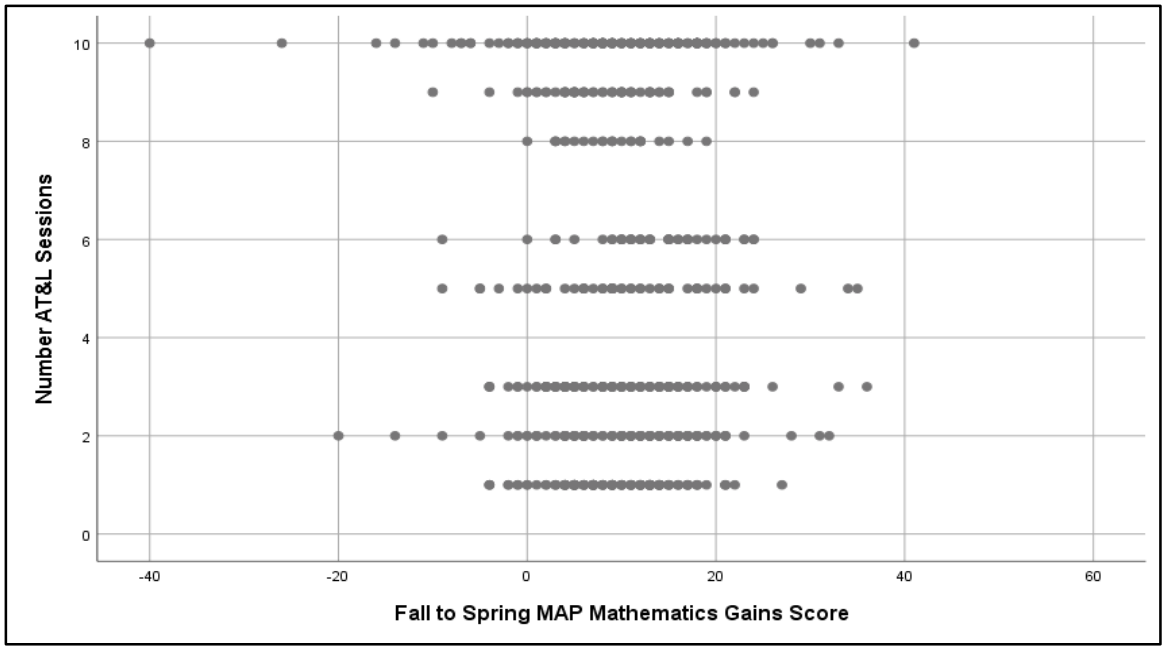

Figure 1. Fall to Spring Mathematics Gains Scores by Number of AT&L Sessions Attended

RQ3. To what extent does novice teachers' participation or lack of participation in optional AT&L sessions have an impact on spring composite scores as measured by the MAP reading assessment for students in grades two through five for the combined sample of 2016-2017 and 2017-2018?

H3. There is a statistically significant difference in the mean spring MAP composite reading scores for students in grades two through five between novice teachers who participated in the optional AT&L professional development sessions and novice teachers who did not participate in AT&L for the combined sample of 2016-2017 and 2017-2018.

An independent-samples *t*-test was conducted to address H3. Spring student composite scores on the MAP reading assessment of novice teachers who participated in at least one session of AT&L were compared to spring student composite scores on the

MAP reading assessment for novice teachers who did not participate in AT&L. The independent-samples *t*-test was chosen for the hypothesis testing because the statistical procedure compares two independent group means and the dependent variable is measured on a continuous numerical scale. The level of significance was set at .05. Levene's test for homogeneity of variance between groups, which is a statistical assumption for the analysis, was significant for reading ($p = .018$), therefore results without equal variances assumed were reported.

The results of the independent-samples *t*-test indicated a statistically significant difference between the mean student spring MAP composite reading scores of novice teachers who participated in at least one session and the non-AT&L group who did not participate t (502.525) = 3.292, $p < .001$ with a Cohen's *d* effect size of 0.23, which would be a difference of small magnitude. The AT&L group mean ($M = 206.14$, $SD = 16.83$, $n = 711$) for spring MAP composite reading scores for students of novice teachers who participated in at least one AT&L session was significantly higher than the non-AT&L group mean ($M = 202.42$, $SD = 15.053$, $n = 257$) for students of novice teachers who did not participate. Hypothesis 3 was supported with a small effect size. The results indicated that second through fifth grade students of novice teachers who participated in at least one optional AT&L professional development session rendered significantly higher mean spring MAP composite reading scores than did the students of novice teachers who had no participation in the optional AT&L sessions.

