THE PRAIRIE VALLEY PROJECT:

DEVELOPMENT OF A RURAL, SCHOOL-WIDE, MULTIAGE ELEMENTARY CLASSROOM DESIGN

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AUTHORIZATION TO SUBMIT DISSERTATION

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DEDICATION

To my daughter, Ashley, and son, Sam, I can only say, thank you for being such loving children and an inspiration for me to be a better person. To my parents, who showed me that a kid could have a perfect childhood. They also gave the gifts of a good work ethic, positive attitude, and a good sense of humor about life in general that makes every day a wonderful thing to cherish. To my grandfather, who provided all of his 21 grandchildren a desire to question and understand the present for the sake of changing the future.

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ABSTRACT

The multiage classroom design that has its origin in the rural, single-age classroom that blanketed the United States in the 1800's is returning as a viable alternative to the single age classroom. The author looked at the perceptions of the parents and teachers that were impacted during two rural elementary schools' transition away from the single-age classroom to a multiage classroom design. The study specifically looked at the school-wide transition to the multiage design in grades kindergarten through 5th grade by examining the overall effect of the multiage design had on these two groups, the value of the components of the multiage that were thought to be appealing by the administration and the impact the change had on student academic achievement. Overall, there was positive support of the transition to the multiage design by parents in all of the areas studied, but the teachers, even though they demonstrated support, were significantly less supportive then the parents in a few of the areas examined. It was also found that this study supported earlier research stating the academic impact of the multiage design was not significantly different either positively or negatively. This author provided information that will allow future districts to better identify what will gain the support of the parents and teachers when transitioning to the multiage classroom design.

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Chapter I

Touring a Multiage School

A parent of a second grader who has just moved to the community walks down a hallway of a rural elementary school. The principal guides the parent to a classroom at the end of the hall. As they walk the principal recounts a successful year and provides some information about the school and district. As they reach the classroom, the principal explains that this year a major change called “Prairie Valley Project” has reorganized all the elementary classrooms.

As the principal and parent enter the classroom students are working at their desks or quietly moving about the room. The teacher also moves about the room talking with individual and small clusters of students. The topic is language arts; however, the instruction method is not like most schools. Rather than all of the children working on the same exact assignment these students each have an altered version of the assignment. Some students have a vocabulary list where they match words to definitions; others are not given the words, but only the definitions. Some students even have to use the words in multiple sentences to demonstrate their knowledge level. Groups of students receive directions from the teacher, and as soon as they understand the assignment they quietly walk to their seat and begin to work. If a question arises, the teacher allows students to help one another.

The principal, smiling at the well-ordered scene, continues to explain that students in this elementary school are broken into three levels, called “multiage pods.” The kindergarten and first grade students are combined within one pod. The second pod consists of 2nd and 3rd graders, and the last pod contains the 4th and 5th grade students. Each year, as the students move up in grade level; the students in the upper grade level within a pod move to the next pod level.

However, the younger students will be looped back into the same classroom with the same teacher.

The principal next explains how the school district came about initiating the Prairie Valley Project. The concept was introduced to the district administration by two teachers who had heard about the multiage concept. The administration saw this design as a possible remedy for some of the issues that affected the school climate and student learning. Some of these issues included the growing concern of bullying and student social well-being, an increased pressure for instructors to gear the education to specific needs of each student, a need for families to be involved in their child's education, and also the need to assist teachers in becoming experts in the areas that they were assigned. In addition, the administration knew the teachers needed to work as a group in order to tackle all of the demands they faced under the No Child Left Behind Act and Common Core State Standards.

As told by the principal, there are benefits to the multiage classroom design. The first is that multiage pods provide a more conducive social setting that positively impacts student learning, as supported by theorist Lev Vygotsky's Theory of Social Development, which suggests children push themselves academically in their desire to socialize (Harmon, 2001; Ong, Allison, & Haladyna, 2000). In addition the principal explained that the classroom make-up of younger and older students working together also allowed a social setting that resembles a family where younger siblings learn by example from older siblings and the older siblings strengthen their skills as they teach the younger siblings. The looping of students hopefully allows the teacher to also build closer relationships with both the students and their families.

The principal further discusses how combining two grade levels allowed the school to better equalize different classrooms within a pod to accommodate a class that may be larger than

normal. Pods also allowed teachers a greater chance of being able to stay at one level for multiple years, which allowed them to become experts in that multiage group. Teachers in each pod level can also collaborate to better share ideas, lessons, and concerns.

