A STUDY ON THE EFFECT OF A DUAL-ROLE INDUCTION MODEL ON RETENTION AND STUDENT ACHIEVEMENT

By

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"Your greatness as a leader will not be determined by how much power you accumulate. It will be determined by how much you serve and sacrifice for others to help them become great. I believe you have to have an ego to want to be great but ironically you must give up your ego and serve others in order to be great. To become a great leader, you must be a servant leader. Only through service and sacrifice do you become great. You must serve in order to lead." *Jon Gordon, 2016*

Abstract

A STUDY ON THE EFFECT OF A DUAL-ROLE INDUCTION MODEL ON RETENTION AND STUDENT ACHIEVEMENT

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The purpose of this study was to compare/explore the effectiveness of a dual-role new teacher induction model in a Western Maryland School District (WMSD) to a site-based induction model in a Pennsylvania School District (PASD) on new teacher retention and student achievement. In this study, the exploratory design was used in conjunction with the comparative design in order to provide an in-depth depiction of the effectiveness of a WMSD dual-role induction model. The exploratory research was an attempt to lay the groundwork for future studies (Kowalczyk, 2016). Quantitative data were comparative, and qualitative data were exploratory.

This study used a mixed-method approach, organized into four phases. Phase One consisted of secondary Measures of Academic Progress (MAP) data, as well as attrition data for both a WMSD and a PASD to make a comparison of new teacher retention and reading and math student achievement. First and second (1-2) grade MAP data and new teachers' (district-wide) attrition data were used for both districts. Independent samples *t*-tests were used to explain the difference between two means, and repeated measures ANOVA tests were used to make comparisons of the average student scores across multiple time periods. Both tests were analyzed using the Statistical Package for the Social Sciences. Attrition data were calculated by percentages. Phase Two consisted of an online survey of 41 primary grade (K-2) new teachers in the WMSD, consisting of primary grades kindergarten, first, and second (K-2). The online survey program, *Survey*

Monkey, organized the data into percentages. The online survey served as the guide to the development of interview questions for the new teachers. Phase Three involved semi-structured interviews with WMSD new teachers in primary grades K-2. New teachers volunteered and were selected through a question on the survey. The interviews addressed experiences of new teachers regarding why they stayed, what would cause them to leave, professional development, support systems, and how the use of data informed their instruction. Interviews were digitally recorded, transcribed, and Thematic *In Vivo* coding was used to analyze the responses. Phase Four was triangulation of the data analysis from the MAP, attrition data, survey and interviews.

The most critical finding of this study was that the WMSD dual-role induction model did not make significant impact on student progress over the course of three years in reading and math achievement over a PASD site-based induction model. Another important finding was that the WMSD survey and interviews determined that the professional development used to guide instruction was more effective in math than reading. A final significant finding of this study was that the WMSD increasingly retained new teachers for each of three years since the onset of the dual-role induction model. Based on triangulation of data, implications for future practice include recommendations to enhance quality of mentor time, teacher preparedness in data analysis, and reading professional development, and to reduce teacher attrition. These practices will broaden the exploration of a dual-role induction model and its effectiveness on new teacher retention and student achievement, and provide school districts options in choosing an effective induction model.

Keywords: dual-role model, attrition, retention, student achievement, mentor

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Chapter 1 – Introduction

National new-teacher attrition rates have increased to 50% over the course of fifteen years (Carroll, 2014). Loss of new teachers is expensive, not only in terms of the monetary costs of additional recruitment, hiring, and induction, but also in the area of student achievement. The primary purpose of new-teacher induction programs is to improve retention of new teachers, resulting not only in cost savings for school districts, but in demonstrable benefits in student achievement. Attrition rates are also noteworthy indicators of teachers' satisfaction with compensation and working conditions, which can lead school districts to develop more comprehensive, effective induction programs (Kirby & Grissmer, 1993). "An important benefit a good mentoring program can produce for. . . [a] school is a measurable decrease in teacher attrition" (Martin, 2008, p. 43).

Teacher effectiveness, resulting in enhanced student learning, is the focus of strong induction programs. Such programs begin with district policies and continue to support school environments with actively-involved principals; carefully-selected, well-trained mentors; and professional learning communities for mentors and new teachers (New Teacher Center, 2009). The objective of state and local district mentoring policies is to decrease the current high turnover of new teachers and increase impact on student achievement (Grossman et al., 2012).

The Beginning Teacher Longitudinal Study (BTLS) introduced three descriptive categories in its 2007-2012 report on teacher attrition in the first five years: *stayers* (teachers who remain in the school district); *movers* (teachers who stay in the system but move to a different school or district); and *leavers* (those who leave the teaching profession) (Gray & Taie, 2015).

BTLS reports nationally-representative data on attrition and mobility of new teachers in public elementary and secondary schools (Gray et al., 2015). The study was performed by the National Center for Education Statistics (NCES) (National Center for Education Statistics, 2014) of the Institute of Education Services within the U.S. Department of Education (USDE) (U.S. Department of Education, 2014). Not only is the BTLS research critical in determining longitudinal data on stayers, movers, and leavers, it also illustrates what new teachers' careers entail beyond the first two years typically reported in other research (Borman & Dowling, 2008; Ingersoll & Strong, 2011). The United States Census Bureau collected and processed the BTLS data for each year, and NCES released the data as part of the report. BTLS not only reports on new teacher retention and attrition, but on characteristics, attitudes, and mobility across schools.

In 1988, 65,000 first-year teachers were lost to attrition. By 2008, the number of teachers leaving after their first year had increased to over 200,000 (Ingersoll, 2014). In 1988 the average teacher was a veteran with 15 years of experience. In 2008, the typical teacher was a beginner in the first year of teaching, and one-fourth of the teaching force had experience of five or fewer years (Ingersoll & Strong, 2011). High new-teacher attrition rates leave school systems with far more new teachers than experienced teachers, and places on all educational stakeholders the onus of developing effective new-teacher retention programs (Briggs, 2011; Ingersoll & Strong, 2012). Table 1 illustrates the percentage of novice teachers who were stayers, movers, and leavers at the onset of the BTLS report in 2007 and as of the most recent report~~s~~ from 2012. A cohort of approximately 1,990 new teachers completed the survey the first year.

Table 1

BTLS Report on Attrition (percentages)

	2008-09	2009-10	2010-11	2011-12
All 2007-08 beginning teachers	100	100	100	100
Current Teachers	90	87.7	85.2	82.7
Stayers	74.2	74.2	72.3	70.4
Movers	15.8	10.5	10.5	9.6
Leavers				
Contract not renewed	27.3	35.5	25.4	19.9
Left teaching voluntarily	72.7	64.5	74.6	80.1

Note. Adapted from *Public School Teacher Attrition and Mobility in the First Five Years: Results from the First Through Fifth Waves of the 2007-08 Beginning Longitudinal Study* (NCES 2015-337) by L. Gray and S. Taie, 2015 (National Center for Education Statistics website: http://nces.ed.gov/pubs2015/2015337.pdf).

Research-based literature suggests various reasons why new teachers leave the profession at such a high rate. Recognizing these factors can assist school districts in designing programs to support new teachers. According to Briggs (2011), the primary reason new teachers leave the profession is lack of support from school districts and school leaders with difficulties such as discipline; relationships with parents, mentors, colleagues, and principals; as well as workload and salary. Riggs (2013) indicates that new teachers often leave within the first five years due to overwhelming hours and emotional energy, as well as family or other personal reasons. Goldring, Taie, and Riddles (2014) note that top factors include personal (38%), career issues (13%), involuntary moves (9%), and salary/benefits (6%).

Increased rates of new teachers leaving the profession within the first five years raise questions regarding the quality of new-teacher support programs and the ensuing effect on student achievement. “A goal of an ideal induction program is not only to

improve retention of new teachers but also to help them become effective instructional leaders" (Fletcher, Strong, & Villar, 2008, p.14). Rockoff (2008) found that student achievement increased in both reading and math when teachers spent more time with a mentor, suggesting that mentoring improves teaching skills. Mignott (2011) also shows there is a strong correlation between new teachers' engagements with mentors and success in the classroom. Thus it appears that the mentor/mentee component of an induction program not only improves teacher performance but enhances student learning experiences. The USDE (2014) agrees that attrition and retention in the teacher workforce are concerns. "Very low retention, particularly with that of new teachers, is linked to poor quality of education for students" (Jones, 2013, abstract).

Several research studies by Ali (2010), Bagwell (2008) and Nickels (2011), demonstrate the link connecting new-teacher induction models, teacher retention, and student achievement. Ali (2010) conducted a three-year experiment with two groups: a treatment group (using a comprehensive induction model with the concentrated support of a full-release mentor) and a control group (using a randomly-assigned model from research-based literature). Results showed less impact on student achievement for teachers mentored only for their first year in both groups. Surveys of new teachers and test scores of students support this finding. Ali's finding supports Nickels' (2011) study, which used pre- and post-test student scores to determine academic growth. Again, as reported by Ali (2010), results showed less student achievement when teachers were mentored for only one year. Bagwell's (2008) study, too, indicates new teachers who participate in induction programs have higher rates of retention and student achievement compared to those who do not.

Test scores are only one avenue in determining whether induction models are effective in retaining new teachers and enhancing student achievement. Literature further indicates that professional development and the learning capacity of the new teacher are key predictors of teacher retention and student achievement. Wong (2004) suggests that the stronger the professional learning opportunities for new teachers, the greater the outcome for the students. These conclusions are based on surveys and interviews with new teachers, rather than data from test scores. A study conducted by Moir (2012) concluded that not only was new-teacher retention higher, but student achievement was advanced when mentors were released from teaching duties, enabling them to focus on the role of mentoring.

The implication of research-based literature, according to the New Teacher Center (NTC), is that the more comprehensive the new-teacher induction model, the greater the impact on student achievement (New Teacher Center, 2009). One comprehensive new-teacher induction model is based on the theoretical practice of the NTC headquartered in Santa Cruz, California, with nine other centers serving school systems across the United States (Goldrick, Osta, Barlin, & Burn, 2012). NTC is a national non-profit organization dedicated to enhancing the effectiveness of new teachers and school leaders to improve student success. NTC works with educational stakeholders to implement induction models aligned with district learning goals to support new teachers.

NTC supports a comprehensive new-teacher induction model focused on student achievement. In this model there are four components: mentor development, principal and site leadership capacity, program leadership, and new-teacher development (NTC, 2009). NTC specifies several conditions that new-teacher induction models should apply

for successful teacher retention and student achievement: a supportive culture for teaching and learning, carefully-selected released mentors, a systematic approach to the model, engaged stakeholders, and strong site leaders (NTC, 2009). "NTC believes that the strategy of utilizing full-time mentors, released from all classroom-teaching duties, provides for the greatest amount of flexibility to meet with, observe and provide feedback to beginning teachers" (Goldrick et al., 2012, p. 26). NTC (2009) also asserts that a comprehensive approach will impact new-teacher effectiveness, thus improving teacher retention, strengthening teacher leadership, and leading to increased student learning.

There is relatively little current research-based literature that solidly demonstrates the direct relationship of induction programs to new-teacher retention and subsequent student achievement in reading and math. The relationship is crucial to consider, as shown by an international survey showing the reading proficiency of American adults is substantially lower than that of adults in most other developed countries (Tobar, 2013). According to the 2008 Programme for International Student Assessment (Organization for Economic Cooperation and Development, 2012), American students ranked 27th in math, 20th in science, 17th in reading, and 24th in problem-solving of 30 industrialized countries. Research demonstrates that early reading success is a key predictor for adult reading achievement (Sparks, Patton, & Murdock, 2014). Further research on the impact of the current 50% turnover rate of new teachers on the reading and math achievement of the youngest learners is needed (Carroll, 2014). The expectation of this study was that the additional research would induce school systems to inform professional learning opportunities for new teachers addressing the success of early readers.

The literature reviewed for this study found no documented information on a

dual-role new-teacher induction model, such as one currently in place in a Western Maryland School District (WMSD). This dual-role induction model was characterized by a full-release, site-based mentor serving both new and experienced teachers in one school building (Washington County Public Schools, 2014a). Researched-based literature describes a full-release mentor, who has no classroom responsibilities and travels to different schools to mentor new teachers, and a site-based mentor, who has a full-time teaching position and mentors new teachers in the same building (Fletcher & Strong, 2009). However, no examples of a model incorporating both full-release and site-based components were found outside this WMSD**,** where mentors within a dual-role induction model are based at one school and do not have a full-time teaching position (Washington County Public Schools, 2014a). A dual-role mentor is therefore both full-release and site-based, with no classroom obligations, serving two roles: 50% mentoring to new teachers within the same building and 50% providing professional development to the entire staff (Washington County Public Schools, 2014a). The combination of the two roles of a mentor creates a dual-role position.

The overall objective for this dual-role induction model was the same as NTC's comprehensive model framework: to increase new-teacher retention and student achievement. However, no reports were found in literature evaluating such a dual-role induction model or its effect on student achievement. To examine the effectiveness of a dual-role induction model, this study conducted a comparison of new-teacher retention and reading and math data from a WMSD employing a dual-role induction model with those from a Pennsylvania School District (PASD) where a site-based model was employed. In addition, the effectiveness of the dual-role induction model was further

explored via a survey and interviews with new teachers in the WMSD.

Statement of the Problem

High attrition rates create two issues for school districts: hiring new teachers to fill the vacated positions and maintaining continuity of curriculum for students in the face of frequent teacher turnover. Mentor models to promote teacher quality have inherent monetary costs, but investing in teacher-retention programs is cost-effective in the long run and produces the end result of greater student achievement (Ali, 2010; Moir, 2012; Wong, 2004). In 2012, Berry and Byrd estimated the cost of the attrition of one new teacher at that time as a minimum of $17,000. Brill and McCartney (2008) determined that frequent staff changes have a direct impact on planning and implementing cohesive, comprehensive, consistent curriculum. Direct support at the school level provides immediate feedback for both teachers and mentors, which has been demonstrated to improve the quality of both mentoring and teaching and thereby influence teacher retention and enhance student learning (Desimone et al., 2014).

While peer-reviewed studies on new-teacher induction programs discuss various support systems making up what is known as a comprehensive induction model, attrition and mentorship (both full-release and site-based) are common themes (Briggs, 2011; Fletcher & Strong, 2009; Ingersoll, 2014; NTC, 2009). Both mentorship models focus on new teachers of one to three years of service, depending on state requirements, although not all states require induction programs (NTC, 2009). Research associated with these two models of new-teacher induction often report the impact on overall attrition, but rarely discuss the effect on student achievement (Nickels, 2011). No research was found in this review addressing both together. Martin (2008) states that the most important

benefit of teacher induction models is the improvement of student achievement. There is a deficiency in studies addressing the impact of teacher induction models on student achievement, even though student achievement is the targeted outcome of a teacher induction program (Nickels, 2011; NTC, 2009).

The findings of one research study (Sparks et al., 2014) illustrate that reading comprehension success in first grade is a key predictor of eleventh grade reading achievement and highlights the importance of strong early reading experiences including exposure to print. Early math success is just as critical as early reading to later achievement, since “what they know in math predicts their later reading achievement" (Sarama & Clements, 2009, p. 1). “International and domestic comparisons show that American students have not been succeeding in the mathematical part of their education at anything like a level expected of an international leader" (National Mathematics Advisory Panel, 2008, p. xii). Compared to worldwide peers, American students achieve at mediocre levels in mathematics. On the “National Report Card” conducted by the National Assessment of Educational Progress (NAEP), 32% of eighth-grade students scored at or above the “proficient” level (National Center for Education Statistics, 2016). By twelfth grade, only 23% were proficient. Significant disparities exist in reading and mathematics achievement in minority students and students coming from families with low socio-economic status. Studies reveal an increasing need for students entering college to take remedial courses (National Mathematics Advisory Panel, 2008).

Math is a core component of learning and thinking, not only for reading, but as a predictor of later overall achievement. Teachers, therefore, have a responsibility to understand the development of young learners in order to determine activities and

strategies that stimulate growth (Sarama & Clements, 2009). Researchers agree that the key to improving reading and mathematics instruction is improving the skills of the classroom teacher (Ball, Hill, & Bass, 2005; Li, 2008; National Mathematics Advisory Panel, 2008). Rockoff (2008) found that student achievement increased in both reading and math when teachers spend more time with a mentor, suggesting that mentoring improved teaching skills. Increasing the emphasis on reading and mathematics content would support primary teachers in kindergarten, first and second (K-2) grades and better prepare them to increase student achievement (Li, 2008).

The purpose of this study was to determine whether the dual-role new-teacher induction model was effective in retaining new teachers, with subsequent impact on student achievement in reading and math in primary grades first and second (1-2). The analysis compared data on new teacher retention and student achievement in two different school districts: the WMSD, where the dual-role induction model was in use, and the PASD, where the induction model was site-based. Survey and interviews of new teachers who taught primary grades K-2 provided further exploration of the WMSD dual-role induction model. The triangulation of the data analyses was used to determine the effectiveness of a WMSD dual-role induction model on new teacher retention and student achievement.

Purpose and Rationale of the Study

Nationwide, only 27 states currently require any type of induction or mentoring support for new teachers (Goldrick et al., 2012). This is a disproportionate number of states without new-teacher induction programs, considering the loss of funds by local school districts each year, with more than 50% of new teachers leaving the profession

(Carroll, 2014). Twenty-seven of 50 states have some form of new-teacher retention program at a time when the national goal is to improve reading and math achievement of the youngest learners (USDE, 2014). If the national goal of providing an equitable education to children across this nation is to be met, it is critical to concentrate efforts on developing and retaining high-quality teachers in every community and at every grade level (Alliance for Excellent Education, 2010). A concentrated effort justifies exploring new-teacher induction models that are effective in retaining new teachers and impacting student achievement.

The intent of this study was to gather additional evidence demonstrating the need for new teachers to graduate from comprehensive induction programs that positively impact student achievement. This study supported the theoretical framework of NTC, which entails a full-release mentor model fostering the professional development of new teachers (NTC, 2009). Another objective of this study was to develop a new conceptual framework as a result of the finding, to demonstrate what effect a dual-role model had on teacher retention and student achievement, and ultimately to determine whether the dual-role model was more effective than a site-based program.

Significance of the Study

In 2012, under new district leadership and budget cuts, a WMSD introduced a dual-role teacher induction model that combined both full-release and site-based components (Burkhart, personal communication, April 2, 2014). The rationale was to bring mentors to the school level, providing direct support to new teachers, which was believed to be a missing element leading to suboptimal student performance (Wilcox, personal communication, December 18, 2014.) The dual-role model was unique to this

district, as other Maryland programs were either solely full-release or site-based (Burkhart, personal communication, April 2, 2014). The dual-role induction mentor serves two functions: 50% mentor to new teachers and 50% professional development for the school staff. The mentor in each school in the WMSD was both full-released and site-based (Washington County Public Schools, 2014a). The WMSD "believes that these two roles complement one another and lead to higher student performance" (Wilcox, 2015, p. 196). Since no research was found describing a similar dual-role model, the expectation was that this study, on the effect of such a program, would contribute to the body of research on effective new-teacher induction models that positively impact new teacher retention and student achievement.

Conceptual Framework

The theoretical underpinnings for this study's conceptual framework derives from The New Teacher Center in Santa Cruz, California. The essence of the NTC theory demonstrates a full-release model, in which professional development and on-site support are found to effectively impact student achievement (NTC, 2009). The full-release model illustrated by NTC encompasses mentors who travel from school to school and are released from all teaching responsibilities. The NTC (2009) model stresses the importance of certain elements, including:

- supportive engagement of principals;
- careful selection and preparation of mentors;
- full release of mentors from classroom duties;
- allocation of 1.5 to 2.5 hours of mentoring per week per teacher; and
- alignment of instruction and assessment.

NTC is recognized worldwide for research on retention of new teachers. However, NTC's model includes only full-release mentorship and does not report the effect on student achievement. Rather, it uses student achievement as a backdrop to the necessity of including professional learning in a new-teacher induction program.

This study's conceptual framework encompasses the full-release model, as outlined in NTC's theoretical framework, and the site-based model, in which the on-site mentor is also a classroom teacher. Site-based mentors may or may not receive compensation for mentoring in addition to their salary as classroom teachers (Fletcher & Strong, 2009). The distinction between this study's conceptual framework and NTC's theoretical framework is the introduction of the dual-role model, in which the mentor is both full-release (having no teaching duties) and site-based (assigned to only one school).

NTC's theoretical framework states that a benefit for educational stakeholders in having a full-release mentor position, with sufficient time and resources allocated for each mentee, job-embedded professional development, results in teacher retention and higher student achievement (NTC, 2009). Fletcher et al., (2008) found that classes taught by teachers with the services of a full-release mentor demonstrate higher gains than those of teachers in a site-based model, indicating "that mentoring can have an effect on student achievement if mentors have concentrated contact time" (p. 332). NTC recommends 1.25 to 2.5 hours per week of "protected time" for communication between each mentor and mentee (Goldrick et al., 2012, p. 27).

Site-based mentoring has been recognized in research-based literature as having positive outcomes on teacher retention and student achievement. On-site support provides opportunities for new teachers to partner with veteran co-workers and "learn from their

colleagues [with] team teaching, sharing information, peer-coaching, planning sessions, and informal chats in the hallway and over coffee or lunch" (Lambeth, 2012, p. 2). Direct support at the school level provides immediate, onsite, personal feedback, which "has been shown to be important for the quality of mentoring" (Desimone et al., 2014, p. 90). Ingersoll and Kralik (2004) analyzed data from the 1999–2000 Schools and Staffing Survey (SASS) and found that "collaboration with colleagues on instruction reduced the likelihood that first-year teachers would leave teaching at the end of the year by 43%" (p. 28).

The final aspect of the NTC framework speaks to the professional development benefits for new teachers within an induction model. The elements of professional development go beyond emotional and psychological support to include classroom instructional strategies, skills development, and evaluating progress to support teacher and student learning (Boogreen & Marzano, 2015). When professional development is not incorporated in a teacher induction model, new teachers are often left to develop their own methods of teaching. This can be detrimental to a school system, as "a teacher's performance in the classroom directly impacts student achievement" (Boogreen & Marzano, 2015, p. 48).

This study's conceptual framework demonstrated a combination of the two literature-based mentor models—full-release and site-based—into a single dual-role in which the mentor had no classroom responsibilities and was assigned to one school, allowing one-on-one support for new teachers (Washington County Public Schools, 2014a). The unique element of the site-based aspect in this dual-role model was that the mentor serves all teachers in the school, both new and experienced. Professional

development in this setting includes discussion of classroom practice, student assessment data, goal-setting, and the evaluation process, all of which align with NTC's theoretical framework. Figure 1 is a visual summary of this study's conceptual framework.

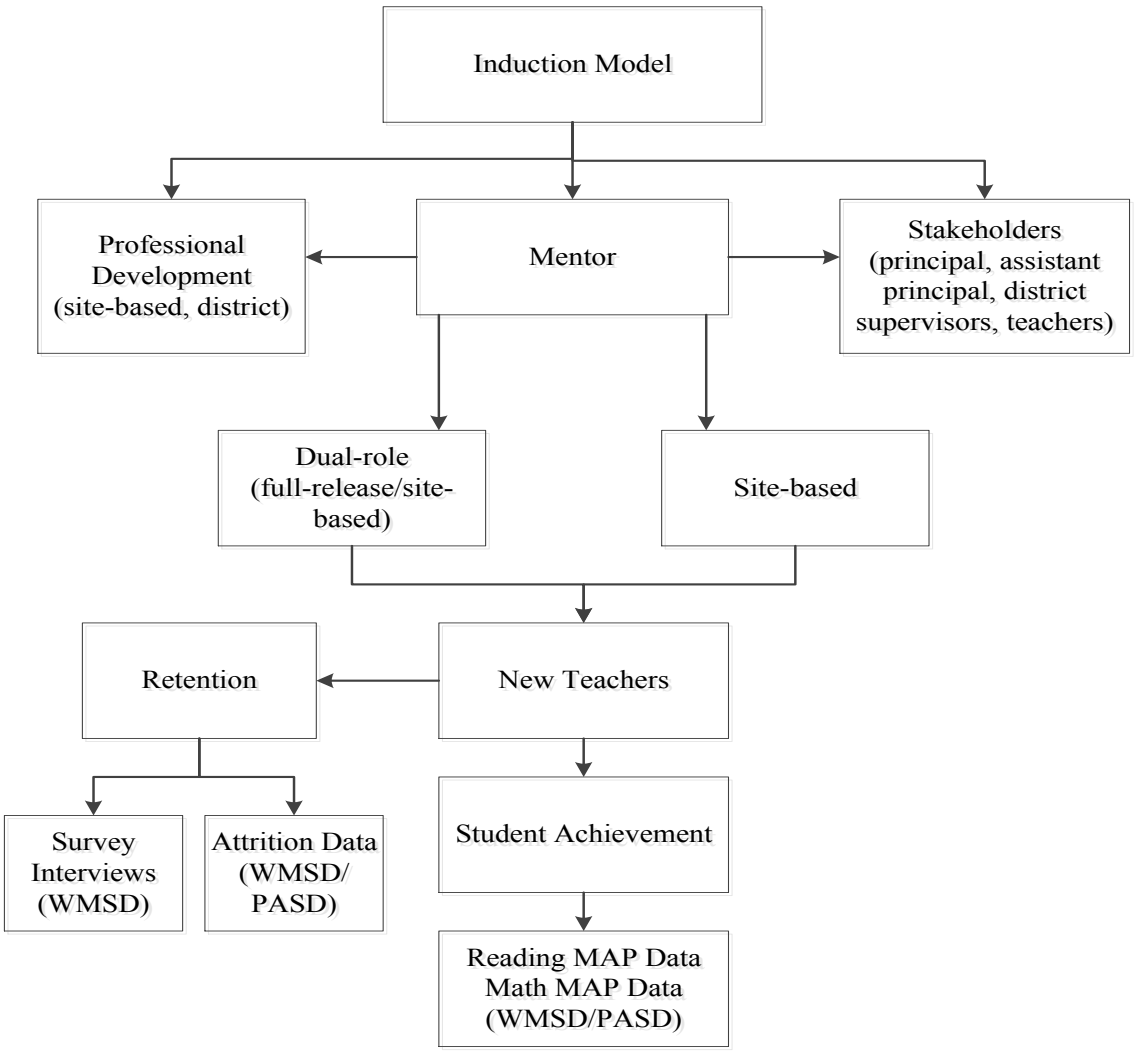

Figure 1. The conceptual framework was developed for this study to compare the effectiveness of a dual-role and site-based teacher induction model, using retention and student achievement data sources.

Research Questions

The primary focus of this study was to compare/explore the effectiveness of a WMSD dual-role induction model to a Pennsylvania School District (PASD) site-based induction model on new teacher retention and student achievement. The research

questions addressed retention of new teachers and student achievement from both districts (WMSD and PASD) with an in-depth focus (survey and interviews) on new teacher retention and student achievement in the WMSD. The sample of student MAP scores used in this study included first and second grades (1-2) of new teachers from both districts. The initial intention of this study was to examine kindergarten MAP data as well in order to provide insight into primary grades (K-2); however, the PASD did not use MAP to assess kindergarten students. Therefore, only first and second (1-2) grade MAP data was compared. The sample of attrition data used in this study comprised of new teachers (district-wide) from both districts in order to determine the difference between attrition in both district models. The sample of teachers for the survey and interviews encompassed in this study included kindergarten, first, and second grades from the WMSD. This was an effort to further investigate the effectiveness of the WMSD dual-role induction model on new teacher retention and student achievement. The independent variable (IV) was the induction model. The dependent variables (DV) studied included retention of new teachers and student achievement in both the WMSD dual-role and PASD site-based induction models.

The primary research question for this study was, "Does a WMSD dual-role induction model (IV) affect retention of new teachers (DV) and student achievement (DV), and if so, how?"

The supporting research question (SRQ), guiding research questions (GRQ) and hypothesis for student achievement were:

SRQ1: To what extent does a WMSD dual-role induction model affect student achievement of new teachers in kindergarten, first and second grades?

GRQ1.1a: Is there a significant difference between reading and math MAP scores for first and second grade students in a WMSD dual-role induction model and that of a PASD site-based model?

H1: There is a significant difference between reading and math MAP scores for first and second grade students in a WMSD dual-role induction model and first and second grade students in a PASD site-based induction model.

The supporting research question (SRQ), guiding research questions (GRQ) and hypothesis for retention were:

SRQ2: To what extent does a WMSD dual-role induction model affect retention of new teachers?

GRQ1.2a: Is there a difference between retention of new teachers participating in a WMSD dual-role induction model and that of a PASD site-based induction model?

GRQ1.2b: What experiences lead new teachers (kindergarten, first and second) to retention in a WMSD?

GRQ1.2c: What experiences lead new teachers (kindergarten, first and second) to attrition in a WSMD?

H2: There is a significant difference between new teacher retention in a WMSD dual-role induction model and that of a PASD site-based induction model.

The goal was to determine the impact on new teacher retention and the difference between first and second (1-2) grade Measures of Academic Progress (MAP) data between the WMSD and PASD. MAP and attrition data were used and analyzed using the computerized software program Statistical Package for the Social Sciences (SPSS). The statistical procedure Analysis of Variance (ANOVA) provided data results

determining differences between MAP data of first and second grade students of new teachers in the two different districts according to the projected norms for MAP end of year. Means of central tendencies (percentages) were used to determine any significant difference in new teacher retention for a three-year period. An online survey was administered to new teachers in primary grades K-2 in the WMSD as a way to further explore the effectiveness of new teacher retention and student achievement in the dual-role induction model. Means of central tendencies (percentages) were used for the data analysis. Thematic coding (*In Vivo*) was used to determine themes from semi-structured interviews conducted with new teachers who taught primary grades K-2. Table 2 shows the questions, data sources, data collection and analyses for each phase.

Table 2

Phases, Questions, Data Sources, Methods of Collection and Analyses

Phase	Question	Data Source	Data Collection	Analysis
I	SRQ1	Grades 1-2 Reading and Math secondary MAP data (2012-2015) WMSD, PASD	Existing Data Set	Independent samples *t*-tests; repeated measures ANOVA (SPSS)
I	SRQ2	Attrition Data (2012-2015) WMSD, PASD	Existing Data Set	Percentages
II	SRQ1&2	Survey (41 new teachers) Grades K-2 (2014-2015) WMSD	Online Survey	Percentages
III	SRQ1&2	Interviews (10 new teachers who stayed) Grades K-2 (2014-2015) WMSD	Semi-structured Interviews	Thematic Coding *In Vivo*

Research Design Overview

The comparative/exploratory research design was most appropriate for this study because it examined quantitative and qualitative data to address the research questions. The comparative design is versatile: the entire structure of a research project can consist of the comparison of just a few cases, or can be combined with other research designs (Routio, 2007). In my study, I used the exploratory design in conjunction with the comparative design in order to give an in-depth picture of the effectiveness of a WMSD dual-role induction model on new teacher retention and student achievement. The quantitative data were comparative, and the qualitative data were exploratory.

The study consisted of four phases. Phase One entailed the use of MAP reading and math scores for first and second grade students from a WMSD dual-role induction model, as well as from a PASD site-based induction model. The initial intention of this study was to examine kindergarten MAP data as well; however, the PASD did not use MAP to assess kindergarten students. Therefore, only first and second grade MAP data was compared. The MAP data addressed the SRQs. The attrition data from the WMSD and PASD determined the retention rate of new teachers in both systems.

Phase Two involved a survey emailed to 41 new teachers in the WMSD, which became basis for interview questions. Phase three included interviews with new teachers in the WMSD, and provided the primary data set detailing the professional experiences of new teachers in the dual-role induction model. Both survey and interviews included WMSD new teachers in K-2, which provided further in-depth insight into the effectiveness of new teacher retention and student achievement in the primary grades. Phase Four encompassed a triangulation of the secondary reading and math MAP data

and retention data analysis from both the dual-role and site-based districts, the survey results, and the interview data analysis. The combination of data determined the effectiveness of a WMSD dual-role new-teacher induction model on retention and student achievement.

A mixed-methods design was appropriate for this study because it provided complementary data on both primary and supporting research questions and enabled counterpart analyses (Yin, 2014). The study was empirical, rather than research-based, for several reasons that included (a) current literature presents research on full-release and site-based mentorship programs, but none was found discussing models combining both into a dual role, and (b) the unique dual-role model had been in place for only three years and in only one of 24 counties in the state of Maryland, with no evaluations published on its effectiveness in either new-teacher retention or student achievement. The inherent design of the mixed-methods study was ideal because each set of data supported and contributed to the other (McMillan & Schumacher, 2010).