RQ4. To what extent do the number of optional AT&L sessions attended by novice teachers impact the fall to spring composite gains scores as measured by the MAP

reading assessment for students in grades two through five in the combined sample of 2016-2017 and 2017-2018?

H4. There is a relationship between the number of optional AT&L professional development sessions attended by novice teachers and the fall to spring student composite gains scores on the MAP reading assessment for students in grades two through five for the combined sample of 2016-2017 and 2017-2018.

A simple linear regression analysis was conducted to address H4. The association between the number of optional AT&L sessions attended by the novice teachers who participated in AT&L and their grade two through five students' fall to spring composite gains scores on the MAP reading assessment was examined. Simple linear regression was chosen for the hypothesis testing because the statistical procedure examines the relationship between and predictive value of a dependent continuous numerical variable from an independent continuous variable. The level of significance was set at .05.

The results of the simple linear regression revealed that a non-significant regression equation was found, $F(1,709) = .052$, $p = .819$. Therefore, there was not a significant predictive association between the number of AT&L sessions attended by a novice teacher and their grade two through five students' fall to spring student composite gains scores on the MAP reading assessment. The slope coefficient was deemed to be non-significant with $B = -0.021$, $t = -.229$, $p = .819$. The correlation between the number of AT&L sessions attended by a novice teacher and fall to spring student composite gains scores on the MAP reading assessment was $r = -.091$, $p = .410$, $n = 711$. This non-significant correlation resulted in a very small negative relationship; as the number of AT&L sessions increased, reading gains scores decreased slightly, but not by a signifcant

amount. The number of AT&L sessions attended by novice teachers and student fall to spring MAP reading gains scores are presented in Figure 2. Student gains scores clustered around the limited continuous scale for the number of sessions attended. The figure illustrates the lack of a linear assocation between the vairables.

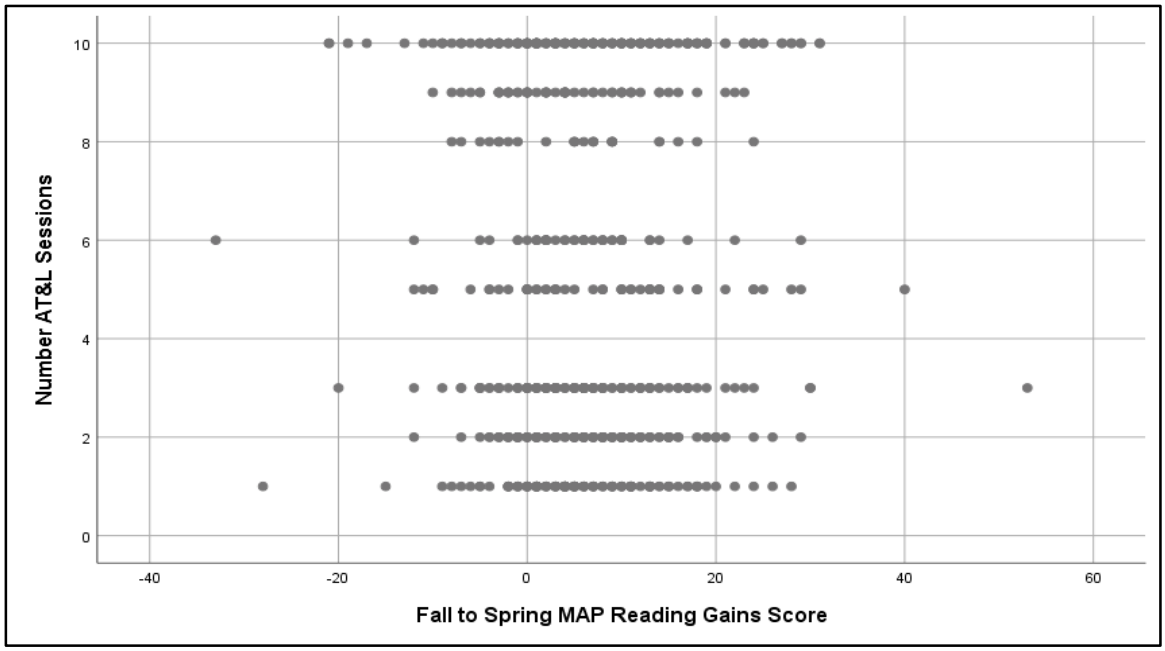

Figure 2. Fall to Spring Reading Gains Scores by Number of AT&L Sessions Attended