Introduction

In the ongoing pursuit of academic accountability, educators continually look toward alternative methods of instruction in the hopes of enhancing student achievement. One such area of interest was an alternative classroom design that could contribute to a more effective learning environment. When the rural school district in north-central Idaho considered alternative designs in 2010, it was imperative to base the decision on the ability of the design to support research-based components that have been proven to help student achievement (Eichacker, 2008; Flora, 2006; Harmon, 2001; Holloway, 2001; Lindstrom & Lindahl, 2011; Mariano & Kirby, 2009; Ong, Allison, & Haladyna, 2000; Veenman, 1995). However, such a design must also be valued by the people who trust their children to be placed in such a classroom environment and by those who teach in this same environment.

The multiage classroom design seemed promising to the district administration and was implemented. This design's key components had the ability to resurrect the educational philosophy that placed more emphasis on the needs of each individual student rather than trying to match the student's age to expectations that may be beyond their current abilities (Harmon, 2001; Ong, Allison, & Haladyna, 2000). This design follows Lev Vygotsky's Social Development Theory that emphasized students as being unique learners who would academically progress through inner desire to socialize with others. It was hoped that this design would provide this setting by allowing students to learn with others of different ages, stay with the same teacher multiple years, and support a design that allowed teachers to better share ideas with

colleagues for better lesson preparations. The specific multiage classroom design used in the Prairie Valley Project had the potential to enhance students' learning, foster family involvement, and support the teachers' professional capabilities (Broome, 2009; Carter, 2005; Holloway, 2001; Hornby & Witte, 2010; Song, Spradlin, & Plucker, 2009). Those added benefits, in turn, could also improve the opportunity for student improvement by eliminating barriers that could hamper educational needs of each child (Carter, 2005; Hornby & Witte, 2010; Song, Spradlin, & Plucker, 2009).

As rural elementary schools became more concerned with meeting the academic needs of all students due to more stringent requirements of the federal government's reauthorization of the No Child Left Behind Act in 2001 (Barnyak & McNelly, 2009; Fowler, 2009) school systems needed to reconsider how teachers at the elementary level instruct. Teachers may not be able to teach in isolation, as they had in the past, without additional collaborating and sharing with their peers (Grove & Fisher, 2006; Kimmel, 2012; Levine & Marcus, 2007; Nevin, Cramer, Voigt, & Salazar, 2008; Stuart, Connor, Cady, & Zweifel, 2006). Teachers also need to become more of an expert in the grade levels in which they taught to better individualize the instruction and improve test scores. This could only be done if teacher reassignments were limited (Grove & Fisher, 2006). In addition, a greater emphasis was needed to assist students in their education by developing a setting that reduced the trend of bullying in the schools, a topic that concerns the entire nation (Allen, 2010; Estell et al., 2009; Sheers, 2010). Finally, a greater effort was needed to involve families in their child's education due to the extensive research that showed students performed better when the adults in their lives were activity engaged in their child's academic work (Baeck, 2010; Barnyak & McNelly, 2009; Bracke & Corts, 2012; Coleman & McNeese, 2009; Kim et al., 2012; Sharon & Nimisha, 2009; Smith, 2006; Zygmunt-Fillwalk, 2011).

Statement of the Problem

The desire to know how a transition to the multiage classroom design affects the people impacted by the change was the catalyst for this research study. During the time following the reauthorization of the No Child Left Behind Act of 2001 there had been an increase in demands placed upon school systems to provide better instructional environments that were more conducive to learning (Song, Spradlin, & Plucker, 2009). With this in mind, researchers invested substantial time and effort in identifying issues that had negatively impacted the classroom learning environment, and then presented alternatives that could enhance the learning environment (Allen, 2010; Belcher, 2000; Blatchford, 2005; Carter, 2005; Corrigan, Hemmings, & Kay, 2006; Danling et al., 1999; Eichacker, 2008; Flora, 2006; Grove & Fisher, 2006; Harmon, 2001;; Holloway, 2001; Kim et al., 2012; Levine & Marcus, 2007; Michael, Bowes, Jones, & Bauer, 1994, Annual Meeting; Rossi & Sirna, 2008; Song et al., 2009; Van Keer & Vanderlinde, 2010).

The purpose of this case study was to explore, analyze, and describe characteristics of the specific multiage classroom that were being implemented in two elementary schools in a rural school district located in the northwestern United States. This study capitalized on the Prairie Valley Project, which was conducted in the third year after the transition to the multiage classroom design. The aim for this study was to explain how this multiage classroom design met the varied needs of the students, teachers, and families. In addition, it aimed to identify the program's components that parents and teachers saw as valuable for improving student achievement. This information could then be used by administrators when considering alternative classroom designs in the future.

Background of the Study

The Prairie Valley Project, which was developed by a rural school district to meet the ongoing classroom design concerns, was the basis for this study. The modifications that were implemented were developed in hopes to provide appropriate instructional lessons, increase teacher collaboration, improve student social skills, increase family/teacher communication, and increase academic instructional time. Those modifications, in turn, were intended to improve student academic achievement.