Phase one. Phase One included secondary MAP data showing reading and math achievement in first and second grade classes of new teachers in a dual-role model, and first and second grade classes of new teachers in a site-based model. Kindergarten MAP data was not available from the PASD. The data were retrieved from the WMSD and PASD, with Institutional Review Board (IRB) permission (Appendix I). Phase One also entailed the use of secondary attrition data from the WMSD and PASD on their overall attrition rates. Three-year retention numbers were then extrapolated from attrition data, enabling comparison of effectiveness of the dual-role model to that of the site-based model.

Table 3 shows the norms for MAP scores at the end of each year for first and second grades, since comprehension at this level is the key predictor of success in upper grades (Sparks et al., 2014).

Table 3

Reading and Math MAP Norms for End of Year (Grades One and Two)

Grade Level	End of Year Norms Reading	End of Year Norms Math
1	177	179
2	190	191

Note. Adapted from *2011 Normative Data*, by Northwest Evaluation Association, 2011 (https://www.nwea.org/content/uploads/2014/07/MAP-Normative-Data-One-Sheet-Dec11.pdf). Copyright 2011 by Northwest Evaluation Association.

Phase two. Phase Two consisted of a survey of new teachers (K-2) in the WMSD. Surveying was an appropriate method to measure and collect data because it was "relatively economical [,] . . . can ensure anonymity" of the participants (McMillan & Schumacher, 2010), and could reach more participants than could be interviewed. The survey was created and administered through Survey Monkey, a web-based customizable questionnaire software program suitable for collecting and protecting anonymous responses (Survey Monkey, 2016). The questions elicited information on support systems that positively or negatively impact professional growth, and perception of new teachers' impact on student achievement based on participation in a dual-role induction model. Overall, it addressed the supporting questions, "What experiences lead new teachers (kindergarten, first and second) to retention in a WMSD?" and "What experiences lead new teachers (kindergarten, first and second) to attrition in a WSMD?"

To confirm validity and reliability, a pilot test of the survey questions with a group of educators ensured that any personal bias of the interviewer was not revealed in the procedures and questions. The pilot also provided insight into the relevance of the

questions to the purpose of the study, and some responses that might be anticipated. There were three sessions for the survey pilot. The first session included meeting and discussing the survey questions with three new (under three years of teaching) and two experienced (over three years) teachers. This was an effort to gain insight into how the questions were being answered, and if I was obtaining the correct information from the question. At that point, the questions were adjusted based on conversations with the participants in the pilot test. The second session involved an online live discussion with eight educators, varying from principals to teachers, from a doctoral program. I went step by step through each question, and the participants gave feedback on how the questions were set up and how they would answer, which provided changes to the overall survey questions. The last session of the pilot included a trial run of the online survey to ten different volunteer participants in which participants provided comments on the last question as to the overall flow, question clarity, and legibility to the topic.

The survey included a variety of open and closed questions, which were relevant, short and simple (Appendix D). It was divided into six sections: Demographic, Career, New Teacher Support, Rating of New Teacher Induction Program, Student Achievement, and Interview Option. The survey included a combination of dichotomous, multiple-choice, Likert-type scale, and contingency questions. It determined specifics about the background of new teachers: their years in teaching, educational degrees, and support systems. The survey served as a guide to the development of interview questions and provided an option for participants to volunteer to be interviewed.

Phase three. Phase Three consisted of the semi-structured interviews, based on the data and findings from the survey in Phase Two, with 10 new teachers (K-2) in the

WMSD during the 2014-2015 school year. Participants were chosen on a voluntary basis per a question on the survey in Phase Two (Appendix D). It was not possible to interview teachers who had left the WMSD, due to the WMSD IRB constraints (Appendix J), contact information for teachers no longer employed in the WMSD could not be released; thus, they could not be reached for participation. To compensate for this, one of the interview questions asked teachers who stayed to comment on possible reasons for attrition.

A pilot test consisted of two separate sessions. The first session entailed informal interview conversations with new teachers, not part of the study, in order to determine the type of responses that might be given. From this point, revisions were made to the interviews. The second session involved an informal focus group of educators, in which I discussed the questions and made changes on the spot. After the pilot test was completed, intent, clarity, and format were reviewed, and the final interview questions were completed. Participants were informed of the purpose of the interview prior to scheduling. The interviews were semi-structured: specific questions were asked, and although participants were sometimes invited to elaborate on their responses, they were not guided to a choice of possible answers. All interviews were digitally recorded, then transcribed, and coded by themes using *In Vivo*. Interviews provided more depth and breadth to the survey data because participants had the opportunity to explain their responses.

Phase four. Phase Four entailed the triangulation of the student achievement scores and the extrapolated retention data from both the dual-role and site-based induction models, with the survey and interview responses from new teachers in the

WMSD dual-role induction model. Data triangulation was concurrent for MAP, attrition, and survey data, and interviews were sequential, right after the survey. The triangulation provided unambiguous analysis of the overall research question of the effectiveness of a WMSD dual-role teacher induction model on new teacher retention and subsequent student achievement in reading and math. Triangulation was appropriate to the comparative/exploratory mixed-method study because "the strengths of one method offset the weaknesses of the other, so that together, they provide a more comprehensive set of data" creating "greater credibility in the finding" (McMillan & Schumacher, 2010, p. 26). Figure 2 summarizes the four study phases and their constituent elements.

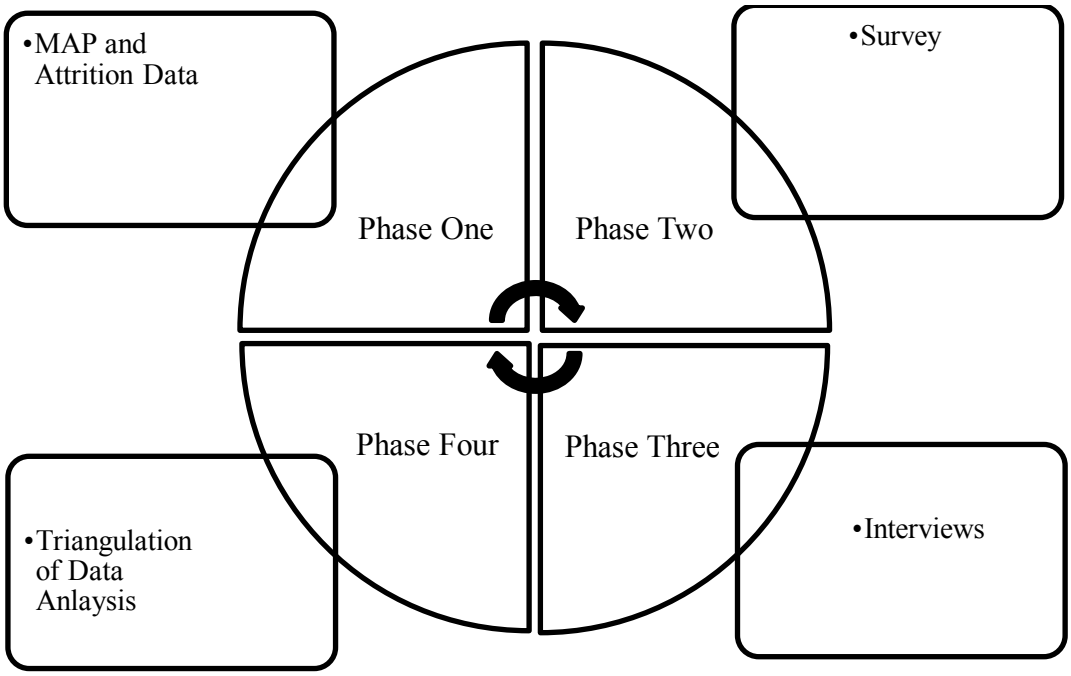

Figure 2. A combination of quantitative and qualitative data collection was used in triangulating results of the independent variable (induction model) with the dependent variables (retention of new teachers and student achievement in reading and math).

Assumptions

It was assumed that the online survey and interview participants understood the purpose of the study and the applicability of the questions. Similarly, it was also assumed

that participants understood the conditions of anonymity and confidentiality to answer questions without hesitation or bias. The survey tool was vetted and tested within the education field, and the interview questions were developed based on gaps within the survey responses.

Another assumption was that the retention of new teachers directly impacts student achievement (Fletcher et. al., 2008). Furthermore, it was assumed that effective induction programs encouraged new teachers to remain in the profession by investing in professional development and system supports. A final assumption was that research on a dual-role induction model, like that in the WMSD, had not previously been published, nor compared retention and student achievement within a different district using a different model of new teacher induction.

Limitations

The WMSD had 43 schools consisting of 27 elementary, 7 middle, and 9 high schools. Two of the elementary schools were primary schools (grades K-2); for the purposes of this study, the WMSD primary and elementary schools were merged into one category called elementary. Of the 27 elementary schools, only 26 were studied, because the other served only grades 3-5. Each school used a dual-role new teacher induction model.

All schools in the WMSD used the same dual-role induction model; therefore, comparison was made to a district in another state (PASD) which not only employed a different induction model but also used MAP data in first and second grades. This limited the comparison of the study to only utilizing first and second grade MAP data because the PASD did not use MAP to assess kindergarten. WMSD had used MAP one year and

the PASD had used MAP six years at the onset of the data collection. This study was further limited to the 41 new teachers in a total of 242 kindergarten, first and second grade teachers (196 tenured) in a school district of 1,777 teachers for the survey and interview phases. (Margevich, personal communication, December 18, 2015; Washington County Public Schools, 2014b). Kindergarten teachers were accessed as part of the exploratory phases of the study to further examine the WSMD induction model. The PASD had four schools consisting of a primary, elementary, middle, and high school, of which the single primary school was utilized for reading and math, first and second grades, MAP data comparison (Crider, personal communication, November 20, 2015). This was a smaller purposeful sampling (Kaiser, 2011) than the WMSD sample, generating a greater likelihood of error, since the population was less than $n = 45$. The power analysis indicated the Power (1-β err prob) = 0.95, which was strong (GPower, 2014).

The study was limited to analyzing new teacher retention rates of the WMSD and that of the PASD through attrition rates. It did not compare the dual-role induction model to other districts in the State of Maryland. A survey and interviews were conducted with new teachers (K-2) in only the WMSD in order to complete the study by the end of the school year; however, there was no opportunity to interview or survey new teachers who left the WMSD. Table 4 and Table 5 illustrate the comprehensive sample selection of the WMSD and PASD.

Table 4

WMSD Comprehensive Sample Selection

Grade	# of Students	# of Students of New Teachers	New Teachers
K	1,565	265	14
1	1,697	339	17
2	1,784	339	15

Note. Adapted from "Board of Education of Washington County Enrollment," 2014. Retrieved from *Excel* file.

Table 5

PASD Comprehensive Sample Selection

Grade	# of Students	# of Students of New Teachers	New Teachers
1	249	92	4
2	238	123	5

Note. Kindergarten not tested in PASD and was not included in the study. Adapted from "Greencastle School District Enrollment," 2015. Retrieved from *PDF* file.

Although MAP testing was administered three times per year in the WMSD, measurement of student progress after each marking period or testing window would have been impractical in terms of time expenditure, and less relevant for this study than end-of-year scores, which were further analyzed using the Rasch Unit (RIT) scale (Northwest Evaluation Association, 2016) for norming and grade-level analysis. MAP testing was not administered to kindergarten students in the PASD.

Delimitations

To narrow the focus of this study, this study included only the WMSD elementary schools serving first and second grade students and the PASD serving first and second grade students for MAP data. WMSD teachers (K-2) with experience of three or fewer years were selected for the survey and interviews in order to provide insight into primary

grades new teacher retention and student achievement. A larger population, including teachers and students in grades three through twelve, would have added greater time constraint and little relevance, since research-based literature indicates successful primary educational experience is the ultimate predictor of adult reading success (Sparks et al., 2014). Investigation of the implications at higher grade levels could be considered for further research.

Ethical Measures

At the time of this study, I was employed as a mentor of some of the participants. I was aware that this relationship could create possible influence or bias, and took measures to ensure that all information collected was either confidential or anonymous in nature, depending on the method. No contact regarding the study was established with the mentees I supervised except via official email, survey, or interview. In each case, the participants received disclosure statements regarding their privacy and other rights.

I relied on the local school districts to collect, sort, and send me the students' year-end MAP scores. I also entrusted each district with accurately aligning the students' scores with the respective teachers. These precautions protected the anonymity of both teachers and students. It was necessary for me to obtain email addresses of the 41, K-2 new teachers within the WMSD for the 2014-2015 school year, in order to distribute the survey. Survey respondents volunteering for the interview process each received a consent form verifying protection of confidentiality. Each participant was identified only by a code number. All data files relating to this study were encrypted and stored on a password-protected computer.

Definitions

The purpose of this section is to clarify the working definitions of certain terms recurring throughout the study.

Attrition: Decrease in the number of teachers as a result of the departure of some from the profession.

Free and Reduced Meals (FARMS): Income Eligibility Guidelines (IEGs) used by institutions participating in the National School Lunch Program to determine eligibility for free and reduced price meals or free milk. Economic status has been shown to be a factor in student achievement.

Induction program, comprehensive: One that focuses on teacher effectiveness and student learning with instructional mentoring by carefully selected, well prepared, released mentors; professional learning communities for mentors and new teachers; engaged principals; and supportive school environments and district policies.

Induction program, new-teacher: A system designed to support teachers in their first one to three years with an experienced mentor who focuses on teacher development in order to build capacity within the school system to retain teachers and help them increase student achievement.

Leaver: A teacher who leaves the teaching profession (Goldring et al., 2014).

Measures of Academic Progress (MAP): Computerized adaptive assessments, currently used three times per year for WMSD students in kindergarten through grade eight, and three times a year for PASD students first through grade eight, providing detailed data on student achievement progress throughout and at the end of each academic year. The assessments are aligned with national and state curricula and

standards.

Mentor, dual-role: A site-based mentor who is released from teaching duties and works in only one school, mentoring new teachers 50% of the time and providing professional development for the school staff 50% of the time.

Mentor, full-release: An experienced teacher who is released from all teaching duties to support new teachers and can either be assigned to one school or multiple schools. Mentors in this category may be retired teachers.

Mentor, site-based: An experienced teacher who provides professional development to new teachers in the same building where he or she also has a full-time teaching position.

Mover: A teacher who remains in the teaching profession, but moves from one school or district to another (Goldring et al., 2014).

PASD: Pennsylvania (PA) School District

Primary Grades: Primary grades include the first three grades of elementary school (1-3) but sometimes also include kindergarten (K-2).

Retention: Ongoing employment of teachers already in the profession.

Stayer: A teacher who remains in the teaching profession (Goldring et al., 2014).

Teacher, effective: One whose students achieve acceptable rates of student growth: at least one grade level in an academic year (U.S. Department of Education, 2010).

Teachers, non-tenured: Educational professionals having fewer than three years' experience.

Teachers, tenured: Educational professionals having more than three years'

experience.

WMSD: Western Maryland School District

Organization of the Study

This study consists of five chapters. Chapter 1 provides an overview of the research problem, purpose and significance of the study, research design, and conceptual framework. Chapter 2, the literature review, describes the history of teacher induction programs, exploration of current national models and the distinctive dual-role program in a WMSD, the importance of mentors, funding considerations, and the preparation of effective teachers. Chapter 3 expands the details of the research design and methodology, threats to validity and reliability, and measures of ethical protection. Chapter 4 delineates the findings of the study, and Chapter 5 presents conclusions and the implications for current practice and the direction of future research and application.

Chapter 2 – Review of Literature

Introduction

The purpose of this study was to compare/explore the effectiveness of a Western Maryland School District (WMSD) dual-role induction model to a Pennsylvania School District (PASD) site-based induction model on new teacher retention and student achievement. There were four phases in this study that employed a mixed-methods approach. Phase One included existing secondary attrition and Measures of Academic Progress (MAP) data to compare new teacher retention and student achievement between a WMSD and PASD. Phase Two consisted of an online survey administered to the WMSD dual-role induction model. Phase Three included semi-structured interviews with WMSD new teachers. Phase Four entailed triangulation of all phases in order to determine the overall conclusions to the effectiveness of a WMSD dual-role induction model on new teacher retention and student achievement.

Historical Background

Throughout history, there have been many endeavors, by either the government or society, to improve education, as a result of educating teachers. Since the beginning of Thomas Jefferson's era, a huge emphasis has been placed on providing an accessible education for all students, no matter the economic circumstances (Jefferson, 1779). Reforms of the late 19th and early 20th centuries rationalized that schools should be equipped with well-trained teachers in different fields of study in order to create an equal opportunity for all students. With the influx of immigration in the early 20th century, the need for highly qualified teachers escalated as the population in urban schools increased considerably. Issues arose in the public school system of the United States in regards to

retaining teachers in low socio-economic areas where there was the greatest need (Spring, 2011). “Most administrators would agree that hiring a teacher is the most important decision. This decision has a greater effect on children than any other administrative decision” (Markoe, 2012, p. 1).

National Teacher Attrition

Even though the policies regarding new teacher induction programs were developed as early as 1968, there was still little known at that time about the early career patterns of novice teachers. By the mid-1980’s there was a growing interest for new teacher induction programs (Ingersoll & Strong, 2012). In an effort to continue this quest to retain new teachers, Beginning Teacher Longitudinal Study (BTLS), sponsored by National Center for Education Statistics (NCES) of the Institute of Education Sciences within the U.S. Department of Education (USDE), a longitudinal study of public school teachers was initiated in an attempt to track teacher attrition (Kaiser, 2011).

As a result of the longitudinal study, it was determined that a considerable number of teachers left the profession in the first five years of teaching. The national average of attrition was at 16%, and urban school attrition was even higher at 20%. Some school districts, such as Philadelphia, Pennsylvania, had higher teacher attrition (70%) than student dropout (42%) (Carroll, 2014). Overall, the new teacher attrition rate for the nation increased to 50% over the course of fifteen years (Carroll, 2014). Increased new teacher attrition rates not only left school districts with the dilemma of constantly having to hire new teachers, but to retain them as well. Tait (2008) reports that often times novice teachers succumb to illness, depression, or burnout in the first year. Additional statistics showed teachers of public schools leave due to personal issues, salary, as well as

other career opportunities (Marvel, Peltola, Strizek, & Morton, 2006).

The National Commission on Teaching and America's Future (NCTAF) approximates that the "national cost of public school teacher turnover could be above $7.3 billion a year" (Carroll, 2014). These same reports have also illustrated "high teacher turnover is draining school districts of precious dollars that could be used to improve teaching quality and student learning" (Carroll, 2014, p. 1). In counties in Maryland, Title II funds supplement a new teacher induction program. Title II state funds operates on a budget of $800,000.00 per year, depending on the funding. These "Title II funds must be used solely to develop teachers or leaders in professional development" (Burkhart, personal communication, April 2, 2014). Local Education Association's (LEA) are then charged with the task of using the funds to improve the professional development of school districts. Early teacher attrition not only leads to a financial burden for school districts, but has a lasting impact on the overall success of student growth (Burkhart, personal communication, April 2, 2014).

The Teacher Follow-up Survey (TFS) is a sample of the elementary and secondary school teachers who participated in the previous year's Schools and Staffing Survey (SASS). The TFS sample includes teachers who have left teaching in the year after the SASS data collection and those who continued to teach (Marvel et al., 2006). The TFS terms teachers in the survey as "stayers" and "movers", who have stayed in the system, and "leavers" are those that have left the school system.

The SASS data report further indicated the highest percentage of "leavers" were new teachers in their first three years, capping out at 18.9% of 111,400 (Marvel et al., 2006). "While Baby Boomer retirement is a factor in the current turnover rates, it is

dwarfed by those leaving for troubling reasons" (Kopkowski, 2008, p. 1). According to the USDE 2005 examination of departures, "thirty percent of teachers left in 2003–2004 because of retirement, but 56 percent left citing job dissatisfaction and a desire to find an entirely new career" (Kopkowski, 2008, p.1). This calls for local LEA's to carefully examine the vision they have established for professional development and productivity in order to retain teachers (Burkhart, personal communication, April 2, 2014).

Code of Maryland and Regulations 13a.07.01.00 – 1968

The end result of a quality teacher induction program is to improve student learning by retaining teachers in the profession (Comprehensive Teacher Induction Program. 13A Md. Code Regs. § 07.01.00 – 07.01.09., 2015). This can be accomplished by developing a comprehensive induction support ranging from mentoring, lesson planning, analyzing student data, classroom management skills, and on-site support. The expectation is the support affects new teacher retention, thus positively impacting student achievement. Critical components as outlined by New Teacher Center (NTC) (2009) sates that a comprehensive model should include quality professional development, a strong support system, and a full-release mentor. Maryland developed their own state initiative to combat the 50% national retention rate. The Code of Maryland and Regulations (COMAR) 13a.07.01.00 was enacted on November 26, 1968, and was not the first attempt in history to retain highly-qualified teachers in education (Comprehensive Teacher Induction Program, 2015). However, COMAR was the first regulation in the state of Maryland to examine the impact an educator had on student learning.

COMAR 13a.07.01.00 states in Title 13A, of the State Board of Education,

Subtitle 07 school personnel, Chapter 01, there is to be a comprehensive teacher induction program authority (Comprehensive Teacher Induction Program, 2015). Many amendments were made to COMAR 13a.07.01.00 from the end of 1968 through October 9, 2003. All chapters of COMAR have been amended to date to provide clarity for a comprehensive induction program.

Chapter one of COMAR on the Comprehensive Teacher Induction Program (2015) set the scope of the program and stated the following:

> To provide guidance for local school systems to establish a high quality induction program that addresses critical professional learning needs of new teachers, improves instructional quality, and helps inductees achieve success in their initial assignments, resulting in improved student learning and higher retention in the profession. (para 1)

Chapter one mirrors the educational Blueprint Reform, enacted by the Obama administration of 2010, as it gives no examples regarding the implementation of such a program, but rather entrusts responsibility to the school system to determine how to create such a program (U.S. Department of Education, 2010). Contrary to that of the Blueprint Reform, COMAR regulation is to be supported financially by the local school districts, with no financial support from the state or government.

Chapter two of COMAR, *Incorporation by Reference*, included specific standards, planning, and evaluation guides (Comprehensive Teacher Induction Program, 2015). The six content standards focus on developing the teacher: content knowledge and quality teaching, using research-based assessments, collaboration, commitment to diverse learning needs, student learning environments, and capitalizing on family involvement.

Three of the standards relate to processes such as data analysis, evaluation, and the design and teacher learning habits (School Improvement in Maryland Content Standards, 2008). These processes have been established to focus on teacher development and student achievement.

Chapter three of COMAR contains definitions of a mentee defined as a "school teacher who is the recipient of the services of a mentor," and a mentor is defined as "an individual who possesses the attributes set forth in Regulation .06" (Comprehensive Teacher Induction Program, 2015, para 1). The general requirements set forth in chapter four of COMAR relate to having a comprehensive induction program for all new teachers. Such a program requires teachers to gain skills in a new teacher induction program in order to be successful. Effective mentoring should be focused, systematic, ongoing, high quality, geared to needs of teacher, and include regular observations and feedback of others and themselves. The regulation recommends professional development from the administrative team, as well as the mentor, in order to grow in their understanding of the teacher induction program (Comprehensive Teacher Induction Program, 2015).

Participation of the comprehensive induction program was described in section five. All new teachers, and veteran teachers in their first year of teaching in the district, are to participate in the program. Special considerations are to be given to new teachers, in regard to duties and teaching schedules. Chapter six further discusses the requirements and role of the mentor as touched on in chapter three. The expectation states mentors should be part-time or full-time and based on a 1:15 ratio. COMAR clarifies mentors are not formal evaluators. To be considered for the mentor position, one must possess

knowledge of adult theory and peer coaching, as well as hold an advanced professional certificate and be considered an effective teacher themselves (Comprehensive Teacher Induction Program, 2015).

The comprehensive induction program is to be evaluated, as stated in chapter seven. The state provides the Maryland Teacher Professional Development Evaluation Guide, October 2008, as developed under contract by Harford County Public Schools, as a resource for states to develop an evaluation for their induction program (Comprehensive Teacher Induction Program. 13A Md. Code Regs. § 07.01.00 – 07.01.09., 2015). As part of chapters eight and nine, full compliance, by all local school systems within Maryland, are to report on their comprehensive induction program that was initiated on July 1, 2011. The school LEA, partly determines the needs of the school system and the resources available (Burkhart, personal communication, April 2, 2014). School systems have to include a description of their mentoring program, how many mentees and mentors are included in the program, as well as the effectiveness of the induction program. Each school system is required to include the report in the "Bridge to Excellence Master Plan Annual Update to the Maryland State Department of Education" (Comprehensive Teacher Induction Program. 13A Md. Code Regs. § 07.01.00 – 07.01.09., 2015).

Teacher Induction Models

As part of state and local district policies for mentoring, the outcome goal is to address new teacher turnover rates to create a positive effect on student achievement (Grossman et al., 2012). There has been substantial evidence as to the impact of a mentor on a mentee since the initiation of COMAR 13.A, whether emotional or instructional

support, in the first few years of teaching (LoCasale-Crouch, Davis, Wiens, & Pianta, 2012). As studies have shown, "attrition is highest during the initial stages of teaching" (LoCasale-Crouch et al., 2012, p. 3).

Twenty-seven states have implemented a new teacher induction mentor program, which includes characteristics of either full-release or site-based mentor models (Grossman et al., 2012). These particular models are viewed, by leading teacher induction theorists, as two critical measures in not only meeting the needs of new teachers, but addressing student achievement (Ali, 2010; Moir, 2012; Wong, 2004). It has been found that "teachers who received mentoring support expressed increased satisfaction about the teaching profession and planned to stay in teaching longer than those who did not receive this support" (Grossman et al., 2012, p. 78). "New teachers who were not part of an induction program left the profession at a rate of two to one" (Meyers, 2011, p. 65). All of these components pose difficulties for those charged with determining the practical matter of deciding which, if any, program or activity to offer in schools (Ingersoll, 2014).

Full-release teacher induction model. In a full-release new teacher induction program, the mentor is released from all teaching duties, and can be either stationed at one school or travel to multiple schools. The caseload of a full-time released mentor normally covers 12 to 15 new teachers (Martin, 2008). Mentors in this category can also be retirees. Studies have shown that new teachers who are mentored by full-time mentor staff are often provided more effective instructional interactions with students. Classes taught by teachers who had the services of a full-release over a site-based mentor, over two years, depict higher gains with retention and student achievement (Fletcher & Strong, 2009). The effectiveness is due to full-time mentors' ability to interact frequently and

build a professional relationship with the new teacher, and continue to encourage improved practice (LoCasale-Crouch et al., 2012).

New Teacher Center (NTC) in California, "believes that utilizing full-time mentors, released from all classroom-teaching duties, provides for the greatest amount of flexibility to meet with, observe and provide feedback to beginning teachers" (Goldrick et al., 2012, p. 26). NTC promotes the effectiveness of having a full-release mentor exclusively focus on the critical role of supporting novice teachers (Goldrick et al., 2012). Martin (2008) further illustrates the most essential benefit of a full-release mentor is the improvement in student growth tied to the increased effectiveness of new teachers. Additional benefits include improved new teacher retention that inevitable produces savings in the costs of additional recruitment, hiring, and induction (Martin, 2008).

Site-based teacher induction model. As part of a site-based new teacher induction model, the mentor has a full-time teaching position within the same building as the new teacher hires. The site-based mentors may, or may not, be in the same content area or grade level of the new teacher. Site-based mentors have the obligation to mentor new teachers in the same building by developing time aside from their full-time teaching position. The "approach to individualized support, pairs the novice with an expert teacher who attends to the professional development of beginning teachers through ongoing observation, reflection on, and assessment of practice, as well as technical and emotional support" (LoCasale-Crouch et al., 2012, p. 305). Research has clearly shown that novices are more likely to stay in teaching when the experience is comprehensive and includes a mentor from the same field, common planning time with other teachers in the same subject, regularly scheduled collaboration with other teachers, and an external network

(Berry & Byrd, 2012). Research illustrates having a site-based mentor further influences the new teacher retention, as new teachers feel supported by this type of professional development approach (LoCasale-Crouch et al., 2012).

In the model of site-based mentoring, the mentor teaches full-time, which creates challenges with schedules or providing release time from teaching. NTC typically recommends 1.25 to 2.5 hours per week of "protected time" for communications between each mentor and mentee (Goldrick et al., 2012). One study by Desimone et al., (2014) highlights having a mentor who had experience in the novice teacher's school, with the specific population of students, or with comparable students in the same grade, demonstrates more productive mentoring relationships.

With new teachers leaving the profession in the first five years of teaching, greater effort needs to be placed on establishing teacher induction models that are effective in retaining teachers for the long-term, as well as have an impact on student achievement (Carroll, 2014).

Dual-role teacher induction model. The WMSD has taken the qualities of both the full-release and site-based models to formulate a unique teacher induction program. The dual-role teacher induction model is a full-release, site-based model, in which mentors work with new teachers 50% of the time, and provides professional development for the entire staff 50% of the time (Washington County Public Schools, 2014a). The WMSD "believes that these two roles complement one another and lead to higher student performance" (Wilcox, 2015, p. 196).

The WMSD had 41 full-release, site-based dual-role mentors serving 303 new teachers in the 2014-2015 school year (Wilcox, 2015). Each dual-role mentor received a

stipend of $5,000 (Burkhart, personal communication, April 2, 2014). There were one to two dual-role mentors at each elementary, middle, and high school. The number of new teachers varied per school, with some schools having no new teachers. Some schools, with 10 to15 new teachers, had one dual-role mentor. Certain schools were staffed with two dual-role mentors, having less than twelve classroom teachers, while other schools had one mentor with well over 25 classroom teachers (Washington County Public Schools, 2014a).

As part of the district's Master Plan, the comprehensive new teacher induction (NTI) program outcome is to "provide new teachers with the knowledge and skills necessary to be successful in their classrooms and schools to enable them to stay in the profession" (Wilcox, 2015, p. 197). Evaluation of the dual-role induction model, conducted by the LEA were based on Thomas Gukey's five levels of evaluation: evaluation level, typical questions addressed, typical information for gathering methods, describes what was measured or assessed, as well as how the information was to be used (Guskey, 2002).

The first role of the dual-role mentor directly relates to new teacher support including: working directly with new teachers, reflecting weekly about lesson planning and development, meeting bi-weekly with new teachers who are struggling, using data to examine and improve instruction, assist with new teacher's familiarity with the culture, and working with the Mentor Standards and Continuum of Mentor Development developed by NTC (Wilcox, 2015). A dual-role mentor was assigned to one school, and teachers in the building could seek the services of the dual-role mentor. An essential part of training for dual-role mentors included "development and enhancement of coaching

skills" that progressed new teachers "towards solutions that will increase student achievement" (Wilcox, 2015, p. 196).

The second role of a dual-role mentor was to offer professional learning for the entire staff, analyzing and interpreting assessment data to improve instruction, and facilitate district initiatives (Wilcox, 2015). As part of the Master Plan, dual-role mentors received training once a month from September to June (Wilcox, 2015). Training consisted of Common Core State Standards (CCSS) curriculum study, which was led by county supervisors who instructed dual-role mentors on strategy implementation of CCSS and shared information that was available from the Maryland State Department of Education (MSDE) (Washington County Public Schools, 2014a).

Dual-role mentors were selected based on requirements that involved each mentor holding an Advanced Professional Certificate, completing five years of successful teaching, knowledge of leadership skills with adult learning theory, knowledge of best practices, verbal and written communication skills, as well as the ability to organize and carry out multiple tasks while under time and resource constraints (Washington County Public Schools, 2014a). In addition to these preferred qualifications, dual-role mentors were expected to have regular attendance and be able to perform the essential duties of the position (Washington County Public Schools, 2014a). The criteria were no different than the expectations of NTC.

Limited research provided evidence to support a dual-role teacher induction model that was implemented in the WMSD. The majority of literature-based research that supported this model came from the county Master Plan, and an informal interview with the WMSD superintendent. The conversation with the superintendent was initiated to

gain background information to support the origin of the dual-role model. The superintendent referred to the initial lack of support from supervisors to new teachers, and low scale scores as compared to other county school systems, as a segue into developing such a model (Wilcox, personal communication, December 18, 2014). The school districts' ranking scores, noted in Table 6 and Table 7 below, in reading and math on the Maryland School Assessment (MSA), show rankings compared to the other 24 counties in the state of Maryland from 2011-2015 (Margevich, personal communication, December 18, 2015).