Summary

The results of statistical analyses for each of the four research questions and their associated hypotheses were presented in Chapter 4. The results of the independent-samples *t*-tests were presented. The students of novice teachers who participated in at least one optional AT&L professional development session rendered significantly higher mean spring MAP composite mathematics and reading scores than did the students of novice teachers who had no participation in the optional AT&L sessions. The results of the simple linear regression analyses were also presented. There were non-significant predictive relationships between the number of AT&L sessions attended by novice

teachers and their grade two through five students fall to spring gains scores in mathematics and reading. Chapter 5 contains a summary of the study, including discussion of the results and major findings, connections to the relevant literature, implications of those findings, and recommendations for further research.

Chapter Five

Interpretation and Recommendations

This causal-comparative quantitative study was conducted to investigate the potential influence of the optional Advanced Teaching and Learning (AT&L) professional development opportunity for novice teachers as a tool to improve teacher effectiveness and further increase academic performance for students. The overview of the problem, the purpose statement and research questions, the review of methodology, and the major findings related to the research are included in Chapter 5. Additionally, this chapter presents the findings related to previous research literature. Finally, Chapter 5 provides implications for action, recommendations for future research, and concluding remarks.

Study Summary

The following section provides a summary of the quantitative study that was conducted to examine the potential influence of the optional AT&L professional development opportunity for novice teachers in grades two through five as a tool to improve teacher effectiveness and further increase academic performance for elementary students during the 2016-2017 and 2017-2018 academic years. This section begins with an overview of the problem, and includes the purpose of the study and the research questions. A review of the methodology and the major findings of the research study conclude the section.

Overview of the problem. Novice teacher professional development is essential for increasing teacher efficacy and developing effective teacher performance (Mandel, 2006). Teacher education programs prepare preservice teachers with skills and content

knowledge regarding teaching and learning. However, an ongoing novice teacher induction program provides a connection between the study of teaching and learning to the practical application of teaching and learning (Ames, 2009). To support the increasing number of new teachers, District A implemented an ongoing novice teacher induction program. Historically, this program has been evaluated annually using teacher satisfaction surveys. No data had been collected that specifically examines the effectiveness of the optional AT&L after-school workshops and the impact on student academic achievement. Therefore, this study examined the effectiveness of District A's optional AT&L professional learning opportunity as part of the novice teacher induction program.

Purpose statement and research questions. The current study was designed to investigate the potential influence of the optional AT&L professional development opportunity for novice teachers of grades two through five as a tool to improve teacher effectiveness and further increase academic performance for elementary students during the 2016-2017 and 2017-2018 academic years. The first purpose of the study was to examine whether novice teachers' participation or lack of participation in optional AT&L sessions had an impact on the spring composite scores of students in grades two through five as measured by the MAP mathematics and reading assessments for the combined sample of the 2016-2017 and 2017-2018 academic years. The second purpose of the study was to examine whether the number of optional AT&L sessions attended by novice teachers was related to the fall to spring composite gains scores of their students in grades two through five as measured by the MAP mathematics and reading assessments for the

combined sample of the 2016-2017 and 2017-2018 academic years. To guide this study, four research questions were developed and four hypotheses were tested.

Review of the methodology. The current study was conducted in a suburban school district located in the Midwest and used a causal-comparative quantitative research design to address each research question posed. Research questions were developed to determine whether teacher participation in optional professional development sessions, as part of a novice teacher induction program, had an impact on the spring mathematics and reading composite scores achieved on the MAP assessment for elementary school students in grades two through five for the combined 2016-2017 and 2017-2018 academic years. Additionally, the relationship between novice teacher engagement levels in the optional professional development, represented by the number of sessions attended (from one to ten), and fall to spring student composite gains scores on the MAP assessment in mathematics and reading was evaluated. The statistical analysis procedures utilized for the current study included independent-samples *t*-tests and simple linear regression analysis.

Major findings. Results related to the research questions revealed that there was a statistically significant difference between mean spring MAP composite mathematics scores based on novice teacher AT&L participation status. The students whose novice teachers participated in at least one session of AT&L rendered a significantly higher mean spring composite MAP mathematics score than did the students whose novice teachers did not participate in the optional professional development series. The AT&L group mean (M = 211.72, SD = 18.60, n = 711) for student spring MAP composite mathematics scores for students of novice teachers who participated in at least one AT&L

session was significantly higher than the non-AT&L group mean student spring MAP mathematics composite scores for students of novice teachers who did not participate in in at least one AT&L session (*M* = 206.53, *SD* = 15.80, *n* = 257). The results indicated that students of novice teachers who participated in at least one optional AT&L professional development session showed a mean spring composite MAP mathematics score 5.2 points higher than did students whose novice teachers who did not participate in the optional AT&L series.