The multiage classroom was implemented in two schools, within the grades of Kindergarten through 5th grade in a rural school district in north-central Idaho. There was a strong desire of the administration to determine what the perception of the parents and teachers were regarding the transition to the multiage classroom. Especially since the entire school had gone to this design which did not allow the parents the option of deciding which design they would like their child to participate in. The administration also wanted to know which of the changes that occurred when implementing the multiage design were considered valuable and made the change worthwhile. Finally, administration wanted to know if the multiage design helped impact the academic achievement of the students. Overall, they wanted to know the effect that the multiage classroom had on the people that were impacted. This question would provide additional research that was unavailable from two earlier studies by Aubrey J. Penny (2005) and Debra J. Eichacker (2008) regarding the multiage design and the perceptions of parents and teachers where both single grade classrooms and multiage classrooms were available within the

In consideration of these concerns, an extensive literature review was conducted. This literature review confirmed these concerns also being valid for both parents and teachers. The issues that were identified by teachers as impacting learning included the following:

- Loss of academic instruction time due to covering classroom procedures and remediation and getting to know the student and their learning styles (Belcher, 2000; Danling et al., 1999; Hitz, Somers, & Jenlink, 2007; Nevin, Cramer, Voigt, & Salazar, 2008).
- Addressing negative social relationships existing among students that needed to be changed in order to make the learning environment effective (Allen, 2010; Carter, 2005; Estell et al., 2009; Grove & Fisher, 2006; Sheers, 2010; Van Keer & Vanderlinde, 2010).
- Low teacher morale due to disproportions in class sizes or being assigned to a new grade level (Blatchford, 2005).
- Lack of collaboration among teachers (Bailey & Williams-Black, 2008; Broome, 2009; Brotherton, Kostine, & Powers, 2010; Grove & Fisher, 2006; Levine & Marcus, 2007; Stuart, Connor, Cady, & Zweifel, 2006).
- Lack of parental involvement (Baeck, 2010; Barnyak & McNelly, 2009; Bracke & Corts, 2012; Coleman & McNeese, 2009; Daniel, 2011; Kim et al., 2012; Sharon & Nimisha, 2009; Smith, 2006; Song et al., 2009; Zygmunt-Fillwalk, 2011).

The issues that parents identified as impacting their child's education included the following:

- Lack of teachers understanding their children's learning needs (McDermott & Rothenberg, 2000).
- Children overlooked in a large class and lack of a sense of belonging (Barnyak & McNelly, 2009; Carter, 2005; Kim et al., 2012).

- Lack of educational challenge for children (Bailey & Williams-Black, 2008; Driskill, 2010; Kobelin, 2009; Tobin & McInnes, 2008).
- Lack of effective communication between parents and their children's teachers (Bracke & Corts, 2012; Carter, 2005; Daniel, 2011; Kim et al., 2012; Song et al., 2009).

Once these issues were identified, the multiage classroom model was proposed. This design was selected because of its ability to accommodate the strategies to reduce the concerns identified by teachers and parents that affected student learning (Carter, 2005; Holloway, 2001; Hornby & Witte, 2010; Lindstrom & Lindahl, 2011; Page, 2006; Pratt, 1986; Russell, Rowe, & Hill, 1998).

After this alternative classroom design was determined by the administration as a solution for schools to better meet the needs of all students and the teachers who work with them, it was imperative to get support from the stakeholders (Fullan, 2008; Hargreaves & Shirley, 2009). Niesche and Jorgensen (2010) showed the importance of administrative support and leadership when multiage designs are implemented. Research is clear that teacher support of the multiage design and its components is also needed for successful implementation (Beaman, 2009). However, a gap exists in the professional literature focusing on the perspective of the parent who had been asked to support this classroom design (Song et al., 2009). Without parental support and input on the value of multiage design in meeting their child's needs, the transition to a new classroom design appeared to be destined to fail (Carter, 2005; Song et al., 2009). This belief of the need to value components of the multiage classroom design was also true with the teachers who worked in a multiage classroom (Belcher, 2000; Broome, 2009; Brotherton et al., 2010; Danling et al., 1999, Hoffman, 2003; Russell, Rowe, & Hill, 1998; Stuart et al., 2006).

Research Questions

Creswell (2009) indicates the purpose of a study's research question(s) were to narrow the purpose statement and act as major signposts for readers. The guiding questions of this study were developed to determine the view of teachers and parents as to the value of the multiage classroom, the components with in the design that these individuals found to be important, and to determine the ability of this design to accommodate the needs in a rural school district's elementary schools. While this research was limited to a single, rural school district in the northwestern United States, findings were useful for those considering adopting a multiage classroom design. The guiding questions this research addressed were:

1. What effect did the multiage classroom design have on teachers and parents who have students in the program?
2. What components of the multiage classroom explain the effect the program has on teachers and parents who have students in the program?
3. How effective in improving academic scores was the school-wide multiage classroom design in a rural school?