Table 6

State Ranking on MSA Reading from 2011-2015 (WMSD)

MSA Reading	2011-12	2012-13	2013-14	2014-2015
Grade 3	18	20	21	15
Grade 4	16	16	21	20
Grade 5	15	19	16	20
Grade 6	9	11	13	16
Grade 7	13	13	12	12
Grade 8	12	12	8	11

Note. Adapted from "Maryland School District Rankings for Maryland School Assessment Proficient and Advanced Rates READING: 2003-2014," 2014. Retrieved from *Excel* file.

Table 7

State Ranking on MSA Math from 2011-2015 (WMSD)

MSA Math	2011-12	2012-13	2013-14	2014-15
Grade 3	15	18	16	13
Grade 4	15	18	16	20
Grade 5	17	15	14	15
Grade 6	9	7	7	7
Grade 7	9	10	8	11
Grade 8	9	9	6	6

Note. Adapted from "Maryland School District Rankings for Maryland School Assessment Proficient and Advanced Rates MATH: 2003-2014," 2014. Retrieved from *Excel* file.

The dual-role teacher induction model, less than four years old, addressed teacher quality and student achievement through the full-release, site-based mentor position (Wilcox, 2015). There was a need to present relevant literature-based research information to support the effectiveness of a dual-role model in regards to new teacher retention and student achievement.

Mignott (2011) shows a strong correlation and significance between a new teachers' mentoring engagements and success as a classroom teacher. Mentor experience helps to improve student learning experiences, and performance improves due to mentoring (Mignott, 2011). Having the mentor in schools creates a more cohesive alignment to the new teacher induction program in local districts. In one study, the percentage of novice teachers assigned to a mentor teacher increased from 71% to 78% from 2004 to 2008 (Berry & Byrd, 2012). Having a mentor teacher assigned to one school allowed for direct contact and immediate feedback with the teachers and administrators as the site-based mentor model, and at the same time had the commitment

of a full-release mentor. The dual-role teacher induction model encompassed components of full-release and site-based, thus saved time and money for the district by retaining teachers (Burkhart, personal communication, April 2, 2012).

Placement of Mentor

As indicated with any of the new teacher induction models, the key component in each is the relationship with a mentor (Bauchman, 2012). There was a positive mentor impact on new teacher retention, considering that new teachers in induction programs rose from 40% in 1990 to 80% in 1999 (Bauchman, 2012). Researchers assessed the relationships between job satisfaction and participation in induction programs, as well as mentorship assignments. Data from the research concluded “there is relationship between job satisfaction of new teachers and assignment of mentor teacher and induction program participation” (Anderson, 2010, p.58).

The Alaska Statewide Mentor Project identified best practices for caseload and placement assignments and coordinates such a structure at the beginning of each academic year. A close examination was determined in order to pair experienced mentors to new teachers based on special education, content, and grade level (New Teacher Center, 2012). New Teacher Center (NTC) identified 15 key components to a comprehensive induction model, and seven of the components directly related to mentor selection, preparation of mentor role through professional standards of practice, and collaboration efforts of the mentor team; principal, teacher, mentor (Martin, 2008). "In the majority of cases, new-teacher attrition is not chalked up to poor career choice” however, “the primary culprit is lack of support" (Briggs, 2011, p. 6). The mentor role is such an emphasis in an induction model, and a dual-role mentor is an effective design,

according to the NTC (2009) framework, as it encompasses both a site-based and full-release mentor. “Providing each new teacher with a dedicated mentor and necessary time and supports is not an expense, but an investment given that teacher turnover costs an average $2.2 billion a year” (Moir, 2012, blog).

Funding a Teacher Induction Program

“Replacing an individual teacher is 25 to 35 percent of annual salary plus benefit costs” (Curran & Goldrick, 2002, p.3). The costs are attributed to the loss of training provided through new teacher academy, all the professional development throughout the year, and the time spent working with the mentor. It is imperative to invest in a mentoring system that is effective as “the monetary costs of teacher attrition are substantial...replacing a teacher who leaves the classroom costs a minimum of $17,000 …annual teacher turnover can exceed $86 million and run into the hundreds of millions of dollars in just a few years” (Berry & Byrd, 2012, p.15). The WMSD induction model was of highest priority in order to ensure success for students, as there was the invested time with students, which was our ultimate goal to find not just highly qualified teachers, but highly effective teachers (Burkhart, personal communication, April 2, 2014).

Local LEA’s continue to analyze and seek out best models of mentoring to meet the many goals of such a program. Each system grapples with the costs of an induction model. Some states, such as Washington, have received grant money through the state in the past, or through the local district and even federal money allocations for mentoring (Meyers, 2011). High attrition rates means that schools must take funds needed for school improvements and allocate them instead in a manner that produces little long-term payoff for student leaning; since teacher effectiveness increases sharply after the first few years

of teaching (Thompson, 2012).

There are also special circumstances in which districts received private grant money. Districts must think creatively to determine the most effective mentoring model for their local district to meet the needs of all new teachers (Burkhart, personal communication, April 2, 2012). Once this creative thinking has occurred, local districts can move forward with the most beneficial model that works for them. Keeping in mind, "it is more cost-effective to provide teacher induction programs that reduce teacher attrition than to continue to fund recruitment and hiring initiatives" (Curran & Goldrick, 2002, abstract).

Teacher Impact on Student Achievement

With any new teacher induction model, the initial goal is to improve the retention of the novice teacher, however, the ultimate end result is to improve "the growth and learning of students" (Ingersoll & Strong, 2012, p. 468). As states develop teacher induction models, there is an onus on the local districts to ascertain the direct impact on student achievement (Ingersoll & Strong, 2012).

The ever-present changes in America's demographics in schools, coupled with the increasing existence of low-socioeconomic schools, poses greater challenges in the classroom. Students arrive in classrooms across America with various backgrounds and barriers, including language (Anderson, 2010). Both new and experienced teachers will continue to be placed in schools dealing with such issues. "These schools struggle to close the student achievement gap because they never close the teaching quality gap—they are constantly rebuilding their staff" (Briggs, 2011, p.7). There are "few states (that) have the teacher assessments or the ability to link teacher assessments to student

achievement data," needed to measure teacher induction models (Curran & Goldrick, 2002, p. 11)

"Of all the factors that contribute to students' academic achievement, the quality of their teachers is the most important" (Nickels, 2011, p. 5). Initial studies in Alaska report new teachers are not meeting the high level outcomes of student achievement of veteran teachers after being in a new teacher induction program, but they still attain high results of student achievement (Adams, 2010). Student achievement was evidence that the program was instrumental in growing effective new teachers. Adams (2010) reports as Alaska's program evolves, they are beginning to close "the achievement gap between students of new teachers and those with veteran teachers" (p. 6). Other studies report that new teachers meet or exceed veteran teachers if they participate in a new teacher induction program (Ingersoll & Strong, 2012). In the case of mathematics, Adams (2010) demonstrated that new teachers "perform the same as those in classrooms of veteran teachers" (p. 14). In a study from NTC, teachers who experienced comprehensive mentoring were more likely to use differentiated instruction strategies than were teachers who experienced non-comprehensive mentoring. Teachers in the comprehensive induction model defied the general trend of decreased academic engagement (NTC, 2009). Student growth was evident when new teachers participated in a well-developed mentoring model, thus substantiating the importance of a mentoring program. Reporting student achievement gains in any capacity demonstrates the model used is effective, and therefore continued supports will be maintained or increased to further enhance the program (NTC, 2009).

Teacher Quality

It has been reported by the American Federation of Teachers, "time and again, teacher quality prevails as the single most important school-related variable affecting student achievement" (McElroy, LaCour, & Cortese, 2007, p. 3). Teacher quality leads to good instruction that is instrumental in student achievement. The outset needs to be about developing great instructional teachers. The great challenge for any approach to retaining novice teachers is to "bring together the school-based and university-based components of a program into a coherent whole that prepares new teachers for the schools in which they will teach" (Jackson, 2014, blog). A survey by Curran and Goldrick (2002) stated that "Florida found that 43 percent of first-year teachers felt that they were "minimally prepared" or "not prepared" for their first year of teaching" (p. 12). There is current controversy around the topic of teacher preparation programs and the relationship to a teacher's effectiveness. Berry, Daughtrey, and Wieder (2009) points to concerns in relation to recruiting academically able teachers who know subject content over pedagogical preparation, and "whether teaching experience and education degrees matter for student achievement" (p. 2). The task is to develop a new teacher induction program that not only decreases attrition, but perpetuates high student achievement through continued professional development. Professional learning should be targeted according to teacher needs. This process of professional learning allows teachers to be "active participants in discussion about instruction, quality teaching and student achievement" (McElroy et al., 2007).

Knowles (2013) recommended new teacher induction programs offer support that leads to the best instruction possible. New teacher support, as stated

by Berry et al., (2009) suggested that a comprehensive new teacher induction model include "an orientation program, quality and structured mentoring, common planning time for mentors and teachers, intensive and ongoing professional development, an external network of teachers, support from the school administration, and standards-based evaluation" (p. 9). Knowles (2013) defined effective teachers encompass "deep content-area expertise; the capacity to design and modify curricula and instruction based on evidence of student progress; afforded continual opportunities to plan, learn, and collaborate with colleagues and experts within their school and beyond" (p. 5).

Reading and Math Student Achievement

Implementing the Common Core State Standards (CCSS) was the recommendation by the National Governors Association (NGA) to improve opportunities for students to learn rigorous mathematics and science concepts (Grossman, Reyna, & Shipton, 2011). In 2008, governors and chief state school officials began the effort to create a common curriculum based upon research and evidence in the areas of mathematics and English language arts (Grossman et al., 2011). The standards were developed by teachers, national experts, and school administrators. The standards, released in June 2010, "define the knowledge and skills students should have along their K-12 progression so that they will graduate high school able to succeed in entry-level, credit bearing academic college courses and in workforce training programs" (Grossman et al., 2011, p. 25).

The CCSS were designed to ensure focus and lucidity in mathematics. "It is coherent because it supports large conceptual issues at the heart of K-12 mathematics,

and considers how those concepts develop from grade to grade" (Schifter & Granofsky, 2012, p. 16). The interplay of the content standards and the Standards for Mathematical Practice, which are part of the CCSS, make the CCSS robust and diverse from standards of the past. The CCSS provided students with foundational skills in grades kindergarten through five to assist with helping students to build a deeper conceptual understanding of whole numbers, addition, subtraction, multiplication, division, fractions and decimals. A stronger comprehension of these concepts provided the prerequisite knowledge needed to successfully master more complex standards at higher levels (Grossman et al., 2011). The CCSS offered a common foundation to create a stronger educational system throughout our country. The curriculum implemented through skillful teaching can make the difference for student achievement (Ball & Forzani, 2011).

Theoretical Framework

In the last sixteen years, NTC's efforts with new teacher induction programs found, through action research, that effective induction models encompassed a comprehensive approach (Garonzik, 2014). The NTC theory of action was comprised of fifteen elements directly related to developing instructional mentor teachers, increasing new teacher quality, and having a positive impact on student achievement (NTC, 2009). NTC developed the new teacher program by establishing a framework that was cyclical. With students as the center, new teachers are surrounding students, and instructional mentors are adjoining the student target. Outlying the structure, is continuous mentor development, principal and site leader capacity in the building, program leadership, and new teacher development. NTC was established by teachers in 1998 as part of the University of California in Santa Cruz. Annually, NTC supports over 6,300 mentors to

improve the effectiveness of 26,000 teachers across the country through conferences as well as the direct link on the NTC website (Garonzik, 2014). Martin (2008) supports the NTC theory by stating that an important benefit of a good teacher induction program was one that produced a measurable decrease in teacher attrition. By building capacity in the school, teacher attrition decreased. Ingersoll (2014) stated that as the components of an induction model increased, the likelihood of teacher turnover would decrease.

Devine, Houssemand, and Meyers (2013) indicated that professional development was most effective when it was collaborative in nature, which aligns with NTC's model for effective teacher induction programs. Devine et al. (2013) capitalize on NTC's theory by specifying four essential components to make certain professional learning was effective for teachers. The components included: classroom expectations, content planning, sharing methods for quality instruction, and assessment of learning. Devine et al. (2013), assert coaching by principal, mentor, and teachers build relationships in order to have effective coaching sessions. The coaching sessions, as explained by Devine et al. (2013), need to be tailored, research-based, and put into practice through dialogue and reciprocity. "Ultimately, the goal of instructional coaching is to help students achieve, and while teachers' perceptions of their practices are important, the bottom-line is in how these enable students to learn more effectively" (Devine et al., 2013, p. 1129).

As part of building the capacity of an effective teacher induction model, as outlined by NTC, the professional development was essential in retaining high quality teachers. Vasumathi (2010) took a new stance on what effective professional development required. Vasumathi (2010) presented that professional learning of teachers needed to be engaging with applicable tasks that provided opportunities to examine,

critique, and reflect collaboratively. He further explained that this type of interaction between teachers should lead to new practices that are grounded in inquiry, and teachers need to connect learning through modeling and coaching (Vasumathi, 2010).

In a dual-role teacher induction model there was at least one mentor in each school building to oversee new teachers. By having a full-time, on-site dual-role mentor, mentoring and professional development was aligned in order to increase student achievement (Wilcox, 2015). The expectation was that retention of new teachers would increase as a result of supporting new teachers with site-based coaching methods (Fletcher & Strong, 2009).

Summary

Initiatives in the United States, including COMAR 13a.07.01, was well intentioned to not only to retain teachers that are trained in each participating state, but ultimately to improve the effectiveness of teachers and student growth. Each district has to determine "which elements, supports, and kinds of assistance are best and why" (Ingersoll & Strong, 2012, p. 22). These results directly come from assessment pieces at the local level, and are dependent on the locality of the program and the cost-effectiveness. It was advantageous for local and state policymakers to set unambiguous guidelines to induction models, based on what research substantiates. To accomplish this, policymakers can set forth and "collect and use data, develop policies that support" new teacher models, "provide adequate and consistent funding, as well as "establish strong links" among all stakeholders, and lastly, "build effective program evaluations in to state policy" (Curran & Goldrick, 2002, p. 12). It has been said that "those who build great companies understand that the ultimate throttle on growth for any great company is not

markets, or technology, or competition, or products. It is one thing above all others: the ability to get and keep enough of the right people" (Collins, 2001, p.15). To retain the "right people," we first need to focus on hiring well prepared teachers and giving them a strong start with comprehensive induction programs (Carroll, 2014).

There has been considerable funding and effort expended throughout the United States over the course of many decades to develop the quality of new teacher induction programs to not only improve attrition rates and quality of new teachers, but to impact student achievement. This effort still continues today (Ingersoll & Strong, 2012). With the focus to improve elements of new teacher induction programs, there has been little success in retaining new teachers, as nationally 50% of teachers are reported to leave the profession within the first five years (Carroll, 2014).

The purpose of the study was to examine the impact of a dual-role teacher induction model, in a WMSD, and the effectiveness on new teacher retention and student achievement. The study examined first and second (1-2) grade student reading and math MAP data in a WMSD (dual-role) and first and second (1-2) grade reading and math MAP data in a PASD (site-based), along with attrition data of both districts. There was further in-depth analysis of new teacher retention and student achievement in the WMSD using a survey and semi-structured interviews. The examination provided additional national research on the effectiveness of a new teacher induction model. Teacher induction models, as stated by NTC (2009), must be cyclical in nature, and remain focused on the end target of programs; student achievement (Garonzik, 2014).

Chapter 3 – Research Design and Methodology

The research design for this study was comparative/exploratory that included a mixed-methods approach (quantitative and qualitative measures) and was conducted in four phases. This design was used to compare the effectiveness in regards to new teacher retention and student achievement (DV) in a Western Maryland School District (WMSD) dual-role induction model to that of a Pennsylvania School District (PASD) site-based induction model (IV). Phase One included a comparison of secondary data Measures of Academic Progress (MAP) reading and math student scores for first and second (1-2) grades and new teacher attrition data from both a WMSD dual-role induction model and a PASD site-based model. Phase Two consisted of a survey developed to collect preliminary data from the WMSD that included demographics, evaluation of a dual-role induction model and instruction. The survey was exploratory and used as a guide to develop in-depth interview questions in Phase Three, which provided further explanation as to the WMSD new teacher retention and student achievement. Phase Four involved a triangulation of the data analyses in phases one, two, and three to determine the effectiveness of a WMSD dual-role induction model on retention and student achievement.

Research Questions

The primary focus of this study was to compare/explore the effectiveness of a WMSD dual-role induction model to a Pennsylvania School District (PASD) site-based induction model on new teacher retention and student achievement. The independent variable (IV) was the induction model. The dependent variables (DV) studied included retention of new teachers and student achievement in both the WMSD dual-role and

PASD site-based induction models.

The primary research question for this study was, “Does a WMSD dual-role induction model (IV) affect retention of new teachers (DV) and student achievement (DV), and if so, how?”

The supporting research question (SRQ), guiding research questions (GRQ) and hypothesis for student achievement were:

SRQ1: To what extent does a WMSD dual-role induction model affect student achievement of new teachers in kindergarten, first and second grades?

GRQ1.1a: Is there a significant difference between reading and math MAP scores for first and second grade students in a WMSD dual-role induction model and that of a PASD site-based model?

H1: There is a significant difference between reading and math MAP scores for first and second grade students in a WMSD dual-role induction model and first and second grade students in a PASD site-based induction model.

The supporting research question (SRQ), guiding research questions (GRQ) and hypothesis for retention were:

SRQ2: To what extent does a WMSD dual-role induction model affect retention of new teachers?

GRQ1.2a: Is there a difference between retention of new teachers participating in a WMSD dual-role induction model and that of a PASD site-based induction model?

GRQ1.2b: What experiences lead new teachers (kindergarten, first and second) to retention in a WMSD?

GRQ1.2c: What experiences lead new teachers (kindergarten, first and second) to

attrition in a WSMD?

H2: There is a significant difference between new teacher retention in a WMSD dual-role induction model and that of a PASD site-based induction model.

Through the research questions, I was able to determine the difference between a WMSD and a PASD induction model on new teacher retention and student achievement.

Research Design

The comparative design is versatile: the entire structure of a research project can consist of the comparison of just a few cases, or can be combined with other research designs (Routio, 2007). My study used the exploratory design in conjunction with the comparative design in order to give an in-depth picture of the effectiveness of a WMSD dual-role induction model on new teacher retention and student achievement. The quantitative data were comparative, and the qualitative data were exploratory. An exploratory research study is an attempt to lay the groundwork that will lead to future studies, or to determine whether what is being observed might be explained by a currently existing theory. Most often, exploratory research lays the initial groundwork for future research (Kowalczyk, 2016). This was what I attempted to do with the WMSD dual-role induction model. This initial ground work will be laid for future research on induction models.

The use of a mixed-method design is often the best approach to answering the research questions when neither the quantitative or qualitative method provide sufficient answers to the problem of the study (McMillan & Schumacher, 2010). The mixed-method design investigated reasons behind various aspects of why new teachers stayed in the WMSD district and sought to determine the outcome on student achievement. In this

section, there is explanation of the research design, questions and hypotheses essential to the study, and selection of the population and setting, as well as how the process of data collection and analyzing was documented.

Phase one, step one. Phase One was designed to be comparative. It included the use of existing reading and math MAP scores for first and second grade students from a dual-role induction model (WMSD), and scores from first and second grade students from a site-based induction model (PASD). The initial intention of this study was to include kindergarten MAP data for both districts in order to compare the primary grades' (K-2) reading and math achievement; however, the PASD did not utilize MAP to assess kindergarten students. Existing MAP data were used from both districts for a three-year period from 2012-2015. The MAP scores were used to determine the average mean data score for each grade level in both induction models. The WMSD included 26 of 27 elementary schools. The PASD included one of four schools from a PASD.

MAP assessments are aligned to national and state curricula and standards. MAP is a computer adaptive, nationally normed assessment. Every test item on a MAP assessment corresponds to a value on the Rasch Unit (RIT) scale, so stakeholders gain a deep understanding of what a student knows (Northwest Evaluation Association, 2015). RIT measures student knowledge, regardless of the grade level of the student. The RIT assists with measuring growth over time to indicate student progress by providing fall, winter, and spring data points. MAP, a non-profit educational organization known for interim assessment, was founded by Northwest Evaluation Association (NWEA) nearly 40 years ago (Northwest Evaluation Association, 2015). There are more than 7,000 partners in education that used the pre-k through grade 12 assessments to measure student

growth and learning needs. MAP was used in the WMSD and PASD three times per year. For the purpose of the study, the use of spring RIT scores determined whether students of new teachers met the expected end of year target of growth, as established by MAP. The local school districts aligned each new teacher to the scores for participating students. The coding system provided a safeguard to ensure accurate student data were coded to the correct teacher. All participating schools were identified according to demographics including: student enrollment, geographic location, free and reduced meals (FARMS), and mentor model.

The MAP data was used to answer the PRQ, GRQ1.1a, and H1. First and second grades were selected in order to narrow the focus of the study to primary reading and math achievement, which is a key predictor in determining students' success in upper grades. Sparks et al., (2014) emphasize that comprehension success in primary grades is the crucial element to predict eleventh grade reading achievement. Primary grades in this study included first and second grades. Not only does the early learning of math correlate to later years of achievement, but "what they know in math predicts their later reading achievement" (Sarama & Clements, 2009, p. 1). It is crucial to establish the effectiveness of reading and math achievement in the primary grades comparing the WMSD and PASD induction models in order to determine the effectiveness of a dual-role induction model.

MAP data were used and analyzed operating a computerized software program; Statistical Package for the Social Sciences (SPSS). The statistical procedures used included independent samples *t*-tests and repeated measures ANOVA, which provided the ability to compare the student achievement between the WMSD and PASD. The power analysis indicated the Power (1-β err prob) = 0.95, which was strong. Each group

size needed to have a population of $n = 45$ (GPower, 2014).

Phase one, step two. Phase One, Step Two, was a comparison of the entire population of existing attrition data from both the WMSD and PASD. These data were needed in order to determine the effectiveness of new teacher retention between the WMSD dual-role and PASD site-based induction models. Attrition data were generated by the local school districts and categorized as to the overall attrition, providing specific information as to new teachers that stayed in the district. The attrition data were confidential, representing teachers by a number. A classification of non-tenured (new teachers) vs. tenured teachers (experienced teachers) was needed to determine the retention of new teachers in the dual-role and site-based induction models. Attrition data were used and analyzed using measures of central tendencies (percentages). Percentages provided data results that led to conclusions based on the PRQ, SRQ2, GRQ1.2a, GRQ1.2b, and GRQ1.2c.

Phase two. Phase Two of the research design was exploratory and consisted of a survey (Appendix A) containing a mix of open-ended and closed questions. The survey required access to email addresses of 46 new teachers employed in the 2014-2015 school year. New teachers were selected based on (a) if they were non-tenured, 1-3 years of teaching experience; (b) if they were employed as a new teacher in the 2014-2015 school year, and (c) if they taught a primary grade (K-2) in the 2014-2015 school year. Providing the survey to kindergarten, first, and second grades (K-2) provided further insight to the primary grades' new teacher retention and student achievement in a WMSD dual-role induction model. Of these, only 41 were selected because the WMSD did not permit anyone who left the school district to participate. The survey focused on retention

of new teachers and reading and math student achievement. The survey added to the research study by gathering basic information regarding the years of service, education, and elements of the WMSD dual-role induction model (IV) that contributed to retention of new teachers and reading and math student achievement (DV). The data analysis provided further support in answering the PRQ, SRQ1 & 2, GRQ1.2b, and GRQ1.2c. The survey questions aided in determining preliminary factors in order to develop in-depth interview questions.

Surveys were conducted through a personal *Survey Monkey* account, and data from the survey was automatically time stamped and collected anonymously via a *Survey Monkey* report. The survey was open for a period of five weeks, with a reminder sent each week. The results were categorized by *Survey Monkey,* based on responses to each research question. Responses were categorized in charts, graphs, and percentages in order to better analyze the results. *Survey Monkey* was most appropriate, as the emails and survey responses were protected by a SSL encryption that ensured data were secure as it moved between the *Survey Monkey* server and a personal computer. The IP address tracking was disabled to ensure the survey remained anonymous. Both *Survey Monkey* and the personal computer were authenticated with unique usernames and passwords. The survey results served as the guide to step two for conducting and developing in-depth interviews with new teachers.

Phase three. To further explore the effectiveness of the WMSD induction model, semi-structured interviews were developed and conducted with K-2 new teachers employed from the 2014-2015 school year. All interviewees were selected on a volunteer basis through a question on the survey (Appendix D). The goal was to obtain ten new

teachers who stayed and ten new teachers who left the WMSD, but due to WMSD IRB regulations, only interviews were approved for new teachers who stayed in the district. There were a total of ten new teachers (K-2) who volunteered and were selected to interview. Each participant was contacted through email (provided by the participant on the survey) to confirm their willingness to interview. Interview consent forms (Appendix F) were sent, received, and a copy provided to the participant at the time of each interview. Face-to-face interviews were scheduled, but alternative interview methods (phone, Skype, Google Hangouts) were offered as well. All interviews were digitally recorded, transcribed, and manually coded by themes.

Thematic analysis was used to code pertinent themes relating to the effectiveness of new teacher retention and reading and math student achievement (DV) in a WMSD dual-role induction model (IV). A thematic coding system (manual) was used to highlight common words (descriptive open codes) as part of the participant's actual words (*In Vivo*) for each interview question asked. Thematic coding, in the form of descriptive labels and *In Vivo* codes are used to develop similar themes (Miles, Huberman, & Saldana, 2014). The manual coding system, derived from the phrases of the participant's actual words (Appendix H), provided the necessary information to draw conclusions to the primary research question of the study.

Interviews focused on the following study research questions, "What experiences lead new teachers (kindergarten, first and second) to retention in a WMSD?" and "What experiences lead new teachers (kindergarten, first and second) to attrition in a WSMD?" The experiences related to why new teachers stayed or what would cause new teachers to leave the WMSD, what supports assisted professional development, and how new

teachers perceived themselves as having an impact on student achievement.

Phase four. Phase Four encompassed a triangulation process that involved comparing the secondary MAP and attrition data from both the WMSD dual-role and PASD site-based induction models. The analysis of the survey and interviews from the WMSD substantiated the "why" behind the causes of retention and student achievement in a dual-role new teacher induction model. This was accomplished by ascertaining the experiences of new teachers regarding reasons for staying and reasons for leaving, supports offered that developed professional growth, and aspects that contributed to student achievement.

The data collected from the survey were automatically transferred to a *Survey Monkey* report, thus providing access to sorted, anonymous information, as each response was coded by a number. Percentage comparisons were conducted. Interviews were analyzed by thematic coding through *In Vivo*, which provided valuable information in answering the research questions about new teachers' experiences in regards to retention and student achievement (DV) in a WMSD dual-role induction model (IV).

The expectation was that the data collected from this study would provide valuable findings in regards to new teacher retention and reading and math student achievement (1-2) of new teachers in a WMSD dual-role new teacher induction model. Furthermore, this study provided districts with direct insight into a dual-role teacher induction model through the use of a survey and interviews, which depicted current experiences regarding why new teachers (K-2) stayed and causes for leaving the teaching profession. The outcomes of the study could be used by states and local districts to develop a strategic plan to address new teacher retention and student achievement. This

study contributed to the national research to inform teacher education and education policy efforts to strengthen and support teachers while improving the achievement of students.

Population

The contextual setting in the WMSD was comprised of 27 elementary schools, seven middle schools, and eight high schools, with a total enrollment of approximately 22,000 students. There were a total of 1,777 teachers and 170 administrators at the time of the study. WMSD ranked nineteen of twenty-four counties in the state for student readiness, and 43% of kindergarteners were fully prepared to learn (Greenfield, 2015). Twenty-five schools were below 50% for Free and Reduced Meals (FARMS), and seventeen schools were above 50% for FARMS. There were 16 urban and 26 rural school settings. FARMS data were public information maintained on the state sponsored Department of Education website entitled Maryland Report Card (2015). Table 8, Table 9 and Table 10 illustrate the FARMS, population of each school, and the setting, rural or urban, for each school in the WMSD.

Table 8

2014-15 Population, FARMS, and Setting for WMSD Elementary Schools

School	Population	% Free and Reduced Meals	Setting
1	485	81.5	Urban
2	556	23.2	Rural
3	194	47.9	Rural
4	387	36.6	Rural
5	176	55.4	Rural
6	483	64.1	Urban
7	304	55.4	Urban
8	188	26.2	Rural
9	351	45.8	Urban
10	197	34.2	Rural
11	257	59.8	Rural
12	244	73.8	Urban
13	603	73.3	Urban
14	645	47.5	Rural
15	312	31.3	Rural
16	745	65.3	Urban
17	383	29.4	Rural
18	232	30.6	Rural
19	214	38.1	Rural
20	623	27.5	Rural

(continued)

School	Population	% Free and Reduced Meals	Setting
21	714	67.0	Urban
22	664	77.1	Urban
23	296	38.1	Rural
24	395	37.8	Rural
25	622	48.9	Rural
26	310	85.4	Urban

Note. Population column adapted from *2015 Enrollment Data* [Data file], by Maryland State Department of Education, 2015 (http://reportcard.msde.maryland.gov/downloadindex.aspx?K=99AAAA). Copyright 1998-2016 by Maryland State Department of Education. % Free and Reduced Meals column adapted from *2015 Students Receiving Special Services Data* [Data file], by Maryland State Department of Education, 2015 (http://reportcard.msde.maryland.gov/downloadindex.aspx?K=99AAAA). Copyright 1998-2016 by Maryland State Department of Education.

Table 9

2014-15 Population, FARMS, and Setting for WMSD Middle Schools Middle

School	Population	% Free and Reduced Meals	Setting
1	745	26.0	Rural
2	412	36.7	Rural
3	764	57.1	Urban
4	792	56.4	Urban
5	639	35.5	Rural
6	865	47.7	Rural
7	737	67.6	Urban

Note. Population column adapted from *2015 Enrollment Data* [Data file], by Maryland State Department of Education, 2015 (http://reportcard.msde.maryland.gov/downloadindex.aspx?K=99AAAA). Copyright 1998-2016 by Maryland State Department of Education. % Free and Reduced Meals column adapted from *2015 Students Receiving Special Services Data* [Data file], by Maryland State Department of Education, 2015 (http://reportcard.msde.maryland.gov/downloadindex.aspx?K=99AAAA). Copyright 1998-2016 by Maryland State Department of Education.

Table 10

2014-15 Population, FARMS, and Setting for WMSD High Schools

School	Population	% Free and Reduced Meals	Setting
1	883	23.2	Rural
2	501	36.7	Rural
3	1312	47.3	Urban
4	799	32.2	Rural
5	1292	61.0	Urban
6	520	39.7	Urban
7	919	41.2	Rural
8	268	55.5	Rural

Note. Population column adapted from *2015 Enrollment Data* [Data file], by Maryland State Department of Education, 2015 (http://reportcard.msde.maryland.gov/downloadindex.aspx?K=99AAAA). Copyright 1998-2016 by Maryland State Department of Education. % Free and Reduced Meals column adapted from *2015 Students Receiving Special Services Data* [Data file], by Maryland State Department of Education, 2015 (http://reportcard.msde.maryland.gov/downloadindex.aspx?K=99AAAA). Copyright 1998-2016 by Maryland State Department of Education.

The contextual setting for the PASD consisted of four schools. One was primary (K-2), one was elementary (3-5), one was middle (6-8), and one was high school (9-12). There was a total of 707 primary students, 670 elementary students, 732 middle school students, and 900 high school students. The PASD economically disadvantaged students included: (a) 26.6% for the high school, (b) 28.16% for the middle school, (c) 27.74% for the elementary school; and (d) 32.23% for the primary school. All were in rural areas (Crider, personal communication, November 20, 2015).

As shown in Table 11 and Table 12, Miller (October, 2013) reports that the PASD performed “at or above state averages on Pennsylvania’s new School Performance

Profile," which were based on reading and math scores (para1).