There was not a significant predictive association between the number of AT&L sessions attended by a novice teacher and their grade two through five students' fall to spring student composite gains scores on the MAP mathematics assessment. The correlation between the number of AT&L sessions attended by a novice teacher and their students' fall to spring composite gains scores on the MAP mathematics assessment was $r = -.051$, $p = .087$, $n = 711$. This non-significant correlation represented a very small negative realationship between the variables; as the number of AT&L sessions increased, math gains scores decreased slightly, but not by a signifcant amount.

There was a statistically significant difference between mean student spring MAP composite reading scores based on novice teacher AT&L participation status. The students whose novice teachers participated in at least one session of AT&L rendered a significantly higher mean spring composite MAP reading score than did the students whose novice teachers did not participate in the optional professional development series. The AT&L group mean (*M* = 206.14, *SD* = 16.83, *n* = 711) for student spring MAP composite reading scores of novice teachers who participated in at least one AT&L session was significantly higher than the non-AT&L group mean student spring MAP

reading composite scores of novice teachers who did not participate in at least one AT&L session (M = 202.42, SD = 15.05 n = 257). The results indicated that the students of novice teachers who participated in at least one optional AT&L professional development session showed a mean spring composite MAP reading score 3.7 points higher than did students whose novice teachers did not participate in the optional AT&L series.

There was not a significant predictive association between the number of AT&L sessions attended by a novice teacher and their grade two through five students' fall to spring student composite gains scores on the MAP reading assessment. The correlation between the number of AT&L sessions attended by a novice teacher and fall to spring student composite gains scores on the MAP reading assessment was r = -.091, p = .410, n = 711. This non-significant correlation represented a very small negative realationship between the variables; as the number of AT&L sessions increased, reading gains scores decreased slightly, but not by a signifcant amount.

Findings Related to the Literature

This section examines this study's findings as they relate to the literature regarding the impact of a comprehensive induction program for novice educators on student academic achievement. Previous research was conducted to examine the effects of induction programs for novice educators. Ingersoll and Strong (2011) reviewed 500 studies focusing on the effects of new teacher induction programs on teacher effectiveness and student achievement. The purpose of the study was to respond to the fact that "there have been few efforts to provide comprehensive and critical reviews of empirical studies on the effect of induction" (p. 5). This study revealed that students of novice teachers who participated in an induction program scored higher on standardized

tests. The data analyses from the current study also indicate a statistically significant difference in student assessment data for students whose novice teachers' participated in an optional AT&L professional development series as part of an induction program when compared to students of novice teachers who did not participate in the AT&L component of an induction program.

The current study analyzed student achievement data for the first year of a novice teacher's career. Glazerman et al., (2010) conducted a study using classroom observations and student assessment data over three academic years. Glazerman and colleagues found that comprehensive induction in year one and two did not have a significant impact on teaching practices or student achievement. However, after three years of induction support, significant gains in student achievement were observed. The data analysis of the current study did not find gains in student achievement for fall to spring for students of novice teachers. However, an analysis over a three-year period may lead to the significant gains Glazerman and colleagues discovered.

The data analyses from the current study revealed that there was not a significant predictive association between the amount of professional development attended by a novice teacher and their students' fall to spring student composite gains scores on the MAP mathematics and reading assessment. Darling-Hammond and her colleagues examined data from the National Center for Education Statistics' 2003-2004 Schools and Staffing Survey (SASS) and found that professional development using "scientifically rigorous methodologies" and of a certain duration (30 to 100 hours over six months to a year) was more likely to positively impact student achievement (Darling-Hammond et al., 2009).

Conclusions

This section includes conclusions from the current study of the potential influence of the optional AT&L professional development series for novice teachers of grades two through five as a tool to improve teacher effectiveness and further increase academic performance for elementary students during the 2016-2017 and 2017-2018 academic years. Implications for action and recommendations for future research are included. This section closes with concluding remarks.

Implications for action. The findings of the current study provide implications for the design of comprehensive induction programs for novice educators. The findings of the causal-comparative quantitative study revealed that there was a positive impact on student assessment data for novice teachers who attended at least one session of the optional AT&L professional development. The other findings revealed that there was not a positive correlation between the number of AT&L sessions the novice educator attended and student achievement gains. It is important for school districts to examine more closely the components of an induction program that lead to greater gains in student achievement.