Description of Terms

During the literature review, it became apparent that researchers studying the multiage classroom used the terms multi-grade and multiage intermittently as the same design (Ong et al., 2000; Veenman, 1995; Veenman, 1996). The definitions of these two designs, along with other terms are provided to help readers understand key concepts in this study and differences in terms.

Collaboration. A process that involves the application of collaborative ideals and a shift to a collective responsibility for each student's success (Grove & Fisher, 2006, p. 64).

Differentiated instruction. Instruction that involves teachers responding to the students' needs by proving material to students at their various ability levels. Differentiated instruction helps all students reach a similar end goal through varied instruction, tailored to student learning styles, needs, and strengths. Materials, methods, processes, content, or groupings, and assessments are varied in order for all students to reach the same learning outcomes (Driskill, 2010, p. 17).

Looping. Multiyear teaching or multiyear placement that occurs when a teacher is promoted with her students to the next grade level and stays with the same group of children for two or three years (Hitz et al., 2007, p. 1). In this study, the looping concept was modified so that the students who were part of the lower grade grouping within the two-grade multiage classroom would remain with the same teacher. The older students would move on to another multiage range (Stuart et al., 2006).

Multiage classroom design. Group of students with an age span of at least two or three years. A basic construct is that heterogeneous groups form for instruction. Multiage grouping does not acknowledge the respective grade levels of the students; instead it relaxes the rigid grade-level curriculum with its age-graded expectations. The child's developmental needs, regardless of grade-level curriculum or administrative placement, stand as the key defining characteristic of a multiage concept (Eichacker, 2008, p. 7). In this study, the multiage classrooms consisted of pods of grades K–1, 2–3, and 4–5.

Multi-grade classroom design. Group of students from two grade levels who have been placed within one classroom. This is typically motivated by financial constraints or reduction of students within rural schools. Students continue to be separated by grade level, with instruction to one group while the other group works independently at their desks (Veenman, 1995).

Single-age classroom design. An educational system that places a student in a single grade for one year with an age-specific curriculum. The child who does not successfully complete the curriculum often repeats it. Letter grades and standardized achievement tests may be used to measure success (Eichacker, 2008, p. 8). Also referred to as traditional classroom, mono-age, or regular classroom.

Significance of the Study

This study was designed to identify the level of value parents had for the multiage classroom within a rural community in the northwestern United States. It also sought to identify the level of value teachers had for the multiage classroom within the same community. In addition, the study sought to determine the impact of the design on student academic achievement, as well as identify the components of this model that parents and teachers believe are particularly valuable to students.

When reviewing the literature regarding the multiage classroom design, it became apparent that a gap exists in understanding the perspective of parents and teachers with first-hand experience in a multiage classroom (Holloway, 2001; Mariano & Kirby, 2009; Song et al., 2009; Veenman, 1995; Veenman, 1996). However, in reviewing the necessity of family and teacher involvement in decisions pertaining to student achievement, it became apparent that these stakeholders play a key role in student achievement (Bracke & Corts, 2012; Coleman & McNeese, 2009; Kim et al., 2012; McDermott & Rothenberg, 2000). Considering the importance of these groups to students' academic success, it was important that their voices are heard. This research study addressed this gap through a multiple case study in a rural school system that had finished a complete, district-wide transition to the multiage classroom in grades K–5, known as the Prairie Valley Project.

With the knowledge gained from this study, school administration is better able to determine the likelihood of support of both parents and teachers when implementing the multiage classroom design. Administration will also be more likely to establish support of this design from both parents and teachers by listening to the input of these two groups.In addition, in the implementation process, acknowledging the parents' perspective would allow parents to be in a position to better support the multiage design. This may foster a more positive relationship between the school and family, which is important to student motivation and academic success (Bracke & Corts, 2012; Coleman & McNeese, 2009; Kim et al., 2012; McDermott & Rothenberg, 2000).

Overview of Research Methods

This study was formatted as an explanatory multiple-case study, which supports the use of qualitative data to help understand quantitative study results (Venkatesh, Brown, & Bala, 2013). The mixed-method approach has a strong history in the educational arena for its strength in utilizing both quantitative and qualitative data to understand a given phenomenon (Blatchford, 2005; Creswell & Garrett, 2008; Powell, Mihalas, Onwuegbuzie, Suldo, & Daley, 2008; Terrell, 2012; Venkatesh et al., 2013). Specifically, this study involved distributing a survey to teachers and parents who have first-hand experience with multiage classrooms. The survey included a section where participants respond to scripted prompts as well as another section with open-ended questions.