Table 11

2014-15 Population, Economically Disadvantaged Percentage, and Settings for PASD

School	Population	ED	Setting
Primary	625	32.23	Rural
Elementary	670	27.74	Rural
Middle	732	28.16	Rural
High School	900	26.63	Rural

Note. School, Population, and Setting columns adapted from *Public School Enrollment 2014-2015* [Data file], by Pennsylvania Department of Education, 2015 (http://www.education.pa.gov/Data-and-Statistics/Pages/Enrollment%20Reports%20and%20Projections.aspx#tab-1). Copyright 2016 by Governor Tom Wolf. ED column adapted from "Greencastle School District Enrollment," 2015. Retrieved from *PDF* file.

Table 12

Comprehensive Demographics

Demographics	WMSD (Dual-role)	PASD (Site-based)
Schools in District	42	4
Urban	16	0
Rural	26	4
Total Population of Students	22.000	2,927
Free and Reduced (FARMS) Economically Disadvantages (ED)	25 below 50% 17 above 50%	4 below 50%

Note. WMSD column adapted from "Schools," by Washington County Public Schools, 2014 (http://wcpsmd.com/schools). Copyright 2015 Washington County Public Schools. PASD column adapted from *Public School Enrollment 2014-2015* [Data file], by Pennsylvania Department of Education, 2015 (http://www.education.pa.gov/Data-and-Statistics/Pages/Enrollment%20Reports%20and%20Projections.aspx#tab-1). Copyright 2016 by Governor Tom Wolf.

Sample Selection

Twenty-six elementary schools in the WMSD were utilized for MAP data, and the entire WMSD population of teachers (1,777) were used for attrition data for this study. MAP data included the use of reading and math scores for first and second grades. The sample selection for the PASD included one of four schools, of which one was primary. Reading and math MAP scores for first and second grades, as well as the entire population of teachers' (164) attrition data from the PASD, were used. Attrition rates for the total population of the WMSD and PASD were utilized to determine overall retention of teachers. Surveys were emailed to 41 WMSD new teachers. Interviews were conducted with ten new teachers who stayed in the WMSD. For the survey and interviews, new teachers in kindergarten, first, and second grades were accessible by the WMSD in order to address new teacher retention and student achievement in primary grades.

The comprehensive sample selection for the study included 1,697 first and 1,784 second grade students from the WMSD, with a total of 242 teachers, of which 42 were new teachers (Margevich, personal communication, December 18, 2015). The comprehensive sample selection from the PASD included nine new teachers and a total of 215 students (Table 13) (Crider, personal communication, November 20, 2015). A smaller purposeful sampling of first and second grade reading and math MAP data was utilized due to time constraints and to make the connection to early success in reading and math achievement. The power analysis indicates the Power (1-β err prob) = 0.95 which was strong. Each group size needed to have a population of $n = 45$ (GPower, 2014). Retention rates of all schools in the WMSD (Table 14) and PASD (Table 15) were

used for the period of three years (2012-2013). Attrition was disaggregated into non-tenured (new teachers) and tenured (experienced teachers) in order to determine the rate of new teacher retention.

Table 13

Study Sample Selection

Demographics	WMSD (dual-role)	PASD (site-based)
Grades Being Compared	K-2	1-2
Total Population of Students	5, 046	625
New Teachers	41	9
Sample (Average Per Year)	880	80

Note. WMSD column adapted from "Board of Education of Washington County Enrollment," 2014. Retrieved from *Excel* file. PASD column adapted from "Greencastle School District Enrollment," 2015. Retrieved from *PDF* file.

Table 14

WMSD Population of K-2 Students and New Teachers (2014-15)

Grade	Total Population of Students	New Teachers
K	1,565	14
1	1,697	16
2	1,784	14

Note. Adapted from "Board of Education of Washington County Enrollment," 2014. Retrieved from *Excel* file.

Table 15

PASD Population of 1-2 Students and New Teachers (2014-215)

Grade	Total Population of Students	New Teachers
1-2	625	9

Note. Adapted from "Greencastle School District Enrollment," 2015. Retrieved from *PDF* file.

Forty-one new teachers (K-2) were selected for surveys in order to provide factors related to attrition and retention in the WMSD. These factors lead to further exploration to in-depth semi-structured interviews. Interviews were conducted with new teachers (K-2), who were employed in the 2014-2015 school year and stayed in the district. The interviews provided insight as to the experiences of why new teachers stayed and causes for leaving the teaching profession.

Although the study was restricted to existing reading and math MAP data for first and second grade students, there was sufficient data from both the WMSD and PASD induction models to draw conclusions in regards to the PRQ. Triangulation of existing data comparisons of reading and math, attrition data, and the analyses from the survey and interviews with new teachers from the WMSD were used to determine the effectiveness of a WMSD dual-role induction model on new teacher retention and student achievement as compared to a PASD site-based induction model.

Validity and Reliability

The survey was piloted for reliability and validity measures through pre-test and post-test conferences and focus groups. The process began with a pre-test that included a group of individual meetings with teachers in the field. From this pre-test, the questions were adjusted, and another draft of the survey questions was discussed in a different focus group setting in order to determine clarity of the questions. Cognitive interviewing elicited additional information from the focus group regarding their understanding of the survey questions. Individuals in the focus group were not part of the study, but they were in the field of education. Participants were given space to write comments about the readability, clarity, and format of the questions. Upon final revisions and Institutional

Review Board (IRB) approval, the survey was sent to 41 new teachers in kindergarten, first, and second grades in the WMSD. Survey results were collected through *Survey Monkey*, which automatically categorized and charted anonymous individual responses through percentages.

To ensure validity and reliability of the interview questions, a pilot test was administered to make certain personal bias was checked in the procedures and questions. Once a pilot test was complete, intent, clarity, and format were examined. Conducting a pilot test determined the length of the interview and provided an idea of the data that was to be collected. Participants were selected based on a voluntary basis and knew the relevance of the interview questions prior to scheduling. The interviews directly related to the study questions on retention of new teachers and reading and math student achievement in a dual-role induction model. The interviews were semi-structured and therefore had no multiple choice answers. All interviews were digitally recorded, transcribed, and coded by *In Vivo*. Interviews, as opposed to surveys, provided more depth and breadth to the data because participants are able to explain their responses to the experiences (Weiss, 1994).

Role of Researcher

This study was conducted in a WMSD in which I had been employed for fifteen years, eight years as a teacher, three years as a reading and math specialist, and four years as a mentor. As the primary investigator, I directly mentored three of the new teachers (K-2) in the dual-role induction model. To reduce influence or bias, communication with new teachers was restricted to the confines of the study.

Clarification was provided to participants that the data collected through the

surveys and interviews would be used to determine the effectiveness of a WMSD dual-role new teacher induction model on new teacher retention and reading and math student achievement. The information collected from the MAP, attrition, and survey data remained anonymous and was not related to a specific school or teacher. The information collected from the interviews remained confidential. As part of the survey and interviews, participants received detailed information in regards to the purpose of the research and their role in the study. Each participant signed a consent form stating understanding of the purpose and risks (Appendices C & F). I committed to the anonymity of the teachers and schools involved and depended on the IRB to approve the phases of the study.

Measures of Ethical Protection

All participants in the study were protected from potential risk. As required in the quantitative data collection, teacher and student names, as well as identification codes, remained confidential. MAP data were used and sorted according to first and second grade levels. Attrition rates used had no identifiers, only numbers assigned to new teachers and whether or not they stayed or left the district.

The survey required the use of current emails of new teachers in the WMSD; however, strict protection of the emails was adhered to by storing all emails on a secure Word document account protected by encryption. A group email was established at the onset of the process and then destroyed at the end of the collection process. All data collected from the survey was anonymous due to the setup of the *Survey Monkey*, and participants were aware of their rights through a consent form on the survey (Appendix C). Interviews were conducted with new teachers who stayed in the district, and were set up on a voluntary basis via the survey (Appendix D).

There was strict adherence to the complete IRB process to prevent any risk to the ethical protection of the study of the participants. Proof of completing the Course in the Protection of Human Subjects (CITI) training program was submitted (Appendix A), along with a research protocol and IRB submission form. There were consent forms for both survey (Appendix D) and interviews (Appendix F) upon submission to IRB. All data used, collected and analyzed were encrypted and maintained behind three locks in the committee chair's office for three years at Frostburg State University. After this time, all data were properly discarded. No master list connecting the real names to the numbers was kept. The paper transcriptions were shredded, and the electronic Universal Serial Bus (USB) storage file was shredded in a paper shredder.

Chapter 4 – Findings

The purpose of this study was to compare/explore the effectiveness of a WMSD dual-role induction model to a Pennsylvania School District (PASD) site-based induction model on new teacher retention and student achievement. There were four phases in this study that employed a mixed-methods approach. The quantitative data were comparative and the qualitative data were exploratory. Phase One included existing secondary Measures of Academic Progress (MAP) reading and math student data for new teachers who taught primary grades first and second (1-2), as well as district-wide attrition data to compare new teacher retention and student achievement between a WMSD and PASD. The initial intention of this study was to include kindergarten MAP data for both districts in order to compare the primary grades (K-2) reading and math achievement; however, the PASD did not utilize MAP to assess kindergarten students. Therefore, for comparing student achievement, this study used existing MAP reading and math data of first and second grade students. Existing data was used for both districts for a three-year period; 2012-2015. Independent samples *t*-tests and repeated measures ANOVA were used as the analyses for the MAP data and percentage comparison was used for the attrition data. Phase Two included an online survey administered to 41 new teachers who taught primary grades K-2 in the WMSD dual-role induction model during the 2014-2015 school year. Providing the survey to K-2 grades provided further insight to the primary grades new teacher retention and student achievement in a WMSD dual-role induction model. The analysis was percentage comparison. Phase Three included semi-structured interviews with ten primary new teachers (K-2) from the WMSD. New teachers volunteered and were selected from the online survey. The analysis used was thematic

coding through *In Vivo*. Phase One and Two were concurrent and provided an in-depth analysis of the WMSD. Phase Two and Three were sequential, as the survey provided insight into the development of the interview questions. Phase Four encompassed the triangulation of all phases in order to determine the overall conclusions to the primary research question.

The primary research question for this study was, "Does a WMSD dual-role induction model (IV) affect retention of new teachers (DV) and student achievement (DV), and if so, how?"

The supporting research question (SRQ), guiding research questions (GRQ) and hypothesis for student achievement were:

SRQ1: To what extent does a WMSD dual-role induction model affect student achievement of new teachers in kindergarten, first and second grades?

GRQ1.1a: Is there a significant difference between reading and math MAP scores for first and second grade students in a WMSD dual-role induction model and that of a PASD site-based model?

H1: There is a significant difference between reading and math MAP scores for first and second grade students in a WMSD dual-role induction model and first and second grade students in a PASD site-based induction model.

The supporting research question (SRQ), guiding research questions (GRQ) and hypothesis for retention were:

SRQ2: To what extent does a WMSD dual-role induction model affect retention of new teachers?

GRQ1.2a: Is there a difference between retention of new teachers participating in

a WMSD dual-role induction model and that of a PASD site-based induction model?

GRQ1.2b: What experiences lead new teachers (kindergarten, first and second) to retention in a WMSD?

GRQ1.2c: What experiences lead new teachers (kindergarten, first and second) to attrition in a WSMD?

H2: There is a significant difference between new teacher retention in a WMSD dual-role induction model and that of a PASD site-based induction model.

This chapter includes the presentation of findings reported according to the phases and steps outlined below:

1. Phase One (Step One)- findings from the reading and math Measures of Academic Progress (MAP) data for both the WMSD and the PASD for first and second grades. SRQ1, GRQ 1.1a, and H1 were explored in this phase of the study.
2. Phase One (Step Two) – findings from the retention data for both the WMSD and the PASD. SRQ2, GRQ1.2a, and H2 were explored in this phase of the study.
3. Phase Two – findings from the survey sent to 41 new teachers in kindergarten, first, and second grades in the WMSD. SRQ1, SRQ2, GRQ1.2b, and GRQ1.2c were explored in this phase of the study.
4. Phase Three – findings from the semi-structured interviews with new teachers from kindergarten, first, and second grades in the WMSD. SRQ1, SRQ2, GRQ1.2b, and GRQ1.2c were explored in this phase of the study.
5. Phase Four – MAP, attrition, survey, and semi-structured interviews were used to triangulate information in this phase of the study.

Each phase of the study describes the rationale of the data selection, the research

questions, the statistical measurements employed, data findings, analysis of data, and conclusions.

Phase One (Step One) – Reading and Math MAP Data Findings

The purpose of Phase One of this study was to compare the differences among the WMSD dual-role induction model and the PASD site-based model in relationship to student achievement. The research hypotheses in Phase One of the study was: There is a significant difference between reading and math MAP scores for first and second grade students in a WMSD dual-role induction model and first and second grade students in a PASD site-based induction model. The null hypothesis stated, there is no significant difference between reading and math MAP scores for first and second grade students in a WMSD dual-role induction model and first and second grade students in a PASD site-based induction model.

A comparison of MAP data between the WMSD (dual role) and the PASD (site-based) was critical in examining the effect of two different induction models on student achievement. The WMSD administered MAP three times a year starting in 2012, and the PASD administered MAP three times a year, since 2008, to gather reading and math data to measure growth. MAP is a norm-referenced assessment, which is less objective in determining individual scores compared to a norm group (McMillan & Schumacher, 2010). The MAP data also provided uniform procedures for administration and scoring, which added to the reliability of the scores.

The purpose of using**,** categorizing and analyzing secondary MAP data for both the WMSD and the PASD was to address the PRQ of the study, "Does a WMSD dual-role induction model (IV) affect retention of new teachers (DV) and student achievement

(DV), and if so, how?"

The SRQ that led Phase One (Step One) of the study was SRQ1 "To what extent does a WMSD dual-role induction model affect student achievement of new teachers in kindergarten, first and second grades?"

The GRQ that led Phase One (Step One) was GRQ1.1a "Is there a significant difference between reading and math MAP scores for first and second grade students in a WMSD dual-role induction model and that of a PASD site-based model?"

Independent samples *t*-tests. I used a computerized software program; Statistical Package for the Social Sciences (SPSS) to test the null hypothesis regarding the observed difference between two means. In this study, independent samples *t*-tests were used to compare the difference between MAP scores of two different districts, WMSD (dual-role) and PASD (site-based), in order to determine a *p* value that indicated if the null hypothesis failed to reject. For the comparison between the WMSD and PASD mean scores, I ran independent samples *t*-tests, which included Levene's Test for Equality of Variances. Data sets were organized by variables and scores in *Excel* and uploaded to SPSS. Variables, labels, measures (state; nominal and score; scale), and decimals were omitted. Using the results of the means, standard deviations, and population size, I used Cohen's *d* to calculate the effect size of each data analysis (Wuensch, 2015). Decimals were rounded up for .5 or higher and down for lower than .5. For independent samples *t*-tests, Cohen's *d* was appropriate in determining the effect size measure. Cohen's *d* was determined by calculating the mean difference between two groups and then dividing the result by the pooled standard deviation (Stangroom, 2016). Each subsequent independent samples *t*-test data findings provides the reason for the analysis, reports the results, effect

sizes, and means and standards deviations.

Independent samples *t*-tests using SPSS statistics were used to compare the means of:

- grade one reading scores of the WMSD to grade one reading scores of the PASD;
- grade two reading scores of the WMSD to grade two reading scores of the PASD;
- overall reading scores of first and second grades of the WMSD to reading scores of first and second grades of the PASD;
- grade one math scores of the WMSD to grade one math scores of the PASD;
- grade two math scores of the WMSD to grade two math scores of the PASD; and
- overall math scores of first and second grades of the WMSD to math scores of first and second grades of the PASD.

Grade one reading (WMSD and PASD) 2012-13 results. The grade one reading (2012-13) independent samples t-test was found to be statistically non-significant and failed to reject the null hypothesis. The WMSD (M = 178.53, SD = 48.30) and PASD (M = 179.07, SD = 11.89) did not differ significantly on average scores in reading, t(360) = .94, p>.05; d = 0.02. The effect size for this analysis (d = 0.02) was found to have a small effect, according to Cohen's convention. The results indicated that both induction models, dual-role and site-based, had similar reading MAP outcomes for students in grade one during the 2012-2013 school year.

Grade one reading (WMSD and PASD) 2013-14 results. The grade one reading (2013-14) independent samples t-test was found to be statistically significant and rejected the null hypothesis. The WMSD (M = 224.37, SD = 192.76) and PASD (M = 172.67, SD = 13.75) differed significantly on average scores in reading, t(329.48) = .00, p<.05; d =

0.38. The effect size for this analysis (d = 0.38) was found to be slightly below the medium effect, according to Cohen's convention. These results indicated that both induction models, dual-role and site-based, had different reading MAP outcomes for students in grade one during the 2013-2014 school year.

Grade one reading (WMSD and PASD) 2014-15 results. The grade one reading (2014-15) independent samples t-test was found to be statistically non-significant and failed to reject the null hypothesis. The WMSD (M = 215.42, SD = 165.98) and PASD (M = 173.39, SD = 9.22) differed significantly on average scores in reading, t(374) = .23, p>.05; d = 0.05. The effect size for this analysis (d = 0.05) was found to have a small effect, according to Cohen's convention. These results indicated that both induction models, dual-role and site-based, had similar reading MAP outcomes for students in grade one during the 2014-2015 school year.

Table 16 illustrates grade one reading independent samples *t*-test results for 2012-2015.

Table 16

WMSD and PASD Grade One Reading t-test Results (2012-2015)

Year	District	*N*	*M*	*SD*	*df*	*p*	*d*
2012-13	WMSD	318	176.53	48.30	360	.94	0.02
	PASD	44	179.07	11.89			
2013-14	WMSD	311	224.37	192.76	329.48	.00*	0.38
	PASD	21	172.67	13.75			
2014-15	WMSD	353	215.42	165.98	374	.23	0.05
	PASD	23	173.39	9.22			

Note. *N* = total population; *M* = mean; *SD* = standard deviation; *df* = degree of freedom(s); *p* = level of significance; *d* = Cohen's d. Grade One Reading Norm = 177.
*$p < .001$.

Grade two reading (WMSD and PASD) 2012-13 results. The grade two reading (2012-13) independent samples t-test was found to be statistically non-significant and failed to reject the null hypothesis. The WMSD (M = 197.42, SD = 112.36) and PASD (M = 200.92, SD = 11.49) did not differ significantly on average scores in reading, $t(341) = .88$, $p>.05$; $d = 0.04$. The effect size for this analysis ($d = 0.04$) was found have a small effect, according to Cohen's convention. These results indicated that both induction models, dual-role and site-based, had similar reading MAP outcomes for students in grade two during the 2012-2013 school year.

Grade two reading (WMSD and PASD) 2013-14 results. The grade two reading (2013-14) independent samples t-test was found to be statistically significant and rejected the null hypothesis. The WMSD (M = 222.09, SD = 175.85) and PASD (M = 193.11, SD = 12.91) differed significantly on average scores in reading, $t(323.42) = .00$, $p<.05$; $d = 0.23$. The effect size for this analysis ($d = 0.23$) was found to have a small effect, according to Cohen's convention. These results indicated that both induction models, dual-role and site-based, had different reading MAP outcomes for students in grade two during the 2013-2014 school year.

Grade two reading (WMSD and PASD) 2014-15 results. The grade two reading (2014-15) independent samples t-test was found to be statistically non-significant and failed to reject the null hypothesis. The WMSD (M = 223.04, SD = 164.44) and PASD (M = 198.48, SD = 12.85) differed significantly on average scores in reading, $t(374) = .33$, $p>.05$; $d = 0.29$. The effect size for this analysis ($d = 0.29$) was found to have a small effect, according to Cohen's convention. These results indicated that both induction models, dual-role and site-based, had similar reading MAP outcomes for students in

grade two during the 2014-2015 school year. Table 17 illustrates the results of the WMSD and PASD grade two reading t-tests for 2012-2015.

Table 17

WMSD and PASD Grade Two Reading t-test Results (2012-2015)

Year	District	*N*	*M*	*SD*	*Df*	*p*	*d*
2012-13	WMSD	318	197.42	112.36	341	.88	0.04
	PASD	25	200.92	11.49			
2013-14	WMSD	311	222.09	175.85	323.42	.00*	0.23
	PASD	75	193.11	12.91			
2014-15	WMSD	353	223.04	164.44	374	.33	0.29
	PASD	23	198.48	12.85			

Note. *N* = total population; *M* = mean; *SD* = standard deviation; *df* = degree of freedom(s); *p* = level of significance; *d* = Cohen's d. Grade Two Reading Norm = 190.
*$p < .001$.

Reading overall (WMSD and PASD) 2012-13 results. The reading overall (2012-13) independent samples t-test was found to be statistically significant and rejected the null hypothesis. The WMSD (M = 179.46, SD = 14.97) and PASD (M =186.99, SD = 15.75) differed significantly on average scores in reading, $t(566) = .00$, $p < 0.05$; d = 0.49. The effect size for this analysis (d = 0.49) was found to have a medium effect, according to Cohen's convention. These results indicated that both induction models, dual-role and site-based, had different reading MAP outcomes for students overall during the 2012-2013 school year.

Reading overall (WMSD and PASD) 2013-14 results. The reading overall (2013-14) independent samples t-test was found to be statistically significant and rejected the null hypothesis. The WMSD (M =180.22, SD =14.91) and PASD (M =188.64, SD = 15.76) differed significantly on average scores in reading, $t(620) = .00$, $p<.05$; d = 0.55.

The effect size for this analysis (d = 0.55) was found to have a medium effect, according to Cohen's convention. These results indicated that both induction models, dual-role and site-based, had different reading MAP outcomes for students overall during the 2013-2014 school year.

Reading overall (WMSD and PASD) 2014-15 results. The reading overall (2014-15) independent samples t-test was found to be statistically non-significant and failed to reject the null hypothesis. The WMSD (M = 185.60, SD = 16.04) and PASD (M = 181.43, SD = 13.73) did not differ significantly on average scores in reading, t(665) = .09, p>.05; d = 0.28. The effect size for this analysis (d = 0.28) was found to have a small effect, according to Cohen's convention. These results indicated that both induction models, dual-role and site-based, had similar reading MAP outcomes for students overall during the 2014-2015 school year. Table 18 illustrates the WMSD and PASD reading overall independent samples t-test results for 2012-2015.

Table 18

WMSD and PASD Reading Overall t-test Results (2012-2015)

Year	District	*N*	*M*	*SD*	*df*	*p*	*d*
2012-13	WMSD	499	179.46	14.97	566	.00*	0.49
	PASD	69	186.99	15.75			
2013-14	WMSD	526	180.22	14.91	620	.00*	0.55
	PASD	96	188.64	15.58			
2014-15	WMSD	621	185.60	16.04	665	.09	0.28
	PASD	46	181.43	13.73			

Note. *N* = total population; *M* = mean; *SD* = standard deviation; *df* = degree of freedom(s); *p* = level of significance; *d* = Cohen's d.
*$p < .001$.

Discussion of reading results. The independent samples t-tests findings demonstrated a statistically significant difference in year two of both grade one and grade two MAP reading scores, and a statistically significant difference in year one and year two for overall MAP reading. However, there was no statistically significant difference in year one and year three of reading in grade one and grade two. Additionally, year three of reading overall showed no statistically significant difference. The results do not fully support the hypothesis that there is a significant difference between reading MAP scores for first and second grade students in a WMSD dual-role induction model and first and second grade students in a PASD site-based induction model. The reading independent samples t-tests were used to explore the student achievement of the dual-role and site-based induction models, while further investigation through the repeated measures ANOVA provided a more in-depth analysis of the growth over the three-year period.

Grade one math (WMSD and PASD) 2012-13 results. The grade one math (2012-13) independent samples t-test was found to be statistically non-significant and failed to reject the null hypothesis. The WMSD ($M = 189.80$, $SD = 92.61$) and PASD ($M = 182.37$, $SD = 10.39$) did not differ significantly on average scores in grade one math, $t(359) = .60$, $p>.05$; $d = 0.11$. The effect size for this analysis ($d = 0.11$) was found to have a small effect, according to Cohen's convention. These results indicated that both induction models, dual-role and site-based, had similar math MAP outcomes for students in grade one during the 2012-2013 school year.

Grade one math (WMSD and PASD) 2013-14 results. The grade one math (2013-14) independent samples t-test was found to be statistically significant and rejected the null hypothesis. The WMSD ($M = 231.22$, $SD = 196.61$) and PASD ($M = 177.36$, SD

= 11.60) differed significantly on average scores in grade one math, t(329.49) = .00, p<.05; d = 0.39. The effect size for this analysis (d = 0.39) was found to be slightly below the medium effect, according to Cohen's convention. These results indicated that both induction models, dual-role and site-based, had different math MAP outcomes for students in grade one during the 2013-2014 school year.

Grade one math (WMSD and PASD) 2014-15 results. The grade one math (2014-15) independent samples t-test was found to be statistically non-significant and failed to reject the null hypothesis. The WMSD (M = 218.72, SD = 159.68) and PASD (M = 178.52, SD = 9.54) differed significantly on average scores in grade one math, t(374) = .23, p>.05; d = 0.36. The effect size for this analysis (d = 0.36) was found to be slightly below the medium effect, according to Cohen's convention. These results indicated that both induction models, dual-role and site-based, had similar math MAP outcomes for students in grade one during the 2014-2015 school year.

Table 19

WMSD and PASD Grade One Math t-test Results (2012-2015)

Year	District	*N*	*M*	*SD*	*Df*	*p*	*d*
2012-13	WMSD	318	189.80	92.61	359	.60	0.11
	PASD	43	182.37	10.39			
2013-14	WMSD	311	231.22	196.61	329.49	.00*	0.39
	PASD	22	177.36	11.60			
2014-15	WMSD	353	218.72	159.68	374	.23	0.36
	PASD	23	178.52	9.54			

Note. *N* = total population; *M* = mean; *SD* = standard deviation; *df* = degree of freedom(s); *p* = level of significance; *d* = cohen's d. Grade One Math Norm = 179.
*$p < .001$.

Grade two math (WMSD and PASD) 2012-13 results. The grade two math (2012-13) independent samples t-test was found to be statistically non-significant and failed to reject the null hypothesis. The WMSD (M = 189.79, SD = 80.63) and PASD (M = 203.68, SD = 10.62) differed significantly on average scores in grade one math, t(341) = .39, p>.05; d = 0.24. The effect size for this analysis (d = 0.24) was found to have a small effect, according to Cohen's convention. These results indicated that both induction models, dual-role and site-based, had similar math MAP outcomes for students in grade two during the 2012-2013 school year. Table 19 illustrates the grade one math independent samples t-test results for the WMSD and PASD for 2012-2015.

Grade two math (WMSD and PASD) 2013-14 results. The grade two math (2013-14) independent samples t-test was found to be statistically significant and rejected the null hypothesis. The WMSD (M = 254.20, SD = 221.05) and PASD (M = 197.27, SD = 11.52) differed significantly on average scores in grade one math, t(316.95) = .00, p<.05; d = 0.36. The effect size for this analysis (d = 0.36) was found to be slightly below a medium effect, according to Cohen's convention. These results indicated that both induction models, dual-role and site-based, had different math MAP outcomes for students in grade two during the 2013-2014 school year.

Grade two math (WMSD and PASD) 2014-15 results. The grade two math (2014-15) independent samples t-test was found to be statistically non-significant and failed to reject the null hypothesis. The WMSD (M = 224.47, SD = 152.54) and PASD (M = 197.68, SD = 13.32) differed significantly on average scores in grade one math, t(373) = .41, p>.05; d = 0.25. The effect size for this analysis (d = 0.25) was found to have a small effect, according to Cohen's convention. These results indicated that both

induction models, dual-role and site-based, had similar math MAP outcomes for students in grade two during the 2014-2015 school year. Table 20 illustrates the WMSD and PASD grade two math independent samples t-test results for 2012-2015.

Table 20

WMSD and PASD Grade Two Math t-test Results (2012-2015)

Year	District	*N*	*M*	*SD*	*df*	*P*	*d*
2012-13	WMSD	318	189.79	80.63	341	.39	0.24
	PASD	25	203.68	10.62			
2013-14	WMSD	311	254.20	221.05	316.95	.00*	0.36
	PASD	74	197.27	11.52			
2014-15	WMSD	353	224.47	152.54	373	.41	0.25
	PASD	22	197.68	13.32			

Note. *N* = total population; *M* = mean; *SD* = standard deviation; *df* = degree of freedom(s); *p* = level of significance; *d* = Cohen's d. Grade Two Math Norm = 191.
*$p < .001$.

Math overall (WMSD and PASD) 2012-13 results. The math overall (2012-13) independent samples t-test was found to be statistically significant and rejected the null hypothesis. The WMSD (M = 184.02, SD = 15.90) and PASD (M = 190.21, SD = 14.67) did not differ significantly on average scores in math, $t(563) = .00$, $p<.05$; d = 0.40. The effect size for this analysis (d = 0.40) was found to be slightly below the medium size effect, according to Cohen's convention. These results indicated that both induction models, dual-role and site-based, had different math MAP outcomes for students overall during the 2012-2013 school year.

Math overall (WMSD and PASD) 2013-14 results. The math overall (2013-14) independent samples t-test was found to be statistically significant and rejected the null hypothesis. The WMSD (M = 185.52, SD = 15.08) and PASD (M = 192.71, SD = 14.23)

did not differ significantly on average scores in math, t(612) = .00, p<.05; d = 0.49. The effect size for this analysis (d = 0.49) was found to have a medium effect, according to Cohen's convention. These results indicated that both induction models, dual-role and site-based, had different math MAP outcomes for students overall during the 2013-2014 school year.

Math overall (WMSD and PASD) 2014-15 results. The math overall (2014-15) independent samples t-test was found to be statistically non-significant and failed to reject the null hypothesis. The WMSD (M = 191.83, SD = 17.27) and PASD (M = 187.89, SD = 14.97) did not differ significantly on average scores in math, t(667) = .14, p>.05; d = 0.24. The effect size for this analysis (d = 0.24) was found to have a small effect, according to Cohen's convention. These results indicated that both induction models, dual-role and site-based, had different math MAP outcomes for students overall during the 2014-2015 school year. Table 21 illustrates the WMSD and PASD math overall independent samples t-test results for 2012-2015.

Table 21

WMSD and PASD Math Overall t-test Results (2012-2015)

Year	District	*N*	*M*	*SD*	*df*	*p*	*d*
2012-13	WMSD	497	184.02	15.90	563	.00*	0.40
	PASD	68	190.21	14.67			
2013-14	WMSD	518	185.52	15.08	612	.00*	0.49
	PASD	96	192.71	14.23			
2014-15	WMSD	624	191.83	17.27	667	.14	0.24
	PASD	45	187.89	14.97			

Note. *N* = total population; *M* = mean; *SD* = standard deviation; *df* = degree of freedom(s); *p* = level of significance; *d* = Cohen's d.
*$p < .001$.

Discussion of math results. The independent samples t-test findings demonstrated a statistically significant difference in year two of both grade one and grade two MAP math scores, and a statistically significant difference in year one and year two for overall MAP math. However, there was no statistically significant difference in year one and year three of math in grade one and grade two. Additionally, year three of math overall showed no statistically significant difference. The results do not fully support the hypothesis that there is a significant difference between math MAP scores for first and second grade students in a WMSD dual-role induction model and first and second grade students in a PASD site-based induction model. The math independent samples t-tests were used to explore the student achievement of the dual-role and site-based induction models, while further investigation through the repeated measures ANOVA provided a more in-depth analysis of the growth over the three-year period.

Repeated measures analysis of variance (ANOVA) tests. I used a computerized software program; Statistical Package for the Social Sciences (SPSS) to test the null hypothesis regarding the equality of means. Repeated measures analysis of variance (ANOVA) tests were used, also referred to as a within-subjects factor because comparisons were made multiple times within the same subject rather than across different subjects. Repeated measures ANOVA compares the average score at multiple time periods to determine whether or not change occurred over time (Lix, Keselman & Keselman, 1996). Repeated measures ANOVA performs an *F* test that is used to test the differences among two or more means (scores). In this study, I used repeated measures ANOVA to explore more closely the relationship between the induction model (IV) and student achievement (DV). The important point with this study design was that the same

participants (WMSD and PASD) were measured more than once on the same dependent variable (scores). I did not test the independent variable (induction model) against other dependent variables: Students with disabilities (SWD), free and reduced meals (FARMS), and location (rural and urban).