Because the data gathered for the current study with regard to participation in professional development as a component of novice teacher induction revealed a positive impact on student achievement, it is crucial that district leaders design professional development for novice educators as part of a comprehensive induction program. However, careful planning should take place as this study revealed more professional development sessions is not necessarily better. School leaders should thoughtfully create professional learning experiences that meet the unique needs of novice educators.

Recommendations for future research. The following recommendations represent areas for further research. The first recommendation would be to continue analyzing the data from District A. While results of the current study showed there was a positive impact on student achievement for novice educators who attended AT&L, results did not show a positive correlation between the number of sessions attended and student academic growth. Future research should analyze the specific content of each AT&L professional development session to determine which sessions have a greater impact on student achievement.

The current study was delimited to data collected during the novice educator's first year of teaching. The second recommendation for additional research would be to replicate this study for a novice teacher's second and third years of teaching. Previous research studies, that followed a novice teacher for the first three years of teaching, have found a positive impact on student achievement (Glazerman et al., 2010).

The third recommendation for future research would be to include an observational component to the research design and data collection. Professional development helps teachers to gain knowledge and improve their teaching skills. When the teachers leave the professional development session, it is the hope that they take their new knowledge and embed that learning into their classroom practices. By adding an observational component, future studies would be able to gather additional data regarding the impact of professional learning on teacher effectiveness.

The final recommendation for additional research would be to study the impact of mentoring on student academic achievement. The literature regarding the component of mentoring as part of a comprehensive induction program indicated that high quality mentoring leads to gains in student achievement (Strong, 2009). Future research that studies

the impact of mentoring on student achievement could be useful to school districts when planning effective novice teacher induction.

Concluding remarks. The results of the current study contributed to the body of work completed by earlier researchers relating professional development as a component of comprehensive novice teacher induction programs. The data indicated there was a statistically significant difference in student academic achievement in mathematics and reading for novice educators who attended at least one optional AT&L professional development session when compared to novice educators who did not participate in the AT&L series. However, data did not indicate a positive relationship between the number of AT&L sessions attended and student gains scores in mathematics and reading. The results of this study provide information that can assist district leaders in making decisions related to designing professional development for novice educators as part of a comprehensive induction program.

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Appendices

Appendix A: School District Approval for Research

August 16,2018

Dear Kim:

I am pleased to inform you that your request to do research in the [redacted] School District with Elementary-aged student data has been approved. We do have a copy of your application and a copy of your Letter of Support from Baker.

In any of your work, please do not make any reference to the [redacted] School District or any specific school- please reference [redacted] as a "large suburban district in the mid- west" or a school as a "suburban school in the state of Kansas"- or some other reference name of your choice, but do not use the [redacted] name or any school names. Additionally, please do not use any student or staff identifying information.

Your study of student academic achievement as it relates to new teachers taking part in additional new teacher trainings (AT&L) is of great interest to the district, so when your research is completed, we would love to see your results.

Good luck with your research, Kim!

Sincerely,

[redacted]

Appendix B: Baker IRB Approval

Baker University Institutional Review Board

July 2nd, 2019

Dear Kim Hawkins and Sharon Zoellner,

The Baker University IRB has reviewed your project application and approved this project under Exempt Status Review. As described, the project complies with all the requirements and policies established by the University for protection of human subjects in research. Unless renewed, approval lapses one year after approval date.

Please be aware of the following:

1. Any significant change in the research protocol as described should be reviewed by this Committee prior to altering the project.
2. Notify the IRB about any new investigators not named in original application.
3. When signed consent documents are required, the primary investigator must retain the signed consent documents of the research activity.
4. If this is a funded project, keep a copy of this approval letter with your proposal/grant file.
5. If the results of the research are used to prepare papers for publication or oral presentation at professional conferences, manuscripts or abstracts are requested for IRB as part of the project record.

Please inform this Committee or myself when this project is terminated or completed. As noted above, you must also provide IRB with an annual status report and receive approval for maintaining your status. If you have any questions, please contact me at npoell@bakeru.edu or 785.594.4582.

Sincerely,

Nathan Poell, MA
Chair, Baker University IRB

Baker University IRB Committee
Scott Crenshaw
Erin Morris, PhD
Jamin Perry, PhD
Susan Rogers, PhD