In the quantitative portion of the study, teachers and parents responded to a variety of prompts related to the various components of the multiage classroom using a 5-point Likert scale. This survey data was analyzed in order to determine the more favorable components of the multiage classroom design. This portion of the survey also examined the parents' and teachers'

perception of the multiage design within a rural school setting. The Likert scale was used because it was determined ordinal data was the most appropriate for this study (Tanner, 2012). Likert scales also support the gathering of value judgment responses (Tanner, 2012).

To determine the impact the multiage classroom had on student academic achievement, post hoc test scores of the multiage classrooms were collected. This data was compared to data gathered in previous years to examine any significant differences before and after the implementation.

In the qualitative components of the study, open-ended explanatory questions were examined for patterns that provide a better understanding of an effective multiage classroom (Venkatesh, Brown, & Bala, 2013). A member check was then completed to determine accuracy of the findings. In addition, triangulation of data was done to examine testing results, teacher surveys, and parent surveys to determine a consistent pattern of effect.

Chapter II

Review of Literature

Introduction: Leaving the One-Room School House Behind?

Before examining the Prairie Valley Project in the context of current policies there is a need to understand how classrooms have transformed along with the trends and needs of the American education system. A look back to the history of American classrooms will help explain the origins of the now dominant "assembly line" concept of education and why this style may not best suit today's student.

Prior to the industrial revolution, when the United States was in its infancy, citizens and government saw value in educating the country's children. Common practice at that time called for a single teacher bearing the responsibility for each child's educational needs (Penney, 2005; Pratt, 1986). Typical schools consisted of one-room schoolhouses where all grades were taught together (Harmon, 2001). Until the early years of the twentieth century, 70% of the U.S. public schools were one-room schoolhouses (Carter, 2005).

The changes to this classroom model began to evolve around the American industrial revolution in the early nineteenth century (Penny, 205). During the industrial revolution, there was a large population shift from the rural farming communities to the newly expanding cities. This expansion was caused by the job opportunities created by the increase in production by the industrial factories. The migration caused cities' school systems to burst at their seams as these workers brought their families with them to the cities (Bowman, Bowman, & Conley, 2005; Pratt, 1986).

With the growing population of cities the single-grade classroom emerged (Harmon, 2001; Penney, 2005; Pratt, 1986). However, the first single-grade classroom was developed at

the Quincy Grammar School in 1848 (Goodlad & Aderson, 1987). A key contributor to this new system was Horace Mann who, as secretary of the Massachusetts Board of Education, traveled to Prussia to view its educational system that was widely regarded as effective (Pratt, 1986). Mann returned from Prussia with the single-grade design that would separate students by age to better meet the needs of the students, and in his opinion, make it more possible to accommodate a larger student population (Bowman, Bowman, & Conley, 2005; Pratt, 1986). This design at the time also moved students through the educational system more efficiently (Penney, 2005; Pratt, 1986).

In the early 1900s, circumstances helped shift more schools to the single-grade classroom design (Pratt, 1986). During this time, Henry Ford was making a name for himself by his introduction of the automotive assembly line process, which sped up production and provided a better product with a reduced expense (Penney, 2005; Pratt, 1986). Legislators who saw the value of Mr. Ford's process and Mr. Mann's information took hold of the assembly-line concept and implemented it within the school system to better meet the growing need to educate the mass of students seeking an education (Pratt, 1986). Age segregation became the dominant educational environment in American cities. It became the norm to place students in grade levels because of their ages and move them forward through the educational system in an assembly line manner. This design remained the primary education model in densely populated areas until the 1950s (Eichacker, 2008; Penney, 2005).

The Baby Boomer generation's effect on the educational system supported the need to move even larger amount of students through the system in a more efficient manner (Pratt, 1986). As the youth population expanded, more rural areas implemented the model of larger school systems because the single-grade model was deemed best practice (Pratt, 1986). As a

result, the one-room schoolhouse design was considered, in essence, no longer able to meet students' needs.

However, in the early 1960's some researchers were concerned that the primary classroom structure that had been in place for so long was not meeting the needs of students. Dr. Montessori discussed in her book, *The Montessori Method* (1964) that the student should be the center of education rather than the curriculum (Montessori, 1989; Torrence, 2012). Through the 1960's and early 1970's, the effectiveness of the single-age classroom concept started to be reconsidered by people who understood how mental development varied among students within each age level (Cornish, 2009; Harmon, 2001; Veenman, 1996). During this time, alternative classroom designs, including the multiage design, took hold within small clusters around the nation (Pratt, 1986; Cornish, 2009; Hitz, Somers, & Jenlink, 2007). Pratt (1987) described these small non-graded classrooms as rare cases where the segregation of students by age was not in place. However, Pratt also called this new phenomenon, which continued through the mid-1960s, as a feeble attempt for change since most of the classrooms still maintained a narrow age structure (Pratt, 1987). It was a variation of this design that the Prairie Valley Project tried to duplicate, but at a larger capacity (Hitz et al., 2007).