Repeated measures ANOVA data sets were organized by variables and scores in *Excel* and uploaded to SPSS. Each data set included the identification of the variables, labels, measures (induction model; nominal and score; scale), and decimals were ommitted. The within-subjects name was *Time*, number of levels assigned were two, and induction model was the between-subjects factor. I reported the *Wilk's Lamda* normality test value, the degrees of freedom (*df*), the *F* value (*F*) and the Sign. Value (*p*). Decimals were rounded up for .5 or higher and down for lower than .5. A test for normality using SPSS statistics was conducted to report for each repeated measures ANOVA test (IBM Corp., 2012). If the value of $p < 0.05$, the null hypothesis was rejected because the test was significant, and the data were not normally distributed. If the test accepted the null hypothesis ($p > .05$), then the data were normally distributed.

Repeated measures ANOVA using SPSS statistics were used to compare the equality of means of:

- first grade, first year reading scores of the WMSD and PASD to second grade, second year reading scores of WMSD and PASD;
- first grade, first year math scores of the WMSD and PASD to second grade, second year math scores of WMSD and PASD;
- first grade, second year reading scores of the WMSD and PASD to second grade, third year reading scores of WMSD and PASD; and

- first grade, second year math scores of the WMSD and PASD to second grade, third year math scores of WMSD and PASD.

Reading repeated measures ANOVA results (2012-13 and 2013-14). The repeated measures ANOVA for reading MAP data (2012-13 and 2013-14) showed that for the between-subjects factors (233 WMSD and 44 PASD) there were two independent variables (WMSD; 1 and PASD; 2). The difference in MAP scores between the first time point; WMSD (M = 175.73, SD = 14.58); PASD (M = 179.07, SD = 11.89) and second time point; WMSD (M = 184.55, SD = 15.47); PASD (M = 197.68, SD = 10.92) were statistically significant, Wilk's Lambda = .815, F(1, 275) = 62, p = .00, Partial Eta Squared = 18%. There was an above medium effect size, and the null hypothesis was rejected. There were two within-subjects factors (time one and time two) and two dependent variable factors (first grade reading 2012-13 and second grade reading 2013-14). A test of variability using Shapiro-Wilk showed the WMSD had non-normal distribution (p = .00) and the PASD had normal distribution (p = .18). Table 22 and Figure 3 illustrates the repeated measures ANOVA reading results for the 2012-2013 to 2013-2014 school years.

Table 22

Repeated Measures ANOVA Reading Results (2012-2013 to 2013-2014)

	First Time		Second Time						
	M	*SD*	*M*	*SD*	*Wilk's lambda*	*F*	*p*	Partial Eta Squared	Shapiro-Wilk
WMSD	175.73	14.58	184.55	15.47	.815	(1,275)	.00*	18.5	.00
PASD	179.07	11.89	197.68	10.92					.18

Note. First grade, first year reading scores (first time column) to second grade, second year reading scores (second time column). *M* = mean; *SD* = standard deviation; *F* = variance; *p* = level of significance.
*$p < .001$.

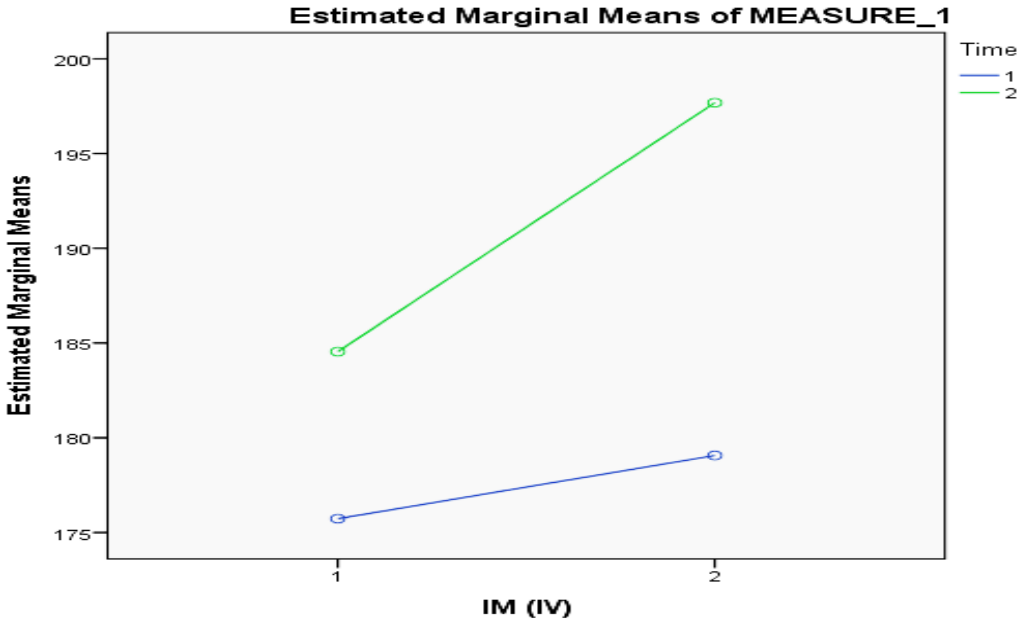

Figure 3. Repeated Measures ANOVA Plot for Reading (2012-13; 2013-2014). IM=Induction Model (Dual-role =1 and Site-based =2). Time 1 = 2012-2013 change over time; Time 2 = 2012-2014 change over time.

Reading repeated measures ANOVA results (2013-14 and 2014-15). The repeated measures ANOVA for reading MAP data (2013-14 and 2014-15) showed that, for the between-subjects factors (267 WMSD and 21 PASD) there were two independent variables. The difference in MAP scores between the first time point; WMSD (M =

176.73, SD = 13.15); PASD (M = 172.67, SD = 13.75) and second time point; WMSD (M = 191.67, SD = 14.91); PASD (M = 189.90, SD = 12.40) were statistically significant, Wilk's Lambda = .846, F(1, 286) = 52, p = .00, Partial Eta Squared = 15%. Therefore, the null hypothesis was rejected. There were two within-subjects factors (time one and time two) and two dependent variable factors (first grade reading 2013-2014 and second grade reading 2014-2015). There was a medium effect size. A test of variability using Shapiro-Wilk showed the WMSD had non-normal distribution (p = .00) and the PASD had normal distribution (p = .07). Table 23 and Figure 4 illustrates the repeated measures ANOVA reading results for the 2013-2014 and 2014-2015 school years.

Table 23

Repeated Measures ANOVA Reading Results (2013-2014 and 2014-2015)

	First Time		Second Time						
	M	*SD*	*M*	*SD*	*Wilk's lambda*	*F*	*P*	Partial Eta Squared	Shapiro-Wilk
WMSD	176.73	13.15	191.67	14.91	.846	(1,286)	.00*	15.4	.00
PASD	172.67	13.75	189.90	12.40					.07

Note. First grade, second year reading scores to second grade, third year reading scores.
M = mean; *SD* = standard deviation; *F* = variance; *p* = level of significance.
*$p < .001$.

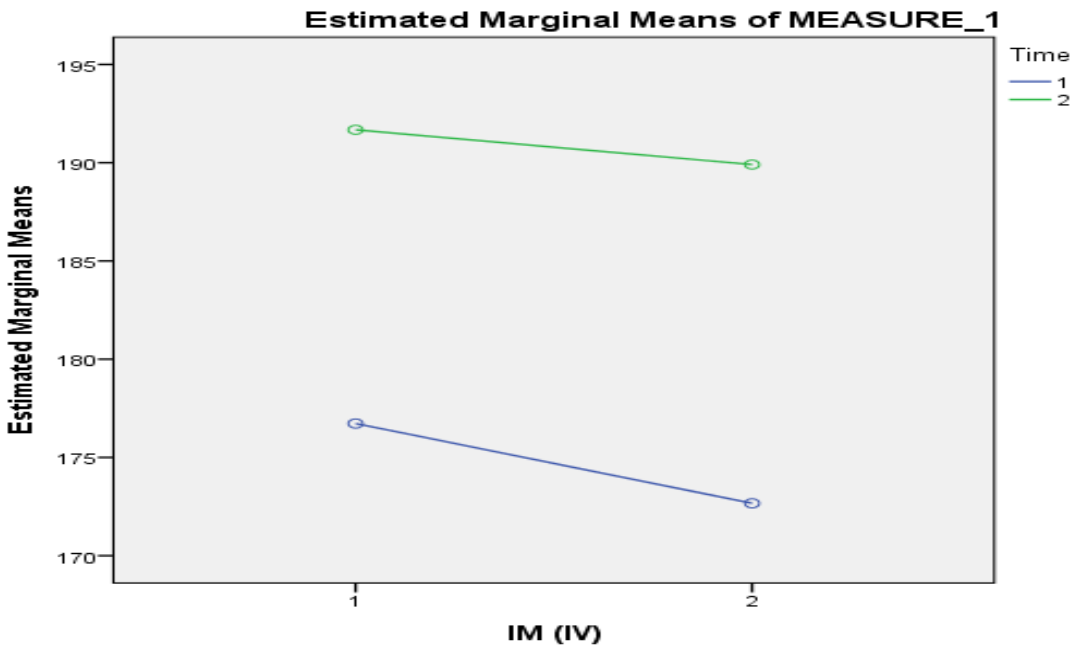

Figure 4. Repeated Measures ANOVA Plot for Reading (2013-14; 2014-2015). IM=Induction Model (Dual-role =1 and Site-based =2). Time 1 = 2013-2014 change over time; Time 2 = 2014-2015 change over time.

Math repeated measures ANOVA results (2012-13 and 2013-14). The repeated measures ANOVA for math MAP data (2012-13 and 2013-14) showed that for the between-subjects factors (224 WMSD and 43 PASD) there were two independent variables (WMSD; 1 and PASD; 2). The difference in MAP scores between the first time point; WMSD (M = 179.15, SD = 14.93); PASD (M = 182.37, SD = 10.39) and second time point; WMSD (M = 190.96, SD = 15.09); PASD (M = 197.70, SD = 11.05) were statistically significant, Wilk's Lambda = .817, F(1, 265) = 59, p = .00, Partial Eta Squared = 18%. Therefore, the null hypothesis was rejected. There were two within-subjects factors (time one and time two) and two dependent variable factors (first grade math 2012-13 and second grade math 2013-14). There was a medium effect size. A test of variability using Shapiro-Wilk showed the WMSD had non-normal distribution (p = .04) and the PASD had normal distribution (p = .92).

Table 24 and Figure 5 represents the repeated measures ANOVA math results for the 2012-2013 and 2013-2014 school years.

Table 24

Repeated Measures ANOVA Math Results (2012-2013 to 2013-2014)

	First Time		Second Time						
	M	*SD*	*M*	*SD*	*Wilk's lambda*	*F*	*p*	Partial Eta Squared	Shapiro-Wilk
WMSD	179.15	14.93	190.96	15.09	.817	(1, 265)	.00*	18.3	.04
PASD	182.37	10.39	197.70	11.05					.92

Note. First grade, first year math scores (first time column) to second grade, second year math scores (second time column). *M* = mean; *SD* = standard deviation; *F* = variance; *p* = level of significance.
*$p < .001$.

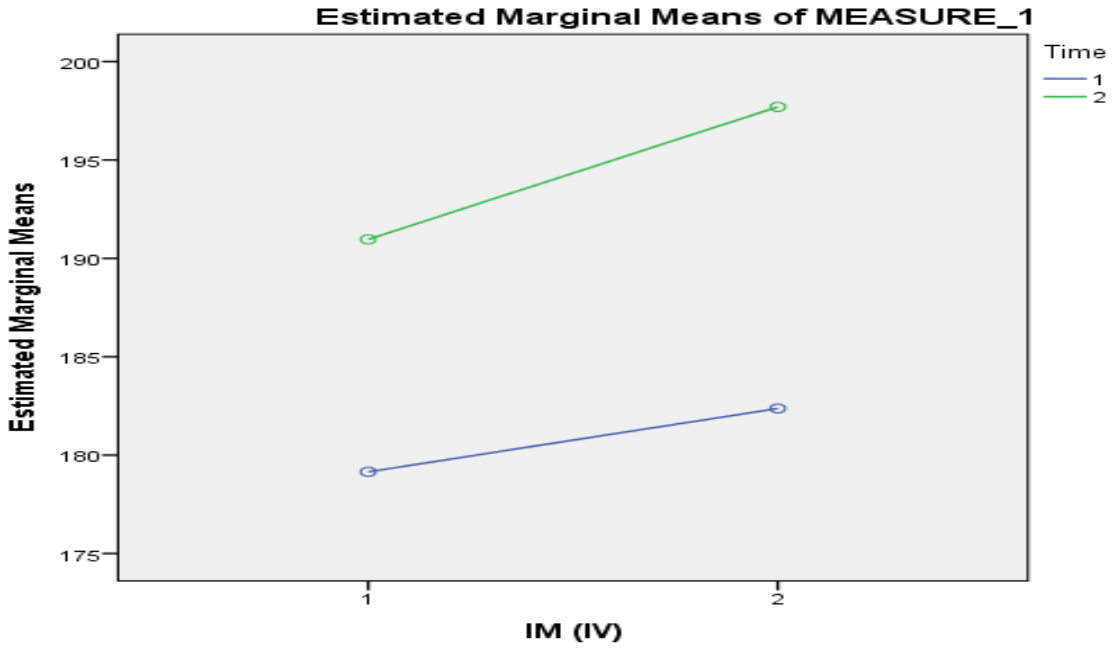

Figure 5. Repeated Measures ANOVA Plot for Math (2012-13; 2013-2014). IM=Induction Model (Dual-role =1 and Site-based =2). Time 1 = 2012-2013 change over time; Time 2 = 2013-2014 change over time.

Math repeated measures ANOVA results (2013-14 and 2014-15). The repeated measures ANOVA for math MAP data (2013-14 and 2014-15) showed that, for the between-subjects factors (268 WMSD and 22 PASD) there were two independent variables (WMSD; 1 and PASD; 2). The difference in MAP scores between the first time point; WMSD (M = 181.21, SD = 13.45); PASD (M = 177.36, SD = 11.60) and second time point; WMSD (M = 198.50, SD = 15.10); PASD (M = 197.68, SD = 13.32) were statistically significant, Wilk's Lambda = .789, F(1, 288) = 77, p = .00, Partial Eta Squared = 21%. Therefore, the null hypothesis was rejected. There was not quite a large effect size. There were two within-subjects factors (time one and time two) and two dependent variable factors (first grade math 2013-14 and second grade math 2014-15). A test of variability using Shapiro-Wilk showed the WMSD had non-normal distribution (p = .04) and the PASD had normal distribution (p =.92), as the PASD (site-based) induction model made better progress in math achievement over the 2013-2014; 2014-15 school year. Table 25 and Figure 6 illustrates the repeated measures ANOVA math results for the 2013-2014 and 2014-2015 school year.

Table 25

Repeated Measures ANOVA Math Results (2013-2014 and 2014-2015)

	First Time		Second Time						
	M	*SD*	*M*	*SD*	*Wilk's lambda*	*F*	*p*	Partial Eta Squared	Shapiro-Wilk
WMSD	181.21	13.45	198.50	15.10	.789	(1, 288)	.00*	21.1	.04
PASD	177.36	11.60	197.68	13.32					.92

Note. First grade, second year math scores (first time column) to second grade, third year math scores (second time column). *M* = mean; *SD* = standard deviation; *F* = variance; *p* = level of significance.
*$p < .001$.

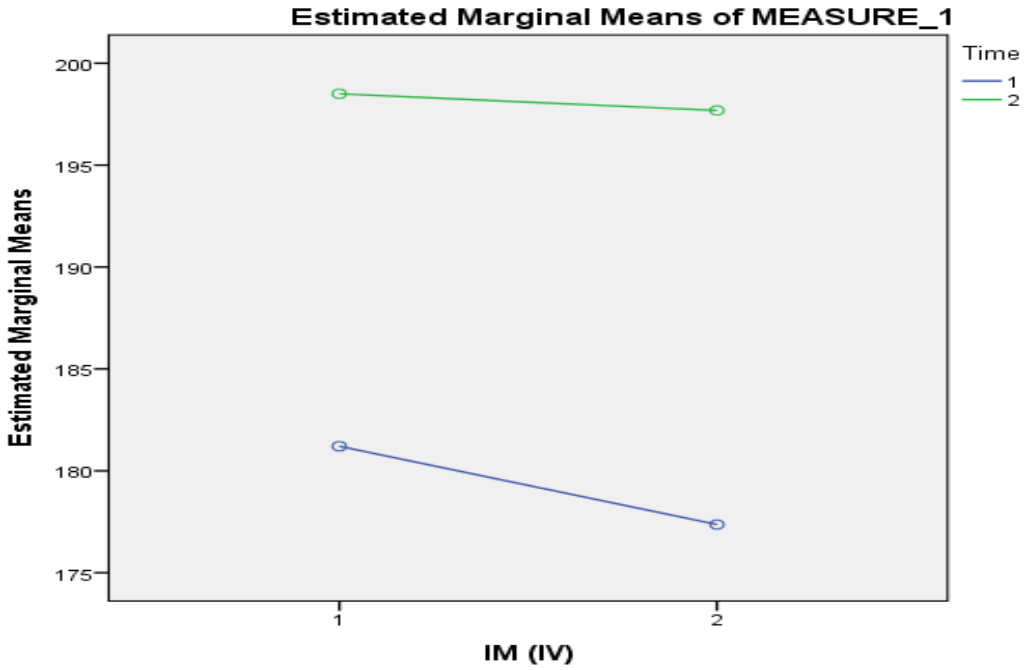

Figure 6. Repeated Measures ANOVA Plot for Math (2013-14; 2014-2015). IM=Induction Model (Dual-role =1 and Site-based =2). Time 1 = 2013-2014 change over time; Time 2 = 2014-2015 change over time.

The PASD showed normal distribution and all WMSD showed non-normal distribution. The test for normality is less of an issue, as within-group comparisons in repeated measures do not assume normality, thus, there was no violation of any

assumptions with these results. As far as the between-groups comparisons, repeated measures ANOVA was a robust test (as far as normality) and was not an issue (Lix et al. 1996). The risk was more likely to give a false positive, which is to say there is a difference when there was no difference. The results indicated the *p* values were significantly below the .05 threshold. This did not change the findings for between-subjects, but should be read with caution when the assumption of normality is violated.

Discussion of secondary data. The secondary data findings supported GRQ1.1a "Is there a significant difference between reading and math MAP scores for first and second grade students in a WMSD dual-role induction model and that of a PASD site-based model?" Eight of the twelve independent samples t-tests showed no statistically significant difference in the dual-role and site-based induction models, as they failed to reject the null hypothesis. The null hypothesis stated, "There is no significant difference between reading and math MAP scores for first and second grade students in a WMSD dual-role induction model and first and second grade students in a PASD site-based induction model." Four of the twelve independent samples t-tests rejected the null hypothesis and showed a statistically significant difference between the dual-role and site-based induction models. All of which were from the second year data sets. The overall reading and math were similar in results (includes grades one and two), as the first two years rejected the null hypothesis and the last year failed to reject the null hypothesis. The four repeated measures ANOVA outputs showed a rejection of the null hypothesis, which illustrated there was greater change over time with the site-based induction model as compared to the dual-role induction model. There was a greater change over time from the second to the third year for the WMSD.

The data outcomes from the independent samples *t*-tests and repeated measures ANOVA tests brought about questions as to the professional development in regards to MAP data analysis in the WMSD for new teachers. For the purpose of this study, there was a need to further investigate the professional development that was offered to new teachers in reading and math in the WMSD.

Phase One (Step Two) – Comparison of WMSD and PASD Retention Data Findings

The decision to use attrition data was based on the need to compare retention of new teachers in a WMSD (dual-role) to a PASD (site-based) by using the attrition data (those who were hired and those who left) for new teachers for a period of three years. There was a huge disparity in the numbers between the WMSD and the PASD that it was not a valid comparison. To that end, only the percentages were reported to show the difference in retention for each year.

The primary research question for this study was, "Does a WMSD dual-role induction model (IV) affect retention of new teachers (DV) and student achievement (DV), and if so, how?"

The supporting research question (SRQ), guiding research questions (GRQ) and hypothesis for retention were:

SRQ2: To what extent does a WMSD dual-role induction model affect retention of new teachers?

GRQ1.2a: Is there a difference between retention of new teachers participating in a WMSD dual-role induction model and that of a PASD site-based induction model?

H2: There is a significant difference between new teacher retention in a WMSD dual-role induction model and that of a PASD site-based induction model.

Null Hypothesis: There is no significant difference between new teacher retention in a WMSD dual-role induction model and that of a PASD site-based induction model.

Measures of central tendency. Measures of central tendency (percentages) were used to determine the retention of new teachers in each district's induction model (WMSD and PASD). However, there was no valid comparison in determining the effectiveness of retention between that of a dual-role induction model (WMSD) and a site-based induction model (PASD). New teacher retention was vastly different, as the PASD retained 100% of teachers, which made it not valid to compare. There will be a need to wait until the PASD reaches comparable new hires to conduct further statistical tests. Percentages were used to calculate the difference of new teacher retention and attrition between the first and third year. The percentages provided some certainty that that the PASD was successful in retaining new teachers, and the WMSD improved new teacher retention since the onset of the dual-role induction model, as the WMSD attrition drops from 18% to 9% over three years. There was no evidence that indicated the success of retention was related to the induction models. A definite conclusion cannot be reached, due to the disparity of new hires to the PASD, as well as other relating factors not addressed in this study, to either reject or fail to reject the null hypothesis that there was no significant difference in retention of new teachers participating in a dual-role induction model and that of a site-based induction model.

Table 26 illustrates the new teacher hires for each year (2012-2015), those new teachers that stayed, and those new teachers that left each district (WMSD & PASD), as well as the percentage difference of new teachers who left each district.

Table 26

WMSD and PASD New Teacher Retention Data (2012-2015)

Year	District	Hired	Stayed	Left	% Difference
2012-2013	WMSD	289	238	51	18%
	PASD	7	7	0	0%
2013-2014	WMSD	305	265	39	13%
	PASD	11	11	0	0%
2014-2015	WMSD	331	301	30	9%
	PASD	11	11	0	0%

Note. WMSD rows adapted from "Board of Education of Washington County Enrollment," 2014. Retrieved from *Excel* file. PASD rows adapted from "Greencastle School District Enrollment," 2015. Retrieved from *PDF* file.

Each year there was significant new teacher retention growth in the WMSD. As a district, the WMSD hired more teachers each year, increasing from $N = 289$ in 2012-2013 to $N = 331$ in 2014-2015, and progressively retained new teachers ranging from $N = 238$ in 2012-2013 to $N = 301$ in 2014-2015 (Figure 7) (Margevich, personal communication, December 18, 2015). In addition, the percentage difference decreased from 18% to 9%. In the dual-role induction model, new teachers are assisted for a period of three years.

New teacher retention growth in the PASD revealed that as a district there was zero loss of new teachers. As a district, the PASD data indicated even when hiring was less, as in 2012-2013 with $N = 7$ new hires, or the greatest in 2013-2015 with $N = 11$, all new teachers were retained (Figure 8) (Crider, personal communication, November 20, 2015). The percentage difference did not fluctuate, as there was zero loss of new teachers over the three-year period. New teachers in the PASD were part of a site-based mentor model, in which they were assisted for the first year of teaching.

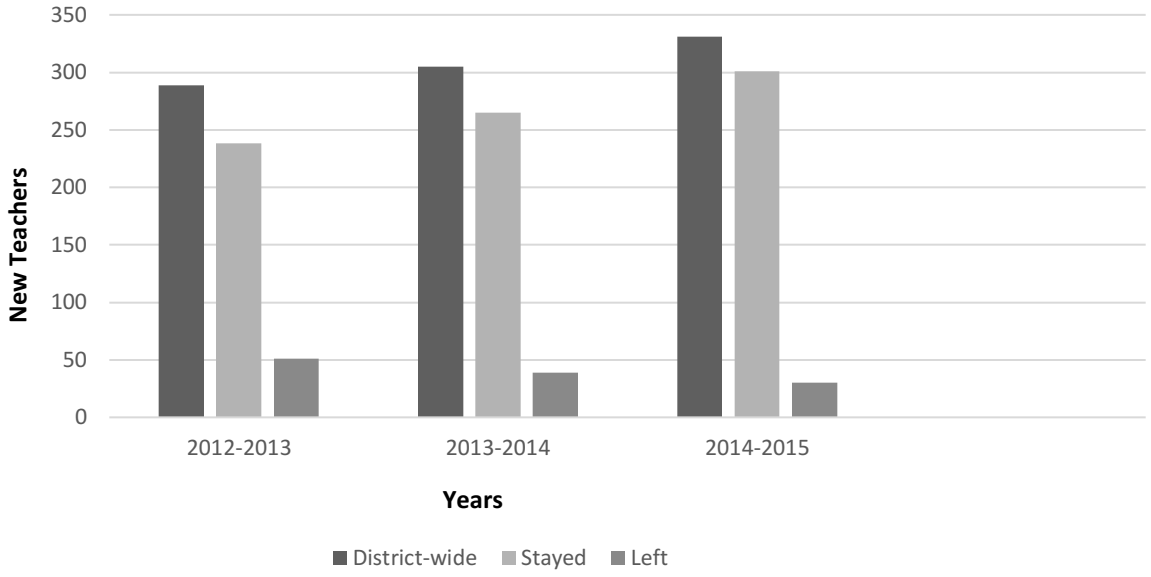

Figure 7. WMSD New Teacher Retention Data for 2012-2015. Data shows the retention rate for each year. Adapted from Washington County Public Schools. (2014). *Board of Education of Washington County Enrollment*. Retrieved from *Excel* file.

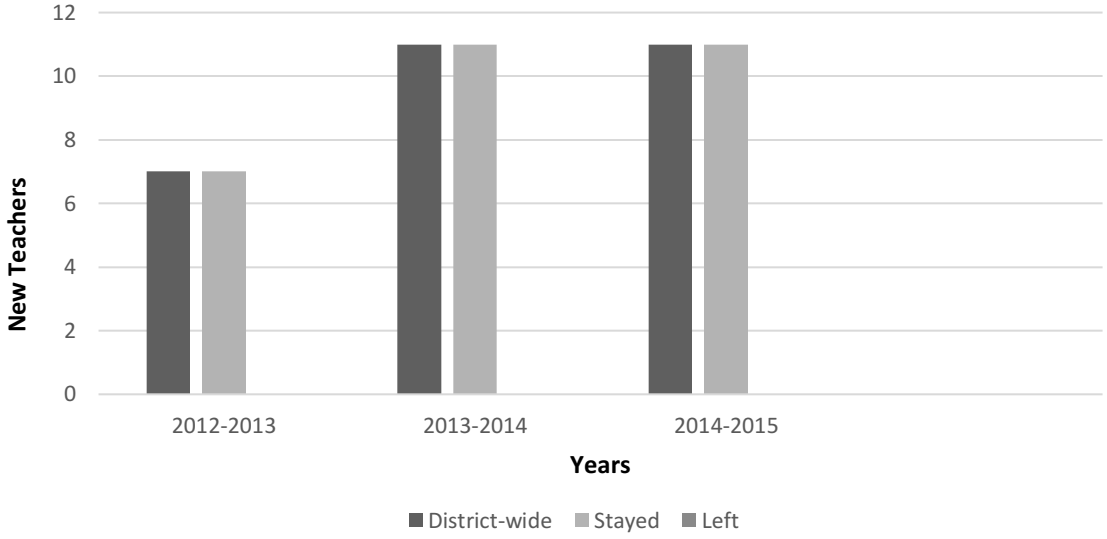

Figure 8. PASD New Teacher Retention Data for 2012-2015. Data shows the retention rate for each year. Adapted from Greencastle School District Schools. (2015). *Greencastle School District Enrollment*. Retrieved from *PDF* file.

Discussion of retention data. The retention data findings did support the PRQ, SRQ2, and GR1.2a, but did not support H2 of Phase One (Step Two). There was a considerable difference in new teacher retention between the two induction models. The WMSD induction model positively affected retention, as attrition numbers decreased over the 2012-2015 school years (18%-9%). The PASD retained 100% of new teachers resulting in more of a positive effect on new teacher retention. There was no certainty that the null hypothesis was rejected, as no statistical test was conducted, due to the disparity of the population sizes.

Phase Two – Online Survey Findings

An online survey was administered to new teachers in primary grades kindergarten, first, and second (K-2) in the WMSD as a way to further explore the effectiveness of new teacher retention and student achievement in the dual-role induction model. The survey, "Survey for New Teachers K-2" (Appendix D), was organized into three sections: demographics, evaluation of a dual-role model, and instruction. General demographic questions were beneficial in establishing the characteristics of the participants surveyed. Questions regarding evaluation of a dual-role induction model were essential to determine how new teachers were assisted with professional development and the capacity of the support system. The section of the survey for instruction was critical in determining what data new teachers used to inform reading and math instruction.

As part of the survey, short, open response questions, as well as multiple choice questions were asked that elicited responses related to evaluation, instruction, and reading and math assessment data of the dual-role induction model. The survey provided a list of

factors for professional development, support systems and data used that aided in determining further exploration through semi-structured interviews. The semi-structured interview questions were developed to provide a more in-depth investigation as to the "why" of the survey responses, as one method was insufficient in providing complete answers to the purpose of the study.

The primary research question for this study was, "Does a WMSD dual-role induction model (IV) affect retention of new teachers (DV) and student achievement (DV), and if so, how?"

The supporting research question (SRQ), guiding research questions (GRQ) and hypothesis for student achievement were:

SRQ1: To what extent does a WMSD dual-role induction model affect student achievement of new teachers in kindergarten, first and second grades?

The supporting research question (SRQ), guiding research questions (GRQ) and hypothesis for retention were:

SRQ2: To what extent does a WMSD dual-role induction model affect retention of new teachers?

GRQ1.2b: What experiences lead new teachers (kindergarten, first and second) to retention in a WMSD?

GRQ1.2c: What experiences lead new teachers (kindergarten, first and second) to attrition in a WSMD?

Survey data were automatically analyzed into charts, graphs, and listed annotations on *Survey Monkey*. Percentages, means, and optional write-in answers were examined from the survey, not only to further determine effectiveness of a dual-role

model (IV) on new teacher retention and student achievement (DVs), but also to assist in determining information to further develop interview questions.

Respondent profile. This sample size was representative of the kindergarten, first, and second grade ($N = 46$) new teachers across 26 of the 27 elementary schools within the WMSD. Of which, only 41 were selected because the WMSD did not permit anyone who left the WMSD to participate. Invitations to participate in the survey were sent, via email (Appendix B), to 41 WMSD new teacher potential respondents who were employed as kindergarten, first, or second grade (K-2) teachers in the 2014-2015 school year. New teachers were selected based on (a) if they were non-tenured, 1-3 years of teaching experience (b) if they were employed as a new-teacher in the 2014-2015 school year, and (c) if they taught a primary grade (K-2) in the 2014-2015 school year. One elementary school was excluded because there were no K-2 grade teachers, as it was an elementary school for third, fourth, and fifth grades. The participants were selected based on the fact they were part of the dual-role induction model during the 2014-2015 school year.

All surveys included a consent form (Appendix C), indicating the participant's rights and role in the survey. The survey was designed to collect meaningful demographics, behavior, and opinions from those new teachers who had been part of the dual-role induction model for the three years of existence. Due to WMSD IRB restrictions, only new teachers who stayed in the WMSD in 2014-2015 were represented in the survey, leaving a partial response to survey question (SQ) 7. Therefore, 100% of the survey participants included only those new teachers who stayed in the district. There was no opportunity to survey new teachers who left the district. Data collection began on

December 15, 2015 and was completed in mid-January 2016. A total of five weeks were given to respond; however, one week was a holiday break. After the initial email invitation was sent, weekly reminder emails were sent in the first three weeks, as well as three emails in the last two weeks followed until the survey administration closed on January 19, 2016. By the end of the survey administration period, a total of 29 had responded; of those, 10 volunteered to a semi-structured interview, as indicated on the last question of the survey (Appendix D). The survey yielded a response rate of 71%. Kindergarten teachers represented 21%, first grade teachers represented 31%, and second grade teachers represented 48% of the survey respondents.

Survey section one – Demographic. The purpose for asking the first section of survey questions was to determine the respondent sample represented in the study population. A comparison of demographic characteristics was completed by asking dichotomous questions. The demographic categories included gender, grade level position, degree earned, and prior career choice. These categories were chosen in order to determine characteristics of K-2 new teachers within the WMSD. The data results from each category provided information as to how many new teachers from each grade level participated in the survey, if they had a prior career, and if so, what was the previous career. In addition, the degree category was relevant in determining the education of the respondents surveyed. The survey questions in this section are representative categories that were permitted by the WMSD as part of the Institutional Review Board (IRB) process (Appendices I & J).

SQ1 Gender? Of the 29 respondents, 97% self-identified as females and 3% self-identified as male. The population sample provided the point of view from one male and

28 females.

SQ2 Grade Level Position? The respondent group was comprised of 21% kindergarten teachers, 31% first grade teachers, and 48% second grade teachers. All (100%) of second grade teachers responded to the survey, which was the largest group of new teachers from the 2014-2015 school year.

SQ3 Years of Teaching? Experience of teachers ranged from one year of experience (7%), two years of experiences (17%), to three years' experience (66%). Three of the respondents had prior teaching experience ranging from five to eight years. Knowing that 50% of new teachers leave the profession after five years, the information supported asking interview questions as to what attracted respondents to teaching (Carroll, 2014).

SQ4&5 Prior Career Choice? There were a total of 22 respondents (76%) who had no experience prior to teaching. Seven respondents (24%) had a career prior to teaching that included: 20 years at Home Depot, Recreational and Game Management at UMBC, Accountant, Child Care, HR Manager, Therapeutic Support Staff, and Human Resources Specialist. Only two prior career choices, Child Care and Therapeutic Support Staff, involved working in the education field. Teaching as a second career opened up a "combination of experience and perspective," which brings about a "contagious enthusiasm that motivates" students and teachers (All Education Schools, 2016, para 1).

SQ6 Degree Earned? There was an oversampling of new teachers in the rank of a bachelor's degree (72%) compared to the population of new teachers who ranked at a master's degree (28%). There were zero percent of new teachers with an associate's or doctorate degree. The level of degree spoke to the demand of local school districts to hire

high-quality teachers. “The essence of a recruitment program is not to hire just to fill a position, but rather to acquire the number and type of people necessary for the present and future success of the school district” (Center for Public Education, 2008, para 1). There was also a need to know what new teachers’ plans were for improving their education, and where they saw themselves in five years. The information from SQ3 generated information to support interview questions as to future plans of new teachers in earning higher degrees, as well as plans for remaining in the teaching field.

Table 27 provides an overview of the survey respondents demographic characteristics by gender, grade level position, degree earned, years of teaching, and prior career choice.

Table 27

Survey Respondents' Demographic Characteristics by Gender, Grade Level Position, Degree Earned, Years of Teaching, Prior Career Choice

	Population (N = 41)	% Population	Respondents	% Respondents	% Difference
Gender					
Female	N/A	N/A	28	97%	N/A
Male	N/A	N/A	1	3%	N/A
Grade Level Position					
Kindergarten	12	29%	6	21%	11%
First	15	37%	9	31%	6%
Second	14	34%	14	48%	14%
Degree Earned					
Associate's	N/A	N/A	0	0%	N/A
Bachelor's	N/A	N/A	21	72%	N/A
Master's	N/A	N/A	8	28%	N/A
Doctorate	N/A	N/A	0	0%	N/A
Years of Teaching					
1	N/A	N/A	2	7%	N/A
2	N/A	N/A	5	17%	N/A
3	N/A	N/A	19	66%	N/A
4-8	N/A	N/A	3	10%	N/A
Prior Career					
Yes	N/A	N/A	7	24%	N/A
No	N/A	N/A	22	76%	N/A

Note. Respondents were not required to answer every question, and N/A represent no data provided from district determining gender, degree earned, years of teaching, or prior career choice. Population of survey population, N = 41. Survey respondent's n = 29.

Survey section two – Evaluation of dual-role model. The purpose for asking the following set of survey questions was to determine the perspective of new teachers about what support systems and professional growth opportunities were most beneficial. Section two of the survey entailed multiple-choice questions to choose from, write in answers, as well as Likert-type scale responses.

The guiding research questions (GRQs) that led this section were:

GRQ1.2b: What experiences lead new teachers (kindergarten, first and second) to retention in a WMSD?

GRQ1.2c: What experiences lead new teachers (kindergarten, first and second) to attrition in a WSMD?

Survey questions (SQs)

SQ8 Why did you stay in the district?

SQ9 What supports have been beneficial to you in your professional growth?

SQ12 What rating would you give the dual-role induction model?

SQ13 What factor had the greatest influence on your rating of the dual-role induction model?

SQ8 Why did you stay in the district? Respondents could have chosen more than one answer for this question, having the greatest reason for staying in the district at 93%, with 27 of the 29 participants that selected this answer. Location was ranked the highest with 93%, followed by family at 69%, then salary coming in at 38%, support system having 31%, and professional development coming in at 7%. Even though professional development was rated the lowest, this did not indicate professional development was insufficient, rather not a top choice for staying. Therefore, further investigation in interviews addressed the "why" of professional development being offered and the positive and negative impacts on teaching practice. Not only does professional development assist in providing teachers with up-to-date research practices on how children learn, but the learning opportunities introduced teachers to technology tools, as well as new curriculum resources (Edutopia, 2008). Table 28 represents the factors and

percentages for staying the WMSD.

Table 28

Factors and Percentages for Staying in the WMSD

Location	93%
Family	69%
Salary	38%
Support System (principal, mentor, colleagues, etc.)	31%
Professional Development	7%
Other	N/A

Note. There were no write-in responses for this survey question, indicated as N/A on table.

SQ9 What supports have been beneficial to you in your professional growth? All 29 participants responded to this question, which included multiple choices. Colleagues ranked the highest at 89%, professional development came in second with 62%, principal ranked third with 45%, followed by mentor with 41%. From the ranking, professional development out-ranked the principal and mentor. Further interview investigation determined what specific professional development, and from whom, has made this difference. As with the process of professional learning is to improve and increase the capabilities of staff through access to education and training in the workplace, outside the workplace, as well as through observing others in the profession (Business Dictionary, 2016). Professional development takes on many roles, and to find the new teacher's view of what represents professional development was key to understanding the supports they view as beneficial to their professional growth.

Further examination needed to be addressed as to what was being offered by

colleagues compared to the mentor, which has been indicated on the survey as a critical benefit to professional growth. As New Teacher Center (NTC) (2012) denotes that 1.5 to 2.5 hours of full-release mentor time has proven to have the most impact on new teacher success. Therefore, there was a need to know from the information provided in the survey, how much time was spent in the dual-role induction model between the new teacher and colleagues, as well as the mentor, and what made the time with one more valuable than the other. Table 29 illustrates the ranking of percentages for supports to professional growth.

Table 29

Ranking of Beneficial Supports to Professional Growth

Colleagues	89%
Professional Development	62%
Principal	45%
Mentor	41%
Other	N/A

Note. There were no write-in responses for this survey question, indicated as N/A on table.

SQ12 What rating would you give the dual-role induction model? All 29 respondents rated the dual-role induction model by using a Likert-type scale, ranging from excellent (level 5 being the highest rating), good (level 4 rating), average (level 3 rating), fair (level 2 rating), and poor (level 1 being the lowest rating). There was no specific interpretation of each level given, other than the ranking order description mentioned above. The highest rating was “good” (38%), and “average” (31%) came close behind in second place. The lowest ranking was “poor” (21%) and “excellent” (7%) ranked fourth. Overall, this display of averages demonstrated that the majority of the

respondents ranked the dual-role induction model on a high scale, however; they were not asked to explain their rationale for their rating. Therefore, further discussion with an interview question was needed in order to address why new teachers rated the dual-role induction model the way they did, and if there would be anything they would change about the dual-role induction model. Table 30 illustrates the rankings for the dual-role induction model, as well as the percentages for each scale.

Table 30

Ranking Scale and Percentages for Evaluating Dual-role Induction Model

5	4	3	2	1
Excellent	Good	Average	Fair	Poor
7%	38%	31%	21%	3%

SQ13 What factor had the greatest influence on your rating of the dual-role induction model? This was a follow up question to the ranking question, in which respondents were given the opportunity to determine which factor of the dual-role induction model impacted their rating of the model. Twenty-eight participants responded to this question, and one respondent wrote in a response. Overwhelmingly, 50% of the participants responded that professional development was the greatest influence on their rating of the dual-role induction model. The mentor came in second with 32%, colleagues 14%, and the principal at 4%. One participant wrote in "organization" as to why they rated the dual-role induction model the way they did.

There was no indication as to if these factors had a positive or negative impact on teacher growth and if they had an impact on student achievement, as it was a ranking question. Therefore, further investigation with interviews was needed to determine

whether these factors in the dual-role induction model had a positive or negative impact on their teaching growth, and what types of interactions (positive or negative) were offered that impacted student achievement. Table 31 illustrates the greatest influences on the rating of the dual-role induction model by percentages.

Table 31

Greatest Influence on Rating of Dual-role Induction Model

Professional Development	50%
Mentor	32%
Colleagues	14%
Principal	4%
Other	Organization

Survey section three – Instruction. The purpose for asking the following set of survey questions was to determine what reading and math assessment data, and the frequency of using that data, was used to inform instruction. Section three of the survey entailed multiple-choice questions, write- in responses, as well as Likert-type scale questions.

The survey questions in section three of the study provided support for the primary research question for this study, "Does a WMSD dual-role induction model (IV) affect retention of new teachers (DV) and student achievement (DV), and if so, how?"

The supporting research (SRQ) for student achievement was:

SRQ1: To what extent does a WMSD dual-role induction model affect student achievement of new teachers in kindergarten, first and second grades?

The supporting research question (SRQ) and guiding research questions (GRQ)

for retention were:

SRQ2: To what extent does a WMSD dual-role induction model affect retention of new teachers?

GRQ1.2b: What experiences lead new teachers (kindergarten, first and second) to retention in a WMSD?

GRQ1.2c: What experiences lead new teachers (kindergarten, first and second) to attrition in a WSMD?

Survey questions (SQ)

SQ14 – What types of assessment data do you use to inform your reading instruction?

SQ15 – How frequently do you use assessment data to inform your reading instruction?

SQ16 – What types of assessment data do you use to inform your math instruction?

SQ17 – How frequently do you use assessment data to inform your math instruction?

SQ14 What types of assessment data do you use to inform your reading instruction? Respondents had the choice to choose multiple answers to this question, as there were multiple assessment data pieces that informed instruction in the WMSD. Reading records were to be administered as often as needed to determine a student's reading level, MAP was administered three times a year in grades K-2, Concepts of Print was administered in kindergarten throughout the year, and the Kindergarten Readiness Assessment (KRA) was administered at the beginning of the year in kindergarten. This

question was asked in an attempt to illicit how often the data points provided by the WMSD were used to inform instructional practices. This question was also used in the triangulation with MAP data analysis that sought convergence across qualitative and quantitative methods.

Twenty-eight (97%) respondents used reading records, twenty-two used both MAP and *Fundations* (76%), seven used Concepts of Print (24%), and a small portion used KRA (14%); however, only kindergarten teachers used the KRA. Two respondents wrote in "observation" and "formative assessment" as alternative measures to inform reading instruction. Table 32 illustrates the data, participants, and percentage of new teachers use of assessment data provided by the WMSD.

Table 32

WMSD Assessment Data Used to Inform Reading Instruction

Reading Data	Participants	Percentage Used
Reading Records	28	97%
MAP	22	76%
Fundations	22	76%
COP	7	24%
KRA	4	24%
Other	2	Observations, formative assessments

Note. Not all participants chose each of the reading assessment data.

SQ15 How frequently do you use assessment data to inform your reading instruction? Of the 29 participants, ten noted they used reading data either everyday (35%), weekly (24%), bi-weekly (14%), monthly (10%), or each marking period (17%). Eight teachers used their data on a monthly or a marking period basis. On the survey,

there was no indication as to the grade level taught or years of experience for each respondent. Therefore, follow-up interview questions were not feasible for the eight teachers. However, the responses supported further investigation, by way of interviewing, as to the capacity of reading professional development and how the reading data were being used to improve student achievement. National Association of Elementary School Principals (NAESP) (2016) points out that to improve student achievement there needs to be a focus on teachers using data to adjust learning for students; provide students the data to set goals and learn from feedback; monitor data to ensure consistency and effectiveness; and provide professional learning to support growth in data programs and data usage. Table 33 illustrates the frequency of reading assessment data used by WMSD new teachers by percentages.

Table 33

Frequency of Reading Assessment Data Used by WMSD New Teachers

Everyday	Weekly	Bi-weekly	Monthly	Marking Period
35%	24%	14%	10%	17%

SQ16 What types of assessment data do you use to inform your math instruction? Only 26 participants responded to this question. Of the 26 who did answer, 21 used MAP (81%), 18 used Math Fact assessments (69%), and 10 used Number Corner (38%). Respondents had the choice to choose multiple answers to this question, as there were several assessment data pieces that informed instruction in the WMSD. This question was asked in an attempt to illicit how often the data points provided by the WMSD were used to inform instructional practices. This question was also used in the triangulation with MAP data analysis to determine the effect of the data on student achievement.

MAP was administered three times a year, math fact assessments were

administered daily/monthly for grades one and two, and Number Corner was part of the daily math instruction for grades K-2. Five of the respondents wrote in a short response in the "other" category including: pre-assessment for each unit, observations, formative assessments, and anecdotal notes. There was no indication as to what made the data selections valuable for new teachers to inform instruction and increase student achievement. As part of the interview process, a more in-depth question was asked to clarify how the data were essential to instruction. Table 34 illustrates the WMSD math assessment data new teachers used to inform math instruction.

Table 34

WMSD Assessment Data Used to Inform Math Instruction

Math Data	Participants	Percentage Used
MAP	21	81%
Math Facts	18	69%
Number Corner	10	38%
Other	5	Pre-assessment, observations, formative assessment, anecdotal notes

Note. Not all participants chose all math data assessments to inform math instruction.

SQ17 How frequently do you use assessment data to inform your math instruction? Of the 26 participants, ten noted they used the math data either everyday (38%), weekly (35%), bi-weekly (15%), monthly (0%), or each marking period (12%). On the survey, there was no indication as to the grade level taught or years of experience for each respondent. Again, as with the reading frequency results from SQ15, there was a slight concern with three of the respondents who only used the math assessment data each marking period. According to National Association of Elementary School Principals (NAESP) (National Association of Elementary School Principals, 2016), teachers need to

collect multiple sources of data to gain a deeper understanding of student learning needs.

Overall, new teachers indicated they used the math assessment data on a more regular basis than the reading data. Follow-up interview questions were not feasible for these teachers because specific teachers were not identified. However, the results supported further investigation, by way of interviewing, as to the capacity of math professional development, from whom and how often, and how the math data were being used to improve student achievement. Table 35 shows the frequency of math assessment data used by WMSD new teachers.

Table 35

Frequency of Math Assessment Data Used by WMSD New Teachers

Everyday	Weekly	Bi-weekly	Monthly	Marking Period
38%	35%	15%	0%	12%

The two questions not answered on the survey included: SQ10 "Why did you leave the district?" and SQ11 "Which supports do you wish were provided to assist you in professional development?" In addition, part of SQ7 "Did you stay or leave the district in 2014-2105?" These survey questions were not answered due to WMSD IRB restrictions on not having permission to use emails or other private information of new teachers who left the district. These questions would have provided the opportunity to interview new teachers who left the WMSD, and to determine the reasons for leaving, and what supports could have been offered to assist them in becoming a better teacher and retain them in the district. In addition, these responses would have addressed the PRQ of the study, "Does a WMSD dual-role induction model (IV) affect retention of new teachers (DV) and student achievement (DV), and if so, how?" SRQ2: To what extent

does a WMSD dual-role induction model affect retention of new teachers? and GRQ1.2c: What experiences lead new teachers (kindergarten, first and second) to attrition in a WSMD? In order to circumvent the issue of being unable to survey new teachers who left the district respond, an alternative question was developed for the semi-structured interviews. It read, "Describe what would have to happen at the district or school level that would make you leave the profession?" By asking this interview question, the intention was to gather not only factors related to attrition, but why those factors might have impacted the decision to leave the district.

As a concluding question to the survey (SQ18), and the opportunity to conduct semi-structured interviews that would dig deeper into the questions raised from the survey responses, as well as to the primary, supporting, and guiding research questions, respondents were asked to volunteer to a confidential interview. Eight responded "yes" to an interview (28%), while sixteen responded "no" (55%), and five answered "maybe" (17%). Of those who answered "maybe", only two left names to contact. Therefore, three emails were sent out to determine which of the respondents placed a "maybe", of which no one responded back. With that said, the target of ten interviews was reached.

Based on the findings (Appendix E) from the survey questions, the following interview questions (IQ) were developed to further investigate answering the primary, supporting, and guiding research questions of this study.

IQ1: What attracted you to teaching?

IQ2: What are your future plans to earn a higher degree in education?

IQ3: What are you plans to remain in the district?

IQ4: How do you define professional development?

IQ5: Explain how your professional development relationship differed between colleagues and mentors?

IQ6: How much time is spent with colleagues versus mentors each week? Explain the type of interaction that occurs during this time?

IQ7: What professional development opportunities positively impacted your teaching growth? How so?

IQ8: What professional development opportunities negatively impacted your teaching growth? How so?

IQ9: What professional development was offered to you for reading and math instruction? Who offered this professional development? How often?

IQ10: Do you believe that using current data is essential in informing your instruction? How so?

IQ11: Why did you rate the dual-role induction model the way you did?

IQ12: Describe what would have to happen at the district or school level that would make you leave the teaching profession?

Phase Three – Semi-Structured Interview Findings

Semi-structured interviews were held with WMSD new teachers to provide in-depth answers to the gaps in responses in Phase Two survey findings, and to uncover any emerging issues that surrounded implications for new teacher retention and student achievement. There was a total of twelve interview questions that were developed to address

- education;
- retention;

- attrition;
- professional development;
- colleagues vs. mentor relationship; and
- data.

Questions focused on exploring the study's primary research question, "Does a WMSD dual-role induction model (IV) affect retention of new teachers (DV) and student achievement (DV), and if so, how?"

The supporting research question (SRQ) for student achievement was:

SRQ1: To what extent does a WMSD dual-role induction model affect student achievement of new teachers in kindergarten, first and second grades?

The supporting research question (SRQ), guiding research questions (GRQ) for retention were:

SRQ2: To what extent does a WMSD dual-role induction model affect retention of new teachers?

GRQ1.2b: What experiences lead new teachers (kindergarten, first and second) to retention in a WMSD?

GRQ1.2c: What experiences lead new teachers (kindergarten, first and second) to attrition in a WSMD?

Thematic coding (*In Vivo*). As part of the interview process, thematic coding using *In Vivo* was used to develop codes and determine themes from the participant transcripts. This was accomplished by listening to the audio recordings and transcribing what each interviewee stated. At this point, content analysis of the information was completed. This was to obtain an overall sense of the material and depth,

credibility, and general use of the information to support the PRQ, SRQ1 and SQR2, and GRQ1.2b, and GRQ1.2c. Content analysis was used primarily to discover patterns and relationships in data from different methods used in the study (Creswell, 2009).

The interview sample profile is reported first, followed by the interview findings, organized by the five themes, and a discussion of the interview findings. The five themes included

- motivators for staying;
- potential motivators for leaving;
- support system;
- professional development; and
- needed improvements.

Respondent profile. The goal was to obtain ten new teachers who stayed and ten new teachers who left the WMSD, but due to WMSD IRB regulations, only interviews approved through surveys were for new teachers (K-2) who stayed in the district. A total of ten K-2 grade new teachers, were interviewed from the WMSD. Of those, three self-identified as kindergarten teachers, three as first grade teachers, and four as second grade teachers who taught in the WMSD during the 2014-2015 school year. All participants were female, and had one to three years of experience in the WMSD; however, five of the ten new teachers had prior careers and two of the five had prior teaching careers. The interview participants volunteered to participate in the semi-structured interviews from the survey in Phase Two (Appendix F). A purposeful sample method was chosen to provide a population representative about the topic of interest (McMillan & Schumacher, 2010). Table 36 portrays the demographic profile for the participant interviews of new

teachers in the WMSD.

Table 36

Demographic Interview Profile for WMSD New Teachers

Participant	Grade Level	Teaching Experience	Gender	Prior Career	Prior Teaching Experience
1	K	2	F	No	No
2	1	10	F	Yes	Yes
3	2	2	F	No	No
4	K	2	F	Yes	No
5	K	3	F	No	No
6	1	0	F	Yes	No
7	2	2	F	No	No
8	1	2	F	Yes	No
9	2	3	F	No	No
10	2	11	F	Yes	Yes

Motivators for staying. Participants were asked three different interview questions that related to retention (motivators for staying) in the WMSD. Interview questions one, two, and three codes were used to develop the theme motivators for staying. These three questions were relevant in supporting the PRQ, SRQ2, GRQ1.2b and GRQ1.2c.

IQ1: What attracted you to teaching? Participants indicated they were drawn to teaching by their parents or felt a connection by exposure to volunteering or experiences as young adults. Participant 9 (P9) stated that parental exposure in teaching "inspired me to go into the same field." P7 described the interest in teaching "was peeked as an

adolescent" by working with young children, which therefore led to an interest in the teaching profession.

IQ2: What are your future plans to earn a higher degree in education? Five of the participants who came to teaching as a second career obtained the equivalency of a master's degree through a one-year internship, even though they were not previously in the field of education. These participants had a degree in their prior field of expertise. Eight of the new teachers had no prior teaching experience, but only two of the new teacher interview participants had obtained a master's degree in the ten-year time frame. Therefore, many new teachers that were interviewed had experience and had either pondered or contemplated future plans for furthering their education, rather than pursuing a master's in education. Future plans included: masters in literacy, education psychology, reading, special education, curriculum and instruction, and technology.

IQ3: What are your plans to remain in the district? Even though 100% of the participants stated they had no plans to move from the district, several mentioned they would move within the district in order to grow as a teacher and "figure out the best fit" (P9). Support was the theme across all participant conversations for plans to stay in the district. The support mentioned was the mentor. P2 stated that the mentor was felt as a critical element of support as the support "helped me feel stable," as the mentor provided "clear, consistent advice" in a trusting manner. The mentor was also determined to be instrumental, as P3 stated, "I needed the support everyday" because if not, "I would have been on my own."

Table 37 denotes the interview codes and theme for questions one, two, and three.

Table 37

Interview Codes and Theme for Questions 1, 2, 3

Interview Questions	Codes	Theme
IQ1	Exposure, Connection	
IQ2	Pursing, Pondering, Contemplating	Motivators for Staying
IQ3	Support	

Quality of professional development. Participants were asked four different interview questions that related to the quality of professional development in the WMSD. The codes from interview questions four, seven, eight, and nine were used to develop the theme quality of professional development. These four questions were relevant in supporting the PRQ, SRQ1 & 2, and GRQ1.2b and GRQ1.2c.

IQ4: How do you define professional development? In most of the interviews, participants defined professional development as a way of continuously improving the methods of instructional practices to become a better teacher. Participants saw professional development as a necessary "job requirement to grow professionally" and to "impact the learning environment for students" (P6). The majority of interview participants noted one-on-one conferences, team conversations, and learning new strategies as professional development.

IQ7: What professional development opportunities positively impacted your teaching growth? How so? A variety of professional development opportunities are provided as having a positive experience that included: math workshops from the district level, classroom focused instruction plans (CFIP), reading workshops offered by the district, conferences, planned meetings with colleagues and mentor. Interview

participant's mentioned that exposure to professional development was not enough to make a true impact on teaching practice. Two of the participants who had ten plus years of teaching described their first year of teaching as "a sink or swim" experience, as they did not have a mentor to "collaborate or assist with their teaching on a daily basis" (P3). P1 noted that coaching by the mentor was needed to "provide feedback to improve teaching." The feedback was seen as an ongoing, daily dialogue with the mentor that allowed for immediate application. P9 noted that the hands-on experience (coaching) of professional development was beneficial, as "I am able to see things in action and immediately apply my thought process to a lesson with students."

IQ8: What professional development opportunities negatively impacted your teaching growth? How so? P7 stated "casual professional development does not impact teaching practice" and P9 quotes "discussion is seen as not beneficial to practice." What seems contradictory was P8 mentioned "there is not time to reflect." However, reflection time was provided as mentioned by P7 and P9. Further analysis determined that what was missing was the time to reflect on the ideas from the professional development in order to implement. Professional development at the district level in regards to supervisor-led days were seen as unprofitable. P9 further stated that "new teachers value opportunities to experiment, have the rationale explained, and then prepare to use the idea or strategy in the classroom." The supervisor-led professional development did not provide personalized needs, as all grade levels and different schools are together, not providing "a voice for everyone" (P10).

IQ9: What professional development was offered to you for reading and math instruction? Who offered this professional development? How often? The majority of

professional development for reading and math instruction occurred at the school level, on a weekly basis during Classroom Focused Instruction Process (CFIP) or monthly through the district content courses for reading and math. CFIP was led by the mentor and entailed analyzing MAP data and the MAP continuum to inform instruction. However, this was felt as exposure and not an in-depth data analysis, leaving most of the planning in the hands of new teachers. Math professional development at the district level was seen as more beneficial than the reading sessions at the district level, as math had immediate application on teacher practice. New teachers were provided the materials and time to determine a plan of action for practice in the classroom the very next day. With that said, all participants agreed that the majority of their reading and math professional development occurred at the school level through the mentor, ranging from developing curriculum, writing assessments, developing rubrics, using MAP to inform instruction, and setting goals for students.

Table 38 lists the interview codes and theme for questions four, seven, eight, and nine.

Table 38

Interview Codes and Theme for Questions 4, 7, 8, 9

Interview Questions	Codes	Theme
IQ4	Current Trends, Tested Methods, Improvement, Continuous	
IQ7	Coaching, Assisted, Feedback, Opportunities	Quality of Professional Development
IQ8	Personalize Needs, Lack, No Reflection, Purpose	
IQ9	Monthly, CFIP, Mentor	

Value of colleagues and mentors. Participants were asked two different interview questions that related to the value of colleagues and mentors in the WMSD. These two questions were relevant in supporting the PRQ, SRQ1 & 2, GRQ1.2b and GRQ1.2c.

IQ5: Explain how your professional development relationship differed between colleagues and mentors? Both mentors and colleagues were described as valuable to the professional growth of new teachers, even though each relationship differed in professional development. Overwhelmingly, the mentor was mentioned as being the one that was sought out for the "big picture" ideas, and colleagues were utilized as day-to-day advice and plans. One participant (P3) noted that the "mentor was able to provide specific feedback that impacted teaching practice, and colleagues were seen as valuable to carry the plan of action out." New teachers viewed colleagues as "experts" and engaged with them "before going to the mentor, especially for on the spot needs" (P8). P1 stated that "not enough time is provided for working with colleagues."

IQ6: How much time is spent with colleagues versus mentors each week? Explain

the type of interaction that occurs during this time? New teachers estimated two to three hours each week were spent with colleagues, and close to two hours a week with the mentor. The roles were drastically split into “big picture,” long-term weekly lesson planning with the mentor and “daily” sessions with colleagues. Mentors were sought after by new teachers to develop long-term plans that involved aligning standards by backward mapping the curriculum, analyzing data to inform instruction for differentiated groups of students, as well as strategies to improve teaching practice. In addition, the role of the mentor was pursued for modeling in the classroom, co-teaching, and for asking general questions in regards to curriculum, school, or district initiatives. Colleagues were seen as valuable for day-to-day needs, such as: team planning, bounce ideas off, divvying up workload, narrowing in on long-term plans, and having conversations about students. Colleagues were also seen as an opportunity to “meet and talk” and “connect with others” (P5). Table 39 lists the interactions of new teachers with colleagues and mentor in a WMSD. Table 40 lists the interview codes and theme for questions five and six.

Table 39

Interactions with Colleagues and Mentor in a WMSD

Colleagues	Mentor
Daily lesson planning	CFIP
Discussion of students	General questions
Field trips	Analyzing data
Parent advise	Long-term planning
Share resources	Modeling
Strategies	Coaching
Assessments	Reflection
Making Connections with Others	

Table 40

Interview Codes and Theme for Questions 5 and 6

Interview Questions	Codes	Theme
IQ5	Big Picture, Long-term, Daily, Valuable	Colleagues and Mentors
IQ6	Daily, Long-term	

Data to guide student achievement. Participants were asked one interview question that related to using data to inform instruction in the WMSD. This question was relevant in supporting the PRQ and SRQ1.

IQ10: Do you believe that using current data is essential in informing your instruction? How so? All ten participants felt that using current data to inform instruction was vital. P10 expressed that "using current data is essential in determining next steps for students." P9 stated that "MAP data was viewed as critical" ensuring that teachers continue "to apply the skills they [students] have learned, and also to make sure that we

[teachers] delve deeper into the content." Even though the majority of the participants mentioned that they used MAP reading and math data to inform instruction, they felt that formative assessments added "more value" to their teaching practice (P6). Formative assessments, as stated by P9, provided opportunities "to see what their [students] strengths and weaknesses" were to assist students individually. Table 41 lists the codes and theme for question 10.

Table 41

Interview Codes and Theme for Question 10

Interview Questions	Codes	Theme
IQ10	Formative, steps, inform	Needed Improvements

Potential motivators for leaving. Participants were asked two interview questions that related to attrition in the WMSD. These two questions were relevant in supporting the PRQ, SRQ2, and GRQ1.2c.

IQ11: Why did you rate the dual-role induction model the way you did? New teachers were asked to rank the dual-role induction model in SQ12 on a Likert-scale of one to five, with five being the highest at excellent and the lowest scale was a one with the ranking of poor. Participants expressed that their overall experience was positive and supportive, and "when there was ever something I struggled with, I felt like they [colleagues, principal, and mentor] had my back" (P6). There was also affirmation that the dual-role induction model mentor provided the professional development, self-reflection, and coaching that critically examined strengths and weaknesses to grow professionally.

Even though the rating for the dual-role induction model was on the high end of

the scale, there were areas for growth mentioned in the interviews. As reported in the results of IQ6, accessing colleagues was beneficial to the growth of new teachers. P1 explained that "more time needs to be offered to work with colleagues" in order to observe them teach. In addition, P2 communicated that at her school the "ratio was too high with the mentor to teacher" aspect. P2 further explained that "if it [ratio] were lower, more attention could be given" to new teachers.

IQ12: Describe what would have to happen at the district or school level that would make you leave the teaching profession? Workload, lack of respect, and lack of support were mentioned as motivators for leaving. There was also mention of a decrease in pay, change of administration, negative atmosphere, and personal change as possible reasons for leaving the teaching profession. P4 stated that "teaching isn't the issue that makes the teachers leave." The "frustration," as P4 continued, "is that we are asked to do so much on our own time, unpaid." P5 expressed that "you really have to love it to be willing to do the work" because you "don't have a life outside school." P2 articulated "I can't imagine taking care of a family and taking care of my responsibility as a teacher." P2 continued to express that she dedicated "a lot of time to my work" and if there was a reason to leave, it would be to take care of family, as "family would come first." The participants also felt if they were not supported or valued they will leave the teaching profession. P7 voiced that "you can't do this by yourself." Table 42 represents the inductive codes and themes for questions eleven and twelve.

Table 42

Interview Codes and Theme for Questions 11 and 12

Interview Questions	Codes	Theme
IQ11	Professional Development, Reflection, Coaching, Ratio, Focus, Visits	Motivators for Leaving
IQ12	Workload, Lack of Respect, Lack of Support	

Discussion of interview analysis. The results from the semi-structured interview process with new teachers provided insight into what motivates and hinders new teachers from leaving the teaching profession, as well as the supports offered to impact student achievement in grades one and two. The major themes that derived from the interviews included: motivators for staying (support, professional development), motivators for leaving (lack of support, professional development), support systems, professional development, needed improvements, and emerging issues (workload, mentor/mentee ratio, teacher-principal relationships, professional development that is more personalized and focused on data analysis). All of which assisted in answering the PRQ, SRQ1 and SRQ2, as well as GRQ1.2b and GRQ1.2c. Overall, new teachers in the WMSD felt supported through the district, mentor, and colleagues. They felt as though that the daily and long-term support assisted them in determining student needs; however, the majority of the professional development was coming from the mentor and the daily tasks came from colleagues. The emerging issues identified areas that could be potential motivators for leaving. The first area of concern was the lack of personal feedback on a regular basis with reading and math data analysis. There was not enough time for extended periods of professional development in data analysis, and new teachers were left with the task to

complete on their own time. This left a weakness in the analysis of student data. A second emerging issue related to the mentor/mentee ratio. New teachers felt as though the mentor provided support to too many new teachers, or the staff, which took individualized, personal time away from the induction experience. The final emerging issue was teacher-principal relationships. The principal was not mentioned as a support in the interview process, even though the principal was ranked above the mentor and colleagues in the survey as having a greater influence over professional development growth. Figure 9 represents an overview of the overall outcomes of the manual coding and themes derived (Appendix H) from interview transcripts relating to new teacher retention and student achievement in a WMSD dual-role induction model.