In the 1990s, any consideration for multi-level classrooms was abruptly halted with increased concerns for grade-level standards mandated from the federal government (Fowler, 2009). This requirement for grade-level standards later became the emphasis in the reauthorizations of the Elementary and Secondary Education Act, known as Goals 2000, and then later with additional legislation through the "No Child Left Behind" (NCLB) Act of 2001 (Fowler, 2009; Penney, 2005). The multiage classroom experiment was cut short.

With mounting struggles for rural schools and increased expectations, it may again be time to look toward the multiage classroom. The design's structure accommodates instruction of multiple age ranges and abilities through a student-lead learning process. This design, with its capabilities to include components proven to be helpful in the learning process, has recently returned as a possible and positive alternative to the single-age classroom (Bowman, Bowman, & Conley, 2005; Pratt, 1986).

Choosing Multiage

In light of the reversed historic trajectory of the multiage classroom, Project Prairie Valley represents one district's attempt to implement this alternative design to meet the issues facing today's classrooms. The most pressing issues for this rural school system were decreasing student populations and demands placed upon the school by both parents and state and federal regulations. The multiage design was selected by the administration because of its perceived capacity to accomplish five distinct outcomes.

- The teachers would be able to better communicate with peers to share ideas and instructional strengths.
- Wasted instructional time at the beginning of the year would be reduced.
- A climate of trust and safety would be fostered.
- Differentiated instructional support would be provided.
- Communication between families and the school would be improved.

Multiage Design Defined

The terms multi-grade and multiage are frequently used synonymously, which as Veenman demonstrated, are actually two different classroom designs (Veenman, 1996). The

multiage design is unique from the multi-grade design in everything but the fact that both were designed to accommodate multiple grades in the same classroom (Veenman, 1996).

The multi-grade classroom consists of a teacher teaching a grade-level subject to one grade-level group as the other students, who make up the other grade level(s), work independently within the same classroom (Cornish, 2009; Corrigan et al., 2006; Veenman, 1996). The multi-grade classroom was most commonly implemented in rural school settings where small numbers of students within a grade level allowed for consolidating grade levels in order to avoid hiring additional teachers (Corrigan et al., 2006; Veenman, 1996). Students who were successful in this setting were students who could work independently and with minimal assistance (Cornish, 2009; Veenman, 1996). Parents have been known to dislike this format because of the often correct perception that its sole purpose is to save the school district money and increase the workload of teachers (Cornish, 2009; Penney, 2005).

In a multiage classroom the teacher acts as a facilitator and teaches students as a group of independent students who receive the same lesson through differentiated instruction (Hoffman, 2003; Kobelin, 2009; Veenman, 1996). Lessons commonly incorporate scaffolding or spiraling to meet the needs of each student (Bailey & Williams-Black, 2008). The class lessons are more student-centered than in the single-age and multi-grade designs (Carter, 2005; Hoffman, 2003; Veenman, 1996). The curriculum in this model encourages cooperation among children of various ages and encourages students to use their different experiences and levels of knowledge to work in a cooperative manner (Eichacker, 2008).

A single-age classroom represents a very narrow grade range based on the assumption that all students are at the same learning level when they are at the same age level (Corrigan, Hemmings, & Kay, 2006; Harmon, 2001; Mariano & Kirby, 2009; Ong, Allison, & Haladyna,

2000; Penney, 2005; Pratt, 1986; Song et al., 2009; Veenman, 1996). When students do not meet the standards of the classroom, they are usually placed in alternative settings for specialized instruction, causing a feeling of a lack of belonging with students (Estell et al., 2009; Stuart et al., 2006). The use of differentiated instruction in the multiage classroom accommodates student's individual differences (Driskill, 2010; Tobin & McInnes, 2008). In a multiage classroom, after the first year in a pod, both performing students and those who do not meet standards are looped into the same class for another year. This may eliminate some of the negative social and academic effects associated with repeating a year (Moser, West, & Hughes, 2012; Russell, Rowe, & Hill, 1998).

The implementation of the design is influenced more by philosophy than monetary needs, but it does provide some organizational value such as equalizing class sizes and attempting to meet needs of all three instructional tiers of student abilities within the classroom (Veenman, 1996). When large classes move through a school, a bubble of students tends to make specific grade levels overflow. Multiage classrooms can mediate the effect large classes have on schools through having the ability to reduce the likelihood of having extra students once classes are divided up into reasonable class sizes (Blatchford, Bassett, Goldstein, & Martin, 2003). This design also allows clusters, such as pods containing grades K–1, 2 –3, or 4–5, in which teachers instruct students. This creates only three student and teacher designations rather than six a single-grade-level classroom. This similar classroom setting allowed teachers to collaborate and share materials easier by having common teaching assignments among larger groups of teachers (Carter, 2005).