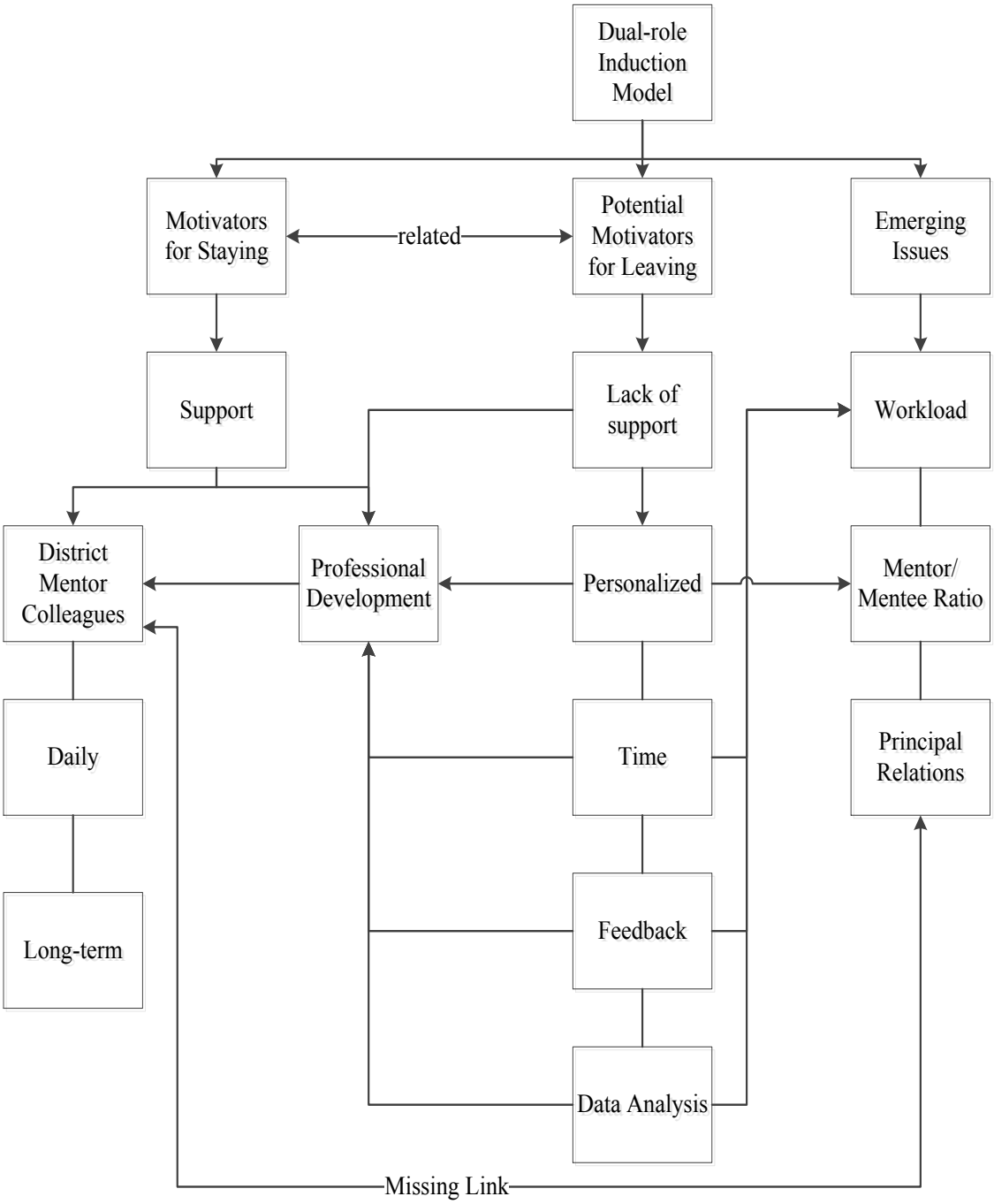

Figure 9. A selected series of inductive codes and themes derived from interview transcripts related to retention and student achievement in a WMSD dual-role induction model.

Phase Four – Triangulation Findings

Triangulation is used to confirm evidence by comparing different sources of data (Lodico, Spaulding, & Voegtle, 2010). By developing convergent evidence, the

triangulation of data reinforces the construct validity of a study (Yin, 2014). Following the analyses of the four data sources, the secondary reading and math MAP data for new teachers who taught primary grades first and second, district retention data, the primary online survey, and new teacher interviews for teachers who taught primary grades K-2, the final step in the methodology was to triangulate. Phases One, Two, and Three data was used to inform the study's examination of the PRQ, SRQs, and GRQs. The results of the triangulation of data is reported by

- triangulation of MAP data, online survey and interview findings; and
- triangulation of attrition data, online survey and interview findings.

Triangulation of MAP data with online survey and interview findings. MAP data findings were used to identify the mean difference in norm scores between two districts using two different models of mentoring (WMSD; dual-role and PASD; site-based) via independent samples *t*-tests. Repeated measures ANOVA was used to compare the average score at multiple time periods to determine whether or not change occurred over time for each induction model. All of which were used to triangulate to the findings of the survey and interview from a WMSD. The survey identified the types of assessment data and frequency used via *Survey Monkey,* which automatically calculated percentages. The new teacher interviews elicited codes and themes from the thematic analysis of the participant's actual words (*In Vivo* descriptions) that assisted in developing patterns (Appendix H). The patterns were used to identify aspects of the usage of reading and math data to inform instruction and to further support the survey responses. The three data sources provided more in-depth examination to the PRQ, SRQs, GRQs, and hypothesis on student achievement.

Triangulation findings. Of those that participated on the survey (K-2), six were kindergarten teachers, which added insight into the primary instruction/learning of new teachers and reading and math student achievement (1-2) in a WMSD dual-role induction model. MAP (76%) was not used to inform reading instruction as often as reading records (97%). Participants indicated they used math MAP (81%) significantly more than any other math assessment. Despite three years of teaching and professional development for new teachers (K-2), as part of the dual-role induction model, reading showed the least amount of growth on MAP (1-2) for the WMSD dual-role induction model. A stronger comprehension of MAP skills will provide the prerequisite knowledge to successfully master more complex standards at higher levels, which in turn can have an impact on student achievement.

There were a total of 17 first grade classes and 15 second grade classes in the WMSD and four first grade classes and five second grade classes for the PASD for this comparison. First and second grade students in the WMSD did not show progression each year in reading and math as compared to the PASD. Given that the WMSD dual-role induction model showed through the survey and interviews they provided support to new teachers for three years, and the PASD provided support to new teachers one year, the WMSD did not make strides in reading and math student achievement in first and second grades compared to that of the PASD. Therefore, over the course of three years of professional development and support offered to new teachers (K-2) in the dual-role induction model, students were not successful on MAP. The student achievement information did not support the WMSD's superintendent's statement that the two roles of mentor and professional development, as in the dual-role induction model, lead to higher

student success. In the case of first and second grades, the professional development of new teachers in the dual-role showed less significant growth in student achievement than that of a site-based.

There was no indication as part of the interviews as to how often reading or math assessment data was reflected on through professional development, only that the majority of analyzing and implementation of data was completed by the new teacher (K-2). The majority of new teachers indicated in the interviews that reading and math data was covered in Classroom Focused Information Process (CFIP) by the mentor, but it was further indicated that the exposure was not enough to make a true impact on teaching practice. There was a consensus among new teachers that large group professional development was not beneficial, as more personalized opportunities needed to be held with new teachers. NTC (2009) points out that the full-release mentor position needs to include individual on-the-spot professional development, resulting in higher student achievement gains. Student achievement did not have a positive growth pattern for the WMSD in grades one and two as compared to the PASD; however, better gains might be met if more opportunities were offered for individualized professional learning.

New teachers (K-2) in the WMSD listed that they used reading records, MAP, and *Fundations* as assessment data to inform reading instruction; however, 27% reported that they only used the reading data monthly or by marking period. WMSD new teachers indicated they used MAP, Math Facts, and Number Corner to inform math instruction, with MAP at 81% and math facts at 69%. Math facts did not apply to kindergarten students, as this assessment began in first grade. Even though the majority used math assessment data either every day, weekly, or bi-weekly, there were 12% of the

participants that used the data by marking period. In both reading and math, a few participants indicated they used other forms of assessment data to inform their instruction. There were two participants for reading and five for math that wrote in observations, formative assessments, pre-assessments, and anecdotal notes as ways to inform instruction. A comparison could not be made between the WMSD and PASD assessments and how often they were used, as this was not part of the study. With that said, the WMSD indicated MAP was more widely used for math than reading, and better alignment of individualized professional development was beneficial to teacher understanding and implementation in practice.

Even though new teachers in the WMSD ranked colleagues (89%) higher in providing professional development support than mentors (41%) in SQ9, new teachers did not mention colleagues in IQ9. New teachers (K-2) described some of their experiences for professional development at the district level, but the majority of participants stated they had professional development with the mentor. The interviews pointed out that new teachers (K-2) met with colleagues more hours than mentors and the mentor provided the majority of the professional development. NTC (2015) denotes that 1.5 to 2.5 hours of full-release mentor time has proven to have the most impact on new teacher success. New teachers in a WMSD dual-role induction model were provided with the recommended mentor time of 1.5 to 2.5 hours a week; however, this time was not always individualized time, as some of the professional development time was spent with the grade level team. Even though a caseload of a full-time released mentor normally covers 12 to 15 new teachers, WMSD new teachers felt as though this did not permit adequate one-on-one time. Rockoff (2008) found that student achievement increased both

in reading and math when teachers spent more time with a mentor, suggesting that mentoring improves teaching skills.

Interestingly enough, the principal (45%) ranked higher than the mentor in SQ9, but nowhere in interviews was there mention of the principal as a person that provided professional development support. In spite of the attempted comprehensive support for new teachers (K-2) in the dual-role induction model, a linkage in the support system was not evident with the absence of the principal. There was a lost opportunity to interview new teachers regarding what support was offered from principals and how they felt the principal was beneficial to their professional growth. The PASD was not surveyed or interviewed in regards to comparing the support systems offered in a site-based induction model.

Student achievement. Table 43 is a visual alignment of the various data sources which showed MAP data by grade level and its use for each of the two districts (WMSD & PASD), the WMSD online survey, as well as WMSD interview questions connected to MAP data. Existing reading and math MAP data was used for new teachers who taught primary grades first and second, and the survey and interviews were conducted with new teachers in primary grades K-2. This alignment was used to provide insight into the commonalities among the various data sources used in primary grades (K-2) and how it related to student achievement (1-2) in a WMSD.

Table 43

Triangulation of MAP, Survey, and Interview Findings for Student Achievement

WMSD MAP Data	PASD MAP Data	WMSD Survey Questions	WMSD Interview Questions
Reading	Reading	2	2
1-2	1-2	3	4
		4	5
Math	Math	5	6
1-2	1-2	6	7
		14	8
		15	9
		16	
		17	

Triangulation of attrition data, online survey and interview findings. New teacher attrition data findings (district-wide), which identified the difference between the WMSD dual-role and PASD site-based induction models via percentages, was used to compare the percentage differences. This data was used to triangulate the findings of the survey and interviews from a WMSD. The online survey identified the types of support and reasons new teachers, who taught primary grades K-2, stayed in the WMSD. The online survey computerized program automatically calculated percentages. The interviews elicited codes and themes from the thematic analysis, which assisted in identifying more in-depth reasons as to why new teachers who taught primary grades K-2 stayed and what reasons would cause them to leave the WMSD. The three data sources provided more in-depth examination as to the PRQ, SRQs, GRQ, and the hypothesis on retention.

Triangulation findings. The majority of WMSD new teachers (K-2) ranked location as a reason to stay in the district, and family as the second reason to stay. However, in IQ12, 50% of the new teachers in the WMSD indicated they could not see

themselves teaching after they had a family due to the workload expectations. Participants felt as though the school workload increased each year and the time spent on school work at home would take away from raising a family. These participants indicated they would find other employment. This data supported research, as Marvel et al., (2006) states that personal issues and salary to be the top two reasons why new teachers leave the teaching profession. WMSD participants further indicated in interviews that there was a connection to teaching through prior experience at a young age, as what retained them in the teaching profession. New teachers further expressed they planned to stay in the WMSD, as they praised the positive experience and support offered as part of the dual-role induction model. The main purpose of a new teacher induction program is to keep new teachers from leaving the profession at a rate of two to one (Meyers, 2011). The WMSD retention data has confirmed that the dual-role induction model was successful in retaining new teachers over the course of three years.

The comparison of attrition data between the WMSD and PASD showed retention of new teacher's increased over a three-year period in the WMSD, and there was an absolute retention of new teachers in the PASD. At a time with more than 50% of new teachers leaving the profession, and only 27 or 50 states having an induction model, the WMSD dual-role induction model made steady growth with retaining new teachers, but has not made steady gains with reading and math student achievement in first and second grades. "A goal of an ideal induction program is not only to improve retention of new teachers but also to help them become effective instructional leaders" (Fletcher et al., 2008).

There was no indication as to what factors retained PASD new teachers in the

teaching profession or what previous years of retention showed for either the WMSD; full-release or PASD; site-based model. However, the positive growth of new teacher retention in the WMSD illustrated that the WMSD full-release induction model was successful compared to the PASD site-based induction model. This indicated the comprehensive make-up of the dual-role induction model (stakeholder support, professional development, mentor) was beneficial to retaining new teachers.

Retention. Table 44 is a visual alignment of the various data sources which displayed the district-wide attrition data for each of the two districts, as well as the survey and interview questions (K-2) from the WMSD connected to attrition data. This alignment was used to provide insight into the commonalities among the various data sources as it related to retention of new teachers between two different models of mentoring in the WMSD and PASD.

Table 44

Triangulation of Attrition, Survey, and Interview Findings for Retention

WMSD and PASD Attrition Data	WMSD Survey Questions	WMSD Interviews Questions
2012-2013	8	1
2013-2014	9	2
2014-2015	12	3
	13	11
		12

The review of the triangulation of data collected from the existing MAP (1-2) and district-wide attrition data (WMSD & PASD), primary survey and semi-structured interviews with new teachers who taught primary grades K-2 (WMSD) were used to

inform the discussion of this study's research questions. Included in chapter five is a detailed review of how these data spoke to the research questions, the practical implications of the findings, and recommendations for future research.

Chapter 5 – Conclusions and Implications

The purpose of this study was to compare/explore the effectiveness of a dual-role induction model in a Western Maryland School District (WMSD) to that of a site-based induction model in a Pennsylvania School District (PASD) on new teacher retention and student achievement. Data were obtained in three of four phases, using four sources. Phase One (Step One) included analysis of secondary reading and math Measures of Academic Progress (MAP) data of first and second grade (1-2) students in a WMSD and first and second grade students in a PASD. MAP data were acquired for a three-year period and included student data of new teachers to determine student achievement between two different districts with two different induction models (WMSD, dual-role; PASD, site-based). Phase One (Step Two) included analysis of district-wide attrition data to determine the retention of new teachers over a three-year period in the WMSD and PASD. Phase One was used to draw conclusions as to how the unique dual-role induction model (WMSD) compared to a site-based induction model (PASD) in regards to new teacher retention and student achievement.

Phase Two contained a primary survey, which was distributed to 41 new teachers in primary grades kindergarten, first, and second (K-2) contracted to teach in the WMSD during the 2014-2015 school year. The survey was used to identify factors related to new teacher retention and student achievement. Phase Three consisted of primary interview questions conducted with primary teachers who taught K-2, questions generated from the survey findings. Phase Four was used to triangulate the analysis of secondary MAP and attrition data, survey, and interviews to draw conclusions about the effectiveness of a dual-role induction model on retention of new teachers and student achievement.

The independent variable was the induction model (IV). The dependent variables were retention of new teachers (DV) and reading and math student achievement (DV) in both the dual-role and site-based induction models.

The primary research question for this study was, "Does a WMSD dual-role induction model (IV) affect retention of new teachers (DV) and student achievement (DV), and if so, how?"

The supporting research question (SRQ), guiding research questions (GRQ) and hypothesis for student achievement were:

SRQ1: To what extent does a WMSD dual-role induction model affect student achievement of new teachers in kindergarten, first and second grades?

GRQ1.1a: Is there a significant difference between reading and math MAP scores for first and second grade students in a WMSD dual-role induction model and that of a PASD site-based model?

H1: There is a significant difference between reading and math MAP scores for first and second grade students in a WMSD dual-role induction model and first and second grade students in a PASD site-based induction model.

The supporting research question (SRQ), guiding research questions (GRQ) and hypothesis for retention were:

SRQ2: To what extent does a WMSD dual-role induction model affect retention of new teachers?

GRQ1.2a: Is there a difference between retention of new teachers participating in a WMSD dual-role induction model and that of a PASD site-based induction model?

GRQ1.2b: What experiences lead new teachers (kindergarten, first and second) to

retention in a WMSD?

GRQ1.2c: What experiences lead new teachers (kindergarten, first and second) to attrition in a WSMD?

H2: There is a significant difference between new teacher retention in a WMSD dual-role induction model and that of a PASD site-based induction model.

This research study confirmed the importance of developing a comprehensive induction model focused on support systems, professional development, and a mentor, which contribute to greater success with new teacher retention and student achievement. The site-based induction model positively affected retention of new teachers and student achievement, as there was 100% retention of new teachers over a three-year period. In addition, the site-based model has demonstrated assistance in helping public school systems address the extreme demands of high new teacher turnover, which indirectly impacted student achievement. The comparison of secondary MAP and attrition data from both the WMSD and PASD were used to draw conclusions in relation to student achievement. The comparison of the results strengthened the study's conclusions and implications because it allowed for closer analysis of two different induction models, one being in literature-based research (site-based) and one not (dual-role). Furthermore, the use of a norm-referenced assessment in the conceptual framework strengthened the reliability of this study's results. The New Teacher Theory theoretical framework used surveys and teacher evaluations to measure student achievement.

Acknowledging that retention of new teachers has increased to 50% over the course of fifteen years, which indirectly relates to student achievement, the theoretical framework and literature-based research used to guide this study was the New Teacher

Center (full-release model) and research-based literature information on site-based induction models (Carroll, 2014; NTC, 2012). As detailed in chapter two, the NTC theory posited that a comprehensive induction model positively impacts retention of new teachers through a strong support system, quality professional development, and a full-release mentor (NTC, 2012). A full-release mentor is one who is released from all teaching duties to support new teachers and can either be stationed at one school or travel to different schools. A comprehensive induction model focuses on teacher effectiveness and student learning with instructional mentoring. This involves having carefully selected, well-prepared full-released mentors; professional learning communities for mentors and new teachers; engaged principals; and supportive school environments and district policies. Literature-based research suggests that a site-based model can positively influence new teacher retention, as the new teacher feels support by this type of professional development (LoCasale-Crouch et al., 2012). A site-based mentor is one who provides professional development to new teachers in the same building where he or she also has a full-time teaching position. Due to the fact that there was no research literature on a dual-role induction model, as in the WMSD, I utilized the two models (full-release and site-based) to guide me in examining the effectiveness of this new induction model on new teacher retention and student achievement.

This study explored a dual-role induction model that encompassed a full-release/site-based component. The dual-role induction model was developed by the WMSD superintendent as a way to maximize student achievement, as he saw a disconnect between the supervisors at the district level and new teacher growth. While this study provided insight into both full-release and site-based mentor models from a

literature-based perspective, findings used the unique dual-role induction model that incorporated both mentor models.

This chapter presents the analysis and interpretation of data and the implications for practice within the context of the conceptual framework. The phases of this study were aligned to the primary, supporting, and guiding research questions for both new teacher retention and student achievement. Phases One through Three report summaries of data and interpretation discussions, while Phase Four includes triangulation of all previously reported data analysis, including independent samples *t*-tests and repeated measures ANOVA, survey, and interviews. Triangulation of data provides insight through the convergence and comparison of all data sources and afforded a comprehensive understanding of the findings. A conclusion completes this chapter.

Phase One (Step One) – Student Achievement

This phase of the study focused on comparing reading and math MAP data of first and second grade students for a WMSD and a PASD. The initial intention of this study was to include kindergarten MAP data for both districts in order to compare the primary grades (K-2) reading and math achievement; however, the PASD did not utilize MAP to assess kindergarten students. Independent samples *t*-tests and repeated measures ANOVA were used to determine the effectiveness of student achievement.

First grade demonstrated significant growth in reading and math in the PASD as compared to the WMSD. The WMSD did not outperform the PASD in grade one reading and math over a three-year period, according to the repeated measures ANOVA tests. On average, both districts performed better in MAP math than reading. The data concluded there was a significant difference of MAP scores between a WMSD induction model and

that of a PASD site-based model, suggesting the site-based model has more of a positive outcome on student achievement. Therefore, in terms of the dual-role induction model primary research question, "Does a WMSD dual-role induction model (IV) affect retention of new teachers (DV) and student achievement (DV), and if so, how?", the answer was no. The WMSD dual-role induction model did not significantly affect student achievement of reading and math for first grade students over that of a PASD site-based induction model.

Second grade demonstrated significant growth in reading and math in the PASD. Both the WMSD and PASD districts performed better in second grade math MAP than reading. Even though the WMSD made steady progress in both reading and math MAP over the course of three years, the PASD outperformed the WMSD in both reading and math. Therefore, the data indicated there was no significant difference in student achievement of grade two reading and math scores between the WMSD and the PASD. The data suggested, however, that the WMSD dual-role induction model was impacting student achievement in grade two reading and math, as scores increased over the course of three years. Therefore, the primary research question, "Does a WMSD dual-role induction model (IV) affect retention of new teachers (DV) and student achievement (DV), and if so, how?", the answer was no. The WMSD dual-role induction model did not significantly affect student achievement of reading and math for second grade students over that of a PASD site-based induction model.

The hypothesis for this study explored whether there was a significant difference between reading and math MAP scores for first and second grade students in a WMSD dual-role induction model and first and second grade students in a PASD site-based

induction model. Independent samples *t*-tests and repeated measures ANOVA were used to compare the difference between each induction model (IV) and the effect on student achievement (DV). The data supported the hypothesis, as there was a difference between student achievement of first and second grade students in a WMSD (dual-role) and a PASD (site-based), as the PASD performed better in both reading and math over the course of three years.

Phase One (Step Two) – Retention

This phase of the study focused on comparing retention of a WMSD (full-release) and that of a PASD (site-based) by using district-wide attrition data of new teachers. Measures of central tendencies (percentages) were calculated and ranked to determine the retention of new teachers.

The findings of Phase One (Step Two) confirmed that the WMSD retention of new teachers increased over the course of three years. The comprehensive elements of the dual-role induction model were effective in retaining new teachers (support systems, mentor, and professional development). The WMSD hired considerably more new teachers each year, and with each year, the retention rate of new teachers increased and attrition decreased. The PASD hired a noticeably lesser number of new teachers each year in the site-based induction model data, but with each year the retention rate was 100%, leaving zero percent attrition. Even though there was 100% retention of new teachers in the PASD, the percentage difference of retention decreased from 18% to 9% for the WMSD, which was well below the national average of 50%. In addition, the number of new teachers hired each year in the WMSD increased from the first to the third year of the dual-role induction model. This study did not examine the attrition of new

teachers prior to implementation of the dual-role induction model to compare differences or trends.

Interviews were not conducted with new teachers in the PASD to determine the impact on retention, as this interview phase of the study deeply explored the WMSD dual-role induction model. There was no opportunity in the survey to determine why new teachers left the WMSD, as this was a restriction placed on the study by the WMSD. However, through an interview question with teachers who were still employed with the WMSD, teachers expressed possible top reasons for leaving to include: workload, lack of respect, and lack of support.

Phase Two – Survey

One intention of the new teacher survey (Appendix D) was to identify factors that impacted reading and math achievement of students in K-2 grades in a WMSD by asking four questions: first, what types of assessment data do you use to inform your reading instruction?; second, how frequently do you use assessment data to inform your reading instruction?; third, what types of assessment data do you use to inform your math instruction?; and fourth, how frequently do you use assessment data to inform your math instruction? The *Survey Monkey* computer program findings were calculated and ranked by percentages. The majority of new teachers used reading records over MAP data to inform reading instruction, and MAP was used more widely than any other assessment data for math instruction. The data findings also indicated that new teachers used their math assessment data more frequently than they used reading assessment data. This indicated there were a plethora of resources, as offered in reading, but it did not necessarily indicate better usage of data, nor improved student achievement, as the site-

based model performed better than the dual-role in both reading and math. The results indicated that more resources lead to confusion as to what data is most critical to student achievement. A small percentage of new teachers indicated they used alternative methods of assessment data, such as observations, formative assessments, and anecdotal notes to guide instruction. The findings from the survey suggested WMSD new teachers are provided assessment resources to inform instructional practice in both reading and math, but the frequency at which the data were used was inconsistent. This indicated that new teachers were provided resources, but there was a weak alignment to the application of the resources. Therefore, the dual-role induction model showed a weakness in professional development resource growth, which indirectly impacted student achievement.

Another intent of the new teacher survey sought to identify factors that motivated new teachers to stay in the WMSD by asking: first, why did you stay in the district?; and second, what supports have been beneficial to you in your professional growth? Findings illustrated that new teachers stayed in the WMSD due to the following factors (ranked by highest to lowest percentage on the survey): location, family, salary, support system, and professional development. The findings of this study supported Briggs' (2011) research, as salary and support systems are noted as reasons for new teachers leaving the profession. However, interview findings determined the main reason for leaving the WMSD was family, as new teachers felt they could not commit to the workload and have a family. More effort is needed to address the demands placed on novice teachers to retain them long-term. This lead me to the conclusion that the dual-role induction model was not effective in reducing the workload for new teachers, which directly related to

attrition.

The support offered to new teachers included: colleagues, professional development, principal, and mentor. As a standalone survey question, it appeared that mentors were not valued as strong support; however, upon interviewing these same participants, mentors were mentioned as essential support to professional growth. In fact, on the survey, principals were ranked higher than mentors; however, they were not even mentioned by new teachers on the interviews. This lead me to believe that new teachers were confused as to what supports actually affected professional growth; therefore, I was not able to firmly conclude that mentors in the dual-role induction model were not supportive or that principals were valued as more supportive than mentors.

Lastly, the new teacher survey sought to identify factors that motivated new teachers to leave the WMSD by asking: first, why did you leave the district?; and second, what supports were not beneficial to you in your professional growth? However, these questions were not permitted through the WMSD IRB, as permission was denied to contact or interview new teachers who had left the district (Margevich, personal communication, December 18, 2015). Therefore, these survey questions provided no motivating factors related to new teacher attrition in the WMSD.

Phase Three – Semi-Structured Interviews

The purpose of this phase was to develop semi-structured interview questions (Appendix G) for WMSD new teachers to provide in-depth answers to the survey findings in Phase Two. Kindergarten, first, and second grade new teachers volunteered and were selected to be interviewed through a survey question. The interview topics, as outlined in chapter four, covered education, retention, attrition, professional development,

colleagues vs. mentor relationship, and data. This phase of the study addressed the PRQ, SRQ1, SRQ2, GRQ1.2b, and GRQ1.2c.

Through the use of content analysis of interview transcripts, through *In Vivo* coding descriptions (Appendix H), findings indicated new teachers made connections to the importance of using assessment data to inform instruction. New teachers also expressed their need for professional development to be more in-depth in order to develop a plan of action for student achievement. This lead me to believe that the quality of data analysis was not sufficient in order to make significant impact on student achievement, and student scores might have significantly increased if the professional development was more purposeful and focused. However, this finding did not support the PRQ that the dual-role induction model affected student achievement, especially when the professional development for data analysis was weak.

Despite the lack of survey factors regarding attrition, an interview question was developed to ask those new teachers employed in the WMSD a hypothetical question in relation to attrition. This was completed in order to develop some depth to reasons behind why new teachers might leave the WMSD. The interview question asked new teachers to describe what would have to happen at the district or school level that would make them leave the teaching profession. Interviews were coded using *In Vivo* descriptions, which themes were derived to explain reasons behind teachers leaving teaching (Appendix H). Five themes that came out of the interviews included: motivators for staying, motivators for leaving, support system, professional development, and needed improvements. Lack of respect was the only factor (motivator for leaving) from the study that was not identified by Briggs (2011) and Riggs (2013) as motivating factors that caused new

teachers to leave the profession. New teachers expressed that if the workload increased, and there was a lack of support and respect for the hard work and time they put into teaching, they would consider leaving the district. This finding from this study supported The Code of Maryland and Regulations (COMAR) for new teacher induction models, as stating special consideration needed to be given to new teachers in regards to duties and teaching schedules. If COMAR was fully implemented by the local school district, this single reinforced stipulation could make a significant reduction in the number of teachers who leave the WMSD. The multiple interview data points led me to conclude that the WMSD dual-role induction model was effective in retaining new teachers.

Additional content analysis of interview questions further supported the survey questions regarding retention of new teachers in the WMSD. Questions included: first, what attracted you to teaching?; and second, what are your plans to remain in the district? New teachers reported they had some connection to teaching from a young age that inspired them to be a teacher, either a youth program or a parent. New teachers contemplated furthering their teaching career in the WMSD, which was a definite sign of retention. When considering teacher preparedness, more opportunities needed to be given in and around the community for young adults to participate in programs involving teaching and coaching students. This would lead to a better interest in the field of teaching and add to the quality of the teaching force by providing early experience.

New teacher interviews also indicated colleagues, mentor, and the district were significant supports to their professional development. This suggested to me that new teachers had more of a connection and spent more time with their colleagues and mentor, and this was why they mentioned mentors over the principal. When new teachers were

asked about plans to stay in the district, there was no mention of colleagues or principals. The only support system mentioned was the mentor. Further investigation might provide insight into how the principal played a role in the professional development of new teachers in the WMSD. New teachers felt as though the mentor was critical to the success of a new teacher, as they expressed they were not able to make it on their own. This suggested that even though new teachers sought out colleagues on a daily basis, the mentor was a critical role in the development of the new teacher. Therefore, the professional development of the mentor was a critical component as they provided the majority of the professional development for new teachers, thus having an indirect impact on student achievement. The stakeholder involvement was not sufficient in providing a comprehensive outlook on quality professional development. This helped lead me to determine that the dual-role induction model was not effective in student achievement.

Phase Four – Triangulation

This study's primary research question was: "Does a WMSD dual-role induction model (IV) affect retention of new teachers (DV) and student achievement (DV), and if so, how?" After a full review of the findings from the secondary MAP and attrition data from two different districts, the WMSD primary survey, and WMSD primary new teacher interviews, my conceptualization of the answer to this question began with the interpretation of the New Teacher Center's comprehensive induction model (NTC, 2012) and the context of prior research related to the components of a successful induction model, as well as the relationship to the study's conceptual framework.

The New Teacher Center (2012) induction theory supported a partial conceptualization of the answer to the PRQ. The dual-role induction model positively

affected retention of new teachers (district-wide), as continued support of the mentor and colleague supported reduced attrition. The findings further suggested that the majority of quality professional development was provided for math instruction, even though data achievement was weak for both reading and math compared to that of a site-based induction model. With that said, the findings demonstrated that there was a lack of collective capacity from all stakeholders that negatively impacted student achievement. The New Teacher Center (2012) induction model posited that in order for new teachers to be retained and students to achieve success, induction models need to meet the needs of new teachers by providing quality professional development, full-release mentors, and a strong support system. Briggs (2011) supported NTC's perspective stating that a comprehensive model needs to focus on attrition and mentorship (both full-release and site-based). However, Wong (2004) stipulates that even though mentoring is part of the process of induction it should not be determined as the only means to retaining new teachers, as an induction model is comprehensive.