Theoretical Framework

Theories by three researchers created the foundation for this study. Jean Piaget, Albert Bandura, and Lev Vygotsky all see the learning environment as a powerful influence on a child's academic and social success (Cherry, n.d.; McLeod, 2012; "Social Development Theory," n.d; Vygotsky & Kozulin, 2011). The environment can either allow the student to learn at their own speed, learn by developing positive self-perceptions to build confidence, or learn through social interactions. These authors differ in meaningful ways, but, as a whole, offer theoretical support for a multiage classroom similar to what was implemented in the Prairie Valley Project.

Piaget was the forefather of cognitive development (Heo, Han, Koch, & Aydin, 2011; McLeod, 2012). Piaget's theory of intellectual development theorized that children think differently than adults. Piaget theorized that children were continually reorganizing their mental processes as a result of biological and environmental changes (Fox & Riconscente, 2008; Heo, Han, Koch, & Aydin, 2011; Kausar, 2010). These environmental changes contribute to why there is a need for classrooms that are student oriented, and provide a rich environment that is both accommodating academically and socially safe.

Piaget's theory concentrated on development rather than learning. His theory saw a child's development as a progression of specific developmental stages. These stages of development were sensorimotor, preoperational, concrete operational, and formal operational (Fox & Riconscente, 2008; McLeod, 2012). Piaget claimed an environment that is designed around student-directed learning will support these stages (Cornish, 2009; Fox & Riconscente, 2008; Heo, Han, Koch, & Aydin, 2011; Kausar, 2010; McLeod, 2012).

The two stages that are affected the most in K-5th grade levels, those included in the Prairie Valley Project, are the preoperational, which typically occurs in children in the age range

of 2 – 7 years old, and concrete operational, which impacts children in the 7 – 11 year old range. The preoperational phase has been characterized as being a time when students are egocentric in nature, and the concrete operational stage is characterized as a period of conservation (McLeod, 2012). Specifically, the Prairie Valley Project impacts students that are at the end of the preoperational stage through the entire developmental stage of the concrete operational phase.

To move students through these stages, students need opportunities for discovery education, which is supported through the multiage classroom design by using differentiated instruction. Differentiated instruction support some of Piaget's main concepts: to support individualized learning, flexibility in the curriculum, the centrality of play in children's learning, the use of environment, and the importance of the evaluation of children's progress with the idea that not everything that is valuable is measurable (Heo et al., 2011; McLeod, 2012). However, other theorists found Piaget to be to concrete in regards to the stages a child goes through. This leads to Albert Bandura's Social Learning Theory.

Albert Bandura's Social Cognitive Theory of Self Efficacy supports building an environment that develops self-confidence. Bandura's theory stressed the environmental influence much more than Piaget's theory, which put some emphasis on the environment, but included the biological changes to cognitive development as well (Barnyak & McNelly, 2009; Cherry, n.d.; Harmon, 2001). Bandura's Social Cognitive Theory supports the claim that if a person has developed a positive self-perception of their capabilities, then they become more influential in that setting (Barnyak & McNelly, 2009; Sharon & Nimisha, 2009). Bandura's theory also placed emphasis more on the process of learning, whereas Piaget's theory only looked at cognitive development (Cherry, n.d.; McLeod, 2012).

The core concept of Bandura's theory is that children can learn by observation. He also believed that internal mental states are an essential part of this learning process. Finally, his theory claims just because something is learned does not mean that it will result in a change of behavior. In other words, something learned may be stored to be used at a later time rather than immediately after it is learned (Cherry, n.d.).

Bandura's social learning theory has important implications for supporting the multiage classroom design. It recognizes the importance for teachers to understand the importance of modeling within the classroom setting so that students may learn through observation. (Beaman, 2009; Cherry, n.d.). However, Bandura does not directly discuss the importance of peer interactions, which is why one must also look at Lev Vygotsky's Theory of Social Development.

The third and most pertinent theory is Lev Vygotsky's Social Development Theory. Vygotsky's theory of Social Development describes how children learn from their interactions in their environment, such as peer tutoring and input from mentors (Connor, Cady, & Zweifel, 2006; Cornish, 2009; Fox & Riconscente, 2008; Kausar, 2010; Mills, 2010; Obukhova, 2012; Stuart, 2006; Tobin & McInnes, 2008).