The most significant finding of this study, according to the repeated measures ANOVA tests, was that the WMSD dual-role induction model did not make a significant impact on the progress over the course of three years in reading and math student achievement in first and second grades over the PASD site-based induction model. Interviews indicated there was a presence of quality professional development from the WMSD mentor and district level for math, and a support system (colleagues, mentor, district) that was beneficial to new teachers. However, there was a lack of quality professional development for reading on all levels of support, as indicated as part of interviews and MAP data results. The interesting factor was that the WMSD provided

new teachers with support for three years, and the PASD provided support for one year. The findings from this study contradicted literature-based research that indicated the longer the support to new teachers, the better the student achievement. Wong (2004) reported that Tucson, Arizona's induction model supported novice teachers five to eight years, followed by lifelong support by in-house veterans. School systems need to consider how to incorporate measures to establish effective support that demonstrates significant student achievement.

In the context of the primary question: "Does a WMSD dual-role induction model (IV) affect retention of new teachers (DV) and student achievement (DV), and if so, how?", the study illustrated that mentoring beyond the first year of teaching showed that the WMSD dual-role induction model did not make a positive effect on student achievement as compared to a site-based induction model. The WMSD performed better in math student achievement than reading over the course of three years. Therefore, there was a need to critically examine the WMSD reading professional development on all levels of support, as the data showed the weakest results in first and second grades.

The second important finding was that the WMSD survey and interviews determined that the professional development (K-2) used to guide instruction was more effective in math than reading. The independent samples *t*-tests and repeated measures ANOVA revealed that math achievement had greater gains than reading for the WMSD in first and second grades. A percentage of teachers from the survey listed they used data either monthly or by marking period. The WMSD used multiple assessment pieces to assist teachers in supporting student achievement, but as noted in interviews, there was lack of consistent support. This can be a result of new teachers not understanding the

reading professional development to inform their instruction or having so many resources that it caused confusion. This also indicated a lack of structure for reading in the WMSD, which needed to be addressed in order for teachers to gain the professional growth knowledge to have an impact on student achievement. Therefore, "when it comes to improving instruction and learning, it's not the quantity of the data that counts, but how the information is used" (Hamilton et al., 2009, para 1).

The third and final important finding of this study was that the WMSD had increasingly retained new teachers each year since the onset of the dual-role induction model in 2013. The data was based on the entire district's new teacher population. Even though this study did not include the retention rate prior to the dual-role induction model, the data results showed an increase each year of the data collection. The PASD successfully retained 100% of new teachers each year. This study confirmed that the dual-role induction model was effective in retaining new teachers, even though they did not retain 100% as had the PASD. Positive gains in WMSD retention was a result of the support new teachers received that assisted them in performing their jobs. This spoke not only to the professional development support, but also the emotional support for new teachers, which was a critical element in the retention of new teachers in the WMSD. Having the components of a comprehensive induction model in place indirectly impacts teacher retention in a dual-role model, and can continue to improve as the alignment of the components are measured and further strengthened.

The dual-role model encompassed a combination of both research-based mentor models (full-release and site-based), which is believed to make the success that much stronger. The continued increase in retention was evident that mentoring beyond a year is

critical to retaining new teachers. Fletcher and Strong (2009) confirmed that classes taught by teachers who have the services of a full-release over a site-based mentor, over two years, depicted higher gains with decreased attrition (Fletcher & Strong, 2009). Adding the findings of this study to existing research on induction models was essential to the success of school systems researching and utilizing induction models to retain teachers.

The findings from all phases of the study suggested that as school systems plan for the future of induction programs, they need to develop induction programs that are comprehensive in nature. According to NTC (2009), a comprehensive induction program encompasses a full-release mentor, quality professional development, and a strong support system. The WMSD should continue to re-evaluate and consider the essential components of the unique dual-role induction model that have made it successful in retention of new teachers and student achievement over the course of three years, such as the dual-role mentor, colleague and district support, and professional development in math. The WMSD will need to consider the components of the dual-role induction model that illustrated weaknesses in the program, such as teacher-perceived shortcomings in the areas of strong professional development in reading, workload, individual time with a mentor, direct support from the principal, and adequate reflection time for new teachers to plan and implement changes to practice. The presence of a comprehensive induction program as part of the dual-role model continued to increase retention of new teachers, but resulted in less than significant improvement in student achievement as compared to a site-based induction model.

Implications for Future Practice

Through the triangulation of data, and subsequent interpretation, the following implications for practice were presented within the conceptual framework. I proposed that future practice focus on the quality of mentor time; teacher preparedness in data analysis; reading professional development, specifically in the context of analyzing and determining instructional goals for reading as part of the conceptual framework; as well as finding ways to reduce new teacher loss. Emerging issues included new teacher-principal relationships, mentor/mentee time allotment, and workload. Future practice will broaden the conceptual framework as a way to continue the exploration of a dual-role induction model and its effectiveness on new teacher retention and student achievement. This continued exploration will provide school districts options to choose an effective induction model.

Quality of mentor time. Findings from the study indicated new teachers find the mentor most beneficial to their professional development growth. However, there was concern that the allotted time was not individualized for new teachers. More effort needed to be devoted to providing new teachers personalized time to meet and plan with the mentor. This included more time for reflection and implementation of professional development opportunities. Large group settings needed to be at a minimum with regards to new teachers, as they needed the allotted time with the mentor, to permit them to have an in-depth understanding of their data. NTC recommends 1.25 to 2.5 hours per week of "protected time" for communication between each mentor and mentee (Goldrick et al., 2012, p. 27). Desimone et al., (2014) highlight that having a mentor who had experience in the novice teacher's school, with the specific population of students or with

comparable students in the same grade, demonstrates more productive mentoring relationships. Therefore, when examining the results of the dual-role induction model, the mentor/mentee time was not "protected," which might be another explanation for weak use of reading data, professional development, and student achievement scores.

Teacher preparedness in data analysis. The WMSD (dual-role) scores showed less significant growth in reading and math in first and second grades over the course of three years as compared to the PASD (dual-role). The WMSD had greater mean math scores than reading, but the site-based model made statistically significant growth over time in both content areas. This suggested WMSD new teachers were completing the required assessments for students, but not necessarily the data to inform instruction. A focus on data analysis professional development in the dual-role induction model will be critical for improving teacher quality and student achievement in reading and math. As illustrated in the survey and interviews, new teachers (K-2) struggled with the multiple data pieces. New teachers in the WMSD did not feel prepared to determine effective goals without the support of the mentor. As a school system, the WMSD needed to develop a plan of action to engage local colleges that would in turn provide professional development on data analysis to aspiring teachers. This process will aide in the development of new teachers' understanding of using data to inform instruction.

Reading professional development. Of the new teachers who taught first and second grades in the WMSD, reading student achievement was less significant than math student achievement. This suggested that the reading professional development was not effective in increasing student achievement. The reading achievement of primary students (1-2) in the WMSD made less growth over time than the PASD. From the findings of the

interviews, teachers indicated there was a lack of quality reading professional development. Even though there were opportunities for new teachers to learn about strategies and analyze data, the bulk of the work fell on the new teacher to understand and implement the changes in the classroom. More effort needed to address the reading professional development, specifically at the school level with the mentor, principal, and colleagues. This includes providing more individualized professional development follow up that ensured there was an understanding of the assessment data and a plan of action for implementation. Rockoff (2008) found that student achievement increased in both reading and math when teachers spend more time with a mentor, suggesting that mentoring improved teaching skills.

Reduction of attrition. It was evident from the percentage difference for the WMSD that there was continual improvement in the reduction of new teachers leaving the district. The 18% attrition at the onset of the WMSD decreased to 9% by the end of the third year. With the comparison of the PASD not being a valued comparison, there was no certainty of the effectiveness of new teacher retention. The online survey and interviews with new teachers (K-2) indicated the lack of support in professional development, workload, and stakeholder backing would lead to attrition, even though the majority of the support was linked to retention. It was critical that the WMSD utilized the relations between the motivators for staying and potential motivators for leaving to determine the effectiveness of the WMSD retention, as the data directly related to one another. There need to be measurements in place, not only to calculate attrition of new teachers, but also to determine factors that have the greatest impact. This will ensure a focus on developing actions for preventing new teachers from leaving the profession.

Emerging Issues

Workload. Workload was the number one reason for new teachers (K-2) wanting to leave the teaching profession in the WMSD. Even though reasons for leaving the WMSD related to a hypothetical question asked of new teachers as part of interviews, workload was overwhelmingly the reason for leaving. COMAR stated that special considerations were to be given to new teachers in regards to duties and teaching schedules**.** It was evident this was not happening, as new teachers expressed they were very overwhelmed due to all the expectations put on them with curriculum, students, and other assigned duties. A critical examination into making special considerations for new teachers needed to be addressed by all stakeholders as a way to increase retention.

Teacher-principal relationships. There was no mention, other than a survey question, indicating the support from the principal as positively impacting retention of new teachers (K-2) or positively or negatively affecting student achievement. The support system has to be comprehensive in order for the model to be fully effective (NTC, 2009). More effort needed to be placed in preparing principals for mentoring new teachers. This effort can be accomplished by ensuring principals receive ongoing training and professional development to assist new teachers and setting up regular meetings that ensure continuous feedback, beyond the evaluation process.

Ratio of mentor to mentee. As part of the interview process, new teachers (K-2) expressed concerns with the ratio of novice teachers to the mentor, as the ratio increased each year. The concern lay in the fact that during the first year, mentors complied with the expectations to visit and complete the necessary tasks with new teachers, but as new teachers arrived each year, there was a disconnect with second and third year teachers.

New teachers stated in interviews that they valued the expertise of the mentor. Therefore, school districts needed to ensure there were measures in place to accommodate new teachers based on the recommended ratio beyond the first year. Code of Maryland Regulation (COMAR) expectations state mentors should be part-time or full-time and based on a 1:15 ratio. As new teachers arrive each year, this will take close analysis from all stakeholders who are part of the dual-role induction model to ensure they are effectively meeting the needs of new teachers. This will involve reducing the recommended mentor/mentee ratio.

Recommendations for Future Research

This study represents a critical step in determining factors that impact induction models. Continued research on the dual-role model, as compared to other induction models, will further assist the WMSD and other educational systems in realigning components to increase new teacher retention and addressing student achievement success of early learners. New teacher induction programs are not isolated to retention and student achievement, but rather are a comprehensive amalgam of components that make it generally successful (Wong, 2004). While this study did not explore the quality of the mentor, teacher preparedness, student subgroups, location (rural and urban), or cost, I suspect these factors were also priorities in the success of the dual-role induction model. Based on this, and the findings of this study, I next propose a model of recommendations for future research investigation, particularly from the perspective of stakeholders who examine the components and effects of induction models. (See Figure 10.)

This suggested modification to the dual-role induction model (full-release and

site-based) places *teacher preparedness* alongside new teachers, as this is what can possibly impact the professional growth of new teachers, which, in turn, indirectly impacts new teacher retention and student achievement. If new teachers are properly prepared and feel successful, they will be more likely to remain in the teaching profession. Therefore, it is essential to explore this connection further. *Cost* is directly aligned to the main components (professional development, stakeholders, mentor) in order to create a clear breakdown of the program. By determining the input (cost) of the program, stakeholders can better determine what is benefiting new teacher retention and student achievement. This in turn can save school districts financially. *Location* is placed beside retention, as location of new teacher attrition is essential in determining where to utilize more support. The connection between location and new teachers is going to be beneficial in determining how much and what type of professional development is most effective for new teachers, especially if there is an increase or decrease of new teachers to the district. *Subgroups* and *location* (rural and urban) is placed next to student achievement. This suggestion notes that further disaggregation of student data might provide different outcomes for reading and math or provide outcomes that will allow for differentiated professional development for new teachers. Disaggregating the data into subgroups and location will provide better insight into what areas of the district need more focus on professional development for new teachers in reading and math. Location and subgroups are not areas I focused on in my study; however, the two may prove to be significant to the effectiveness of new teacher retention and student achievement. A further recommendation will be to continue to employ longitudinal data, using norm-referenced assessments of reading and math to compare to other induction models. This

includes expanding the use of data beyond primary grades. These recommendations for future research incorporate the findings of this study and literature-based research that suggest an effective induction program encompass a comprehensive approach.

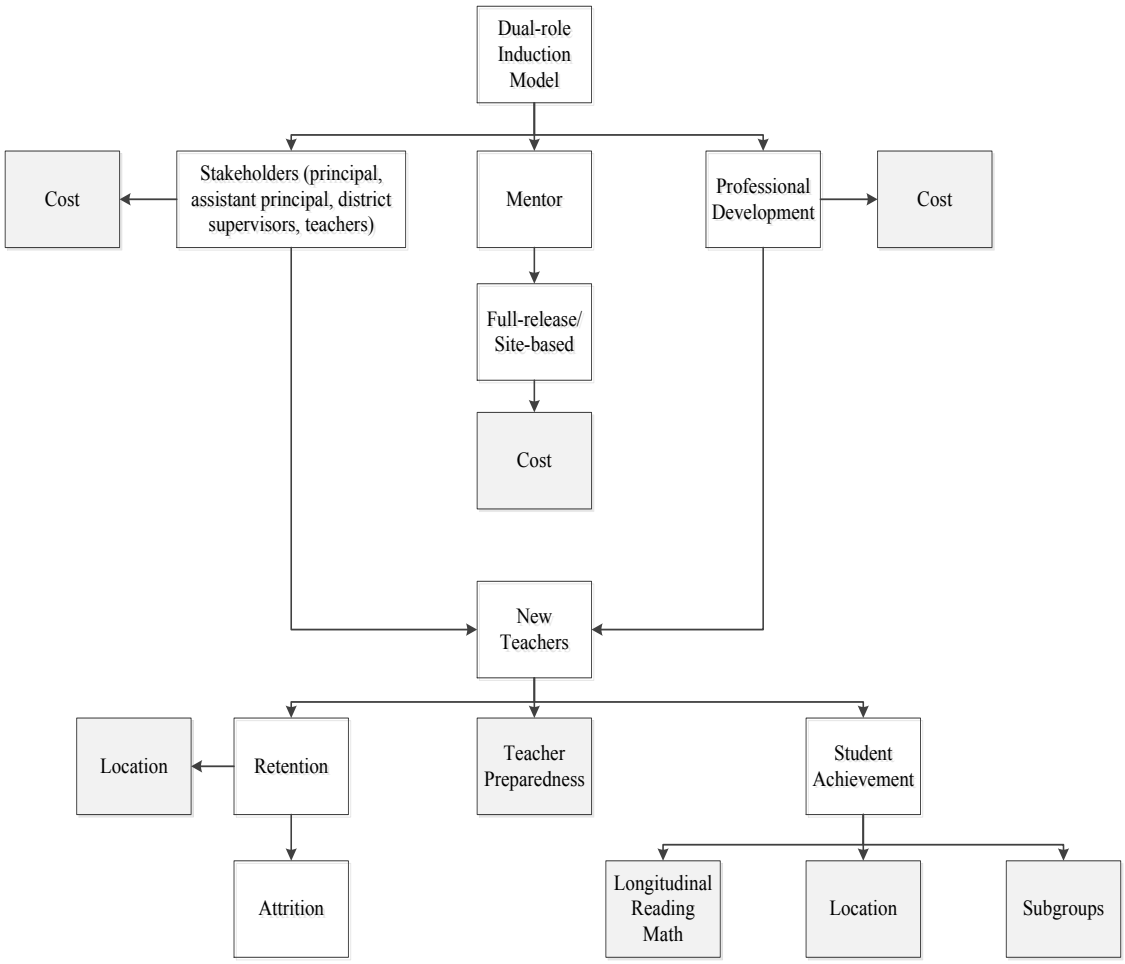

Figure 10. Recommendations for Future Research on the Dual-role Induction Model.

Conclusions

As 50% of new teachers leave the profession within five years of teaching, school systems need to consider the benefits induction models pose to primarily new teachers and to students. Successful induction models depend on the alignment of the components and ability of the school system to meet new teacher needs and priorities, particularly

those tied to student achievement. This study was conducted to determine not only the effectiveness of the dual-role induction model on retention of new teachers, but also to determine how the presence of quality professional development, support system, and a full-release/site-based mentor influenced retention of new teachers and impacted student achievement. The findings of this study will ideally be used by the WMSD and other induction programs to improve, enhance, and grow induction models that positively impact new teacher retention and student achievement.

The longevity of support in the WMSD dual-role induction model demonstrated that overall retention increased over the course of three years, but there was no significant increase in reading and math student achievement (1-2), as compared to the PASD site-based induction model. This indicated the longer the service to new teachers, the better the retention results. However, without the professional development capacity from all stakeholders in the WMSD, student achievement did not progress. As the WMSD (combination of full-release and site-based) served new teachers for three years and the PASD (site-based) served new teachers for one year, further longevity tests will continue to be insightful into measuring growth over a period of time.

This study found that the WMSD did not outperform, according to the repeated measures ANOVA tests, the PASD in reading and math over time (1-2). The presence or absence of quality professional development was central to determining the effectiveness of the dual-role induction model on student achievement. The data suggested there was a strong focus on professional development in math, as there were better gains there in both grade one and grade two for the WMSD. Therefore, more focus needed to be on developing new teachers in reading instruction.

This study suggested the dual-role induction model was an advancement to the development of a comprehensive induction model, compared to that of a literature-based full-release model and site-based induction model. A dual-role induction model, one where the mentor was full-release and site-based, demonstrated progression with professional development and a support system for new teachers that led to new teacher retention but did not significantly impact student achievement in reading and math (1-2). Further alignment of the comprehensive dual-role induction model will likely lead to improved student achievement and decrease high turnover rates among new teachers. This will be best accomplished with consistent, ongoing evaluation of the dual-role induction model professional development, student achievement, support systems, and new teacher retention, which adds to current research-based literature on induction models.

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Appendix A – National Institute of Health Certificate of Completion

Certificate of Completion

The National Institutes of Health (NIH) Office of Extramural Research certifies that **Lori Ridgely** successfully completed the NIH Web-based training course "Protecting Human Research Participants".

Date of completion: 09/07/2014

Certification Number: 1540994

Appendix B – Email to Participants

Dear Western Maryland School District (WMSD) Teacher,

I am conducting research on new teacher retention and student achievement as part of my doctorate program through Frostburg State University. You have been identified for the study because you are or were a teacher with less than three years of teaching experience within this WMSD. Your input is valued to help gain insight into your experiences here in this WMSD and help shape new teacher induction models for future beginning teachers. The link below is an online survey that will take 10 minutes to complete. Participation is voluntary and all responses are anonymous. More information about the study is provided at the beginning of the survey, but please feel free to contact me by by email (ridgelyl@frontier.com) if you have further questions.

https://www.surveymonkey.com/r/DTW6F26

Thank you,

Lori A. Ridgely

Appendix C – Consent Form for Survey

You are invited to participate in a research study survey about the new teacher induction model for new teachers within this Western Maryland School District (WMSD). The purpose of the survey is to determine the impact of the district's new teacher induction model on retention and student achievement of non-tenured teachers. The significance of this survey will contribute to the body of research on new teacher induction models that consistently prove to be effective in retaining teachers to a school system, as well as the effectiveness of these models on student achievement.

This survey should take about 10 minutes to complete. Participation is voluntary, and responses will be anonymous. You have the option to not respond to any questions that you choose. Participation or non-participation will not impact your relationship with the Western Maryland School District. There is no direct benefit or risk to you from taking part in this study. It is hoped that the research will add to current research on effectiveness on retention and student achievement of non-tenured teachers within a dual-role teacher induction model.

Submission of the survey will be interpreted as your informed consent to participate and that you affirm that you are at least 18 years of age. If you have any questions about the research, please contact the Principal Investigator, Lori A. Ridgely, via email at ridgelyl@frontier.com. This research study has been reviewed and approved by the Institutional Review Board (IRB) of Frostburg State University. For research-related problems or questions regarding participants' rights, contact the IRB through the Director of the Office of Research and Sponsored Programs at 301-687-3101.

Appendix D – Survey for New Teachers K-2

Interview Question (IQ)	Phrases	Codes	Themes
IQI	"felt an early connection to students because of my parental influence" parental exposure "inspired me to go into the same field" " "volunteer work led to an education in teaching" "interest peeked as an adolescent as an intern in high school"	Exposure, Early Connection	Motivators for Staying
IQ2	"pursing master's in education" "pondering" other certifications, "contemplating" curriculum and instruction, technology, education, other roles in the district	Pursing, Pondering, Contemplating	
IQ3	"feel supported by mentor" "I need the support everyday" "the support helped me feel stable" "mentor provides clear, consistent advice" "school atmosphere has the greatest influence for staying or leaving the district"	Support, School Atmosphere	
IQ4	"PD is a way to learn current trends of teaching" "a way to see tested methods or how to teach something to help me with my job" "PD is looking at improving my teaching to become better" "PD is a continuous job requirement"	Current Trends, Tested Methods, Improvement, Continuous	Quality of Professional Development
IQ7	"coaching is needed by mentor to provide feedback to improve teaching" "professional development assisted in analyzing data to improve student learning" "when choice is involved, PD is more meaningful" "opportunities from district to attend PD" "PD opportunities are exposure"	Coaching, Assisted, Feedback, Opportunities	
IQ8	"there is a need to personalize professional development specific to needs" "district PD lacked the inquiry-based aspect; it was more	Personalize Needs, Adapting to Classroom, No	

	of showing us the standards, not necessarily showing how to adapt them to our classroom" "no time to reflect and put ideas into action"	Time	
IQ9	"district offered monthly content courses" "mentor focuses on using MAP data to inform instruction" "not enough in-depth look at what needs to be done"	District Monthly, Mentor Focuses on Informing Instruction, No In-depth Look	
IQ5	"not enough time is provided for working with colleagues" "mentor and colleagues were great support" "mentor provides specific feedback that impacts teaching practice"	Specific Feedback, Time, mentor and colleague support	Value of Support Systems
IQ6	"the mentor is more of the "big picture" with PD and colleagues are more of the day to day support"	Daily, Big Picture	
IQ10	"current data is essential in determining next steps for students" "formative assessments inform teaching practice more than district or state tests"	Formative, Steps, Inform	Data to Inform Student Achievement
IQ11	"the ratio is too high with mentor to new teacher" "my head is spinning and there needs to be more focused time" "more time needed to work with colleagues and mentors" "induction model provided professional development, self-reflection, and coaching with the mentor"	Professional Development, Reflection, Coaching, Ratio, Focus, Visits	Potential Motivators for Leaving
IQ12	"workload" "you really have to love it to be willing to do the work" "lack of support" "you can't do this by yourself" "not respected as a professional" "work not valued"	Workload, Lack of Respect, Lack of Support	

Appendix E – Gaps in Survey

Survey Questions (SQ)	Gaps in Survey Questions	Interview Questions Based on Gaps in Survey
• SQ1 • SQ2 • SQ3 • SQ4 • SQ5	• New teachers are obtaining bachelor's and master's degrees, but there is no indication as to the longevity for remaining in the district	• IQ1 • IQ2 • IQ3
• SQ9 • SQ9 • SQ12 • SQ13	• Professional development is rated the lowest for staying, but highest for professional development growth with no explanation as to why. • Dual-role is ranked high (excellent) but no explanation as to why.	• IQ4 • IQ5 • IQ6 • IQ7 • IQ8 • IQ9 • IQ11
• SQ14 • SQ15 • SQ16 • SQ17	• 27% of teachers indicate they use reading data on a monthly/marking period and used 12% use math data on a monthly/marking period. There is no indication as to how the data is viewed as essential to student learning or how the data is utilized.	• IQ10
• SQ10 • SQ11 • SQ7	• Not applicable due to the WMSD IRB stipulations on not having permission to survey or interview those new teachers who left the district • Lack of factors relating to attrition	• IQ12

Appendix F – Consent Form for Interviews

Interview Consent Form Details

INTERVIEW WITH AUDIO RECORDING

Consent to Participate in a Research Interview
A Study on the Effect of a Dual-role Induction Model on Retention and Student Achievement

Introduction and Purpose
My name is Lori A Ridgely. I am a doctoral student at Frostburg State University in the Department of Education Ed.D program. I would like to invite you to take part in my research study, which concerns the effectiveness of a dual-role new teacher induction model on retention and student achievement.

Procedures
If you agree to participate in my research, I will conduct an interview with you at a time and location of your choice. The interview will involve questions about retention and student achievement. It should last about 30 minutes. With your permission, I will audio record and take notes during the interview. The recording is to accurately record the information you provide, and will be used for transcription purposes only. If you choose not to be audio recorded, I will take notes instead. If you agree to be audio recorded, but feel uncomfortable at any time during the interview, I can turn off the recorder at your request. Or if you don't wish to continue, you can stop the interview at any time.

Benefits
There is no direct benefit to you from taking part in this study. It is hoped that the research will add to current research on effectiveness on retention and student achievement of non-tenured teachers within a dual-role teacher induction model.

Risks
Some of the research questions may make you uncomfortable. You are free to decline to answer any questions you don't wish to, or to stop the interview at any time.

Confidentiality
To ensure your confidentiality as a participant you will be identified by a number right from the beginning of the study. Once the interviews have been transcribed, the recorded interviews will be erased. No master list connecting the real names to the pseudonyms will be kept. The transcribed interviews will be stored in electronic form. Only the primary investigator of this study will have access to the stored interview transcriptions. When the research is completed, I will retain these records for up to three years after the study is over.

Compensation
You will not be paid for taking part in this study.

Rights

Participation in research is completely voluntary. You are free to decline to take part in the interview. You can decline to answer any questions and are free to stop taking part in the interview at any time. Whether or not you choose to participate in the research and whether or not you choose to answer a question or continue participating in the interview, there will be no penalty to you or loss of benefits to which you are otherwise entitled.

Questions

If you have any questions about this research, please feel free to contact me. I can be reached at 304-274-1433 or ridgelyl@frontier.com. This research study has been reviewed and approved by the Institutional Review Board (IRB) of Frostburg State University. For research-related problems or questions regarding participants' rights, contact the IRB through the Director of the Office of Research and Sponsored Programs at 301-687-3101.

****

I have read and understand the explanation provided to me and have been given a copy of this consent form. I have had all my questions answered to my satisfaction, and I voluntarily agree to participate in this study.

Primary Investigator:
Lori A. Ridgely
78 Loring Court
Falling Waters, WV 25419
304-274-1433
ridgelyl@frontier.com

Primary Investigator signature: _____

Date:_____

Participant's Name *(please print)* _____

_____ _____
Participant's Signature Date

Appendix G – Semi-Structured Interview Questions

Question Number	Question
1	What attracted you to teaching?
2	What are your future plans to earn a higher degree in education?
3	What are your plans to remain in the district?
4	How do you define professional development?
5	Explain how your professional development relationship differs between colleagues and mentor?
6	How much time is spent with colleagues versus mentors each week? Explain the type of interaction that occurs during this time?
7	What professional development opportunities positively impacted your teaching growth? How do you know it positively impacted your teaching growth?
8	What professional development opportunities negatively impacted your teaching growth? How do you know it negatively impacted your teaching growth?
9	What professional development was offered to you for reading and math instruction? Who offered this professional development? How often?
10	Do you believe that using current data is essential in informing your instruction? How so?
11	Why did you rate the dual-role induction model the way you did?
12	Describe what would have to happen at the district or school level that would make you leave the teaching profession?

Appendix H – *In Vivo* Manual Coding

(Interview Questions, Phrases, Codes, and Themes)

Interview Question (IQ)	Phrases	Codes	Themes
IQI	"felt an early connection to students because of my parental influence" parental exposure "inspired me to go into the same field" " "volunteer work led to an education in teaching" "interest peeked as an adolescent as an intern in high school"	Exposure, Early Connection	Motivators for Staying
IQ2	"pursing master's in education" "pondering" other certifications, "contemplating" curriculum and instruction, technology, education, other roles in the district	Pursing, Pondering, Contemplating	
IQ3	"feel supported by mentor" "I need the support everyday" "the support helped me feel stable" "mentor provides clear, consistent advice" "school atmosphere has the greatest influence for staying or leaving the district"	Support, School Atmosphere	
IQ4	"PD is a way to learn current trends of teaching" "a way to see tested methods or how to teach something to help me with my job" "PD is looking at improving my teaching to become better" "PD is a continuous job requirement"	Current Trends, Tested Methods, Improvement, Continuous	Quality of Professional Development
IQ7	"coaching is needed by mentor to provide feedback to improve teaching" "professional development assisted in analyzing data to improve student learning" "when choice is involved, PD is more meaningful" "opportunities from district to attend PD" "PD opportunities are exposure"	Coaching, Assisted, Feedback, Opportunities	
IQ8	"there is a need to personalize professional development specific to needs" "district PD lacked the	Personalize Needs, Adapting to	

	inquiry-based aspect; it was more of showing us the standards, not necessarily showing how to adapt them to our classroom" "no time to reflect and put ideas into action"	Classroom, No Time	
IQ9	"district offered monthly content courses" "mentor focuses on using MAP data to inform instruction" "not enough in-depth look at what needs to be done"	District Monthly, Mentor Focuses on Informing Instruction, No In-depth Look	
IQ5	"not enough time is provided for working with colleagues" "mentor and colleagues were great support" "mentor provides specific feedback that impacts teaching practice"	Specific Feedback, Time, mentor and colleague support	Value of Support Systems
IQ6	"the mentor is more of the "big picture" with PD and colleagues are more of the day to day support"	Daily, Big Picture	
IQ10	"current data is essential in determining next steps for students" "formative assessments inform teaching practice more than district or state tests"	Formative, Steps, Inform	Data to Inform Student Achievement
IQ11	"the ratio is too high with mentor to new teacher" "my head is spinning and there needs to be more focused time" "more time needed to work with colleagues and mentors" "induction model provided professional development, self-reflection, and coaching with the mentor"	Professional Development, Reflection, Coaching, Ratio, Focus, Visits	Potential Motivators for Leaving
IQ12	"workload" "you really have to love it to be willing to do the work" "lack of support" "you can't do this by yourself" "not respected as a professional" "work not valued"	Workload, Lack of Respect, Lack of Support	

Appendix I – Frostburg State University IRB Notice of Approval

FROSTBURG STATE UNIVERSITY
Institutional Review Board (IRB)
NOTICE OF APPROVAL

FROSTBURG STATE UNIVERSITY APPROVED NOV 09 2015 IRB

IRB#: H2016-012
Initial

To: Lori Ridgley

Dept.: EDUC

Approval Date: 11/9/2015

Project Title: A Study on the Effect of a Dual-role Induction Model on Retention and Student Achievement

Sponsoring Agency:

The Frostburg State University Institutional Review Board for the Protection of Humans as Participants in Research has approved the project listed above. Approval was based on the descriptive material and procedures you submitted for review. If you wish to make changes to your procedures, or if you should encounter any new risks, reactions, injuries, or deaths of persons, you must notify the IRB Chair, Beth Scarloss, x4472.

This protocol was first approved on 11/9/2015 and currently expires on 11/9/2016

A signed consent form [X] is required of each subject [ ] is not required.

If a consent form is required, copies of the attached consent form that has been hand-stamped with the IRB approval must be used.

Records relating to this research must be retained for a minimum of three years.

If you intend to continue this research past the current expiration date, you must submit a renewal application for annual review no later than 30 days prior to the expiration date. If this deadline is missed, then an entirely new application must be submitted instead. Minor modifications may be made without IRB approval, but must be reported at the next review. Modifications that affect participant selection, risks & benefits, or confidentiality are considered substantial and require IRB review.

Reviewer Comments:
(None)

Please complete the attached Notice of Project Termination and Completion Form and return it to the Office of Research and Sponsored Programs, 511 Ort Library, when you have completed your project. We wish you the best with your research.

Beth Scarloss,
IRB Chair

Type of Review: [ ] Exempt [X] Expedited [ ] Full

Appendix J – Washington County Public Schools Research Request Approval

WCPS | Washington County Public Schools

10435 Downsville Pike
Hagerstown, MD 21740
301-766-2847

Office of Testing and Accountability

To: Lori Ridgely

From: Maureen Margevich

Date: November 24, 2015

Re: Research Request

Congratulations! Your research proposal, studying the effectiveness of a dual-role new teacher induction model on retention and student achievement, has been approved for use amongst elementary schools in Washington County Public Schools. As indicated in the research proposal, teacher and student data will remain confidential. WCPS will be unable to provide you with any contact information for teachers who are no longer employed by the system.

At the completion of the research, we request a copy of your findings prior to publication. Please share these results with the Office of Testing & Accountability unsolicited before December 31, 2016.

If you have any questions, please feel free to contact me at margemau@wcps.k12.md.us or at the above number.

Building a Community That Inspires Curiosity, Creativity, and Achievement.

www.wcps.k12.md.us