Lev Vygotsky, a Russian psychologist, developed the Social Development Theory, which places more emphasis on how social interactions and settings contribute to the process of child development. He asserted that social learning anticipates development, and development is caused by social communication and interaction (Noble, Kravit, & Braswell, 2012). Vygotsky also stressed the importance of looking at each student as an individual who learns in distinctively different ways (Waring, n.d.). He also emphasized how language skills are an important part of learning (Waring, n.d.). Vygotsky saw the importance of an environment that

supported learning and the need for each student to have others who could challenge his or her thinking to learn to socialize (Noble et al., 2012).

Vygotsky differs from Piaget in that, when dealing with the classroom setting, Vygotsky supports guided instruction by the teacher to help the student experience new ideas. Piaget's theory implies the student must lead the learning without the influence of the teacher's guidance ((Kausar, 2010). Vygotsky also discusses the importance of the environment being a zone where learning takes place and that knowledgeable people need to be within the zone to allow students' to learn and develop (Obukhova, 2012; "Social Development Theory," n.d.).

These three theories provide an overarching picture of what the multiage design intends to accomplish, but the goals of student-directed learning, increased self-confidence, and education through socialization are too nebulous to immediately apply to a specific school or program. In order to provide concrete, research based applications of these theories the rest of the literature review will discuss several topic that tie these theories to the Prairie Valley Project. The elements discussed can be divided into two categories. The first category is education factors within the school. Under this category, the importance of teacher decisions and classroom organization, the benefits and challenges of differentiated instruction, the effects of looping on teachers and students, the effects of teacher collaboration, and an overview of other factors that affect student academic achievement will be presented. The second category is factors outside the school. The importance of family-school relations and the importance of student socialization will be discussed in this section. By showing the importance of these elements, and how they may be bolstered through the multiage design, this study will be well placed to address the research questions posed.

Within School Factors

Impact of teachers. During interviews with teachers who were teaching in a multiage classroom, Veenman (1995) found five prevalent concerns among the teaching staff about their heavy teaching loads and demand for classroom management. Their concerns were (a) the efficient use of instructional time, (b) the design of effective instruction, (c) classroom management, (d) the organization of independent practice or learning, and (e) the design of clear and understandable goals to make the multiage classroom work (Veenman, 1996). However, even though the multiage classroom causes more work for the teachers one has to consider the benefits that this design provides. This design steers teachers to consider each individual student when designing the school curriculum. It prompts the teacher to design their classroom around student-lead activities rather than teacher-lead activities. It encourages the teachers to work with their peers in meeting the ever increasing demands placed upon them. Finally, it develops a culture that is safe for students to experiment in social situations and to observe others through social interaction. In the following sections the different components of the multiage classroom will be discussed more thoroughly in regards to the concerns and benefits that are associated with them.

Differentiated instruction. Differentiated instruction has been a flexible approach to instruction that allows students to work at their individual levels (Bailey & Williams-Black, 2008; Driskill, 2010). This may be done through adjustments in the delivery of instruction, assignments provided, or the method of mastery of learning objectives (Bailey & Williams-Black, 2008; Driskill, 2010). As a response to the No Child Left Behind Act, differential instruction has been emphasized for its ability to reach every student through individualized instruction while still preparing students for the high-stake testing (Driskill, 2010). For teachers,

differential instruction is considered a powerful framework and organizing tool for instruction and classroom practices (Bailey & Williams-Black, 2008).

Differentiated instruction has a solid research base for effective learning. This method had been significantly positive in assisting gifted and talented students in social interactions and had not caused any significant negative results toward their learning (Beaman, 2009; Carter, 2005). Students identified as English language learners also had shown benefits of receiving differentiated instruction in the multiple grade designed classroom (Carter, 2005). This method had allowed English language learners to maintain a pace appropriate to their content learning as they acquire a new language (Carter, 2005).

If used with the concept that instruction should be student-oriented rather than teacher-oriented, differentiated instruction allows teachers a greater opportunity to support each individual student in the development of their learning rather than continually attempting to teach to the masses (Carter, 2005; Danling et al., 1999). However, the belief by many professionals that the single-age classroom design does not have various learning levels that must be met as well, is a fallacy (Ong, Allison, & Haladyna, 2000; Page, 2006). This misunderstanding of any design that supports differentiated instruction demonstrates the need for additional teacher preparation in the area of differentiated instruction (Bailey & Williams-Black, 2008).

With the opportunity differentiated instruction provides for individualizing instruction, this method should mesh well with classroom designs that consists of a wide age range or classes that contain students at varying learning levels (Broome, 2009; Carter, 2005; Veenman, 1996). A multiage design's structure naturally forces a teacher to differentiate their instruction to meet the needs of all of their students so that students can learn at their own developmental pace (Hitz et

al., 2007). Differentiated instruction allows the curriculum to be determined by the skill level of the student rather that the index of a book (Tomlinson, 1999). Differentiated instruction also supports the concept that instruction should be student-oriented rather than teacher-oriented, which aligns with the multiage concept and Piaget's theory (Carter, 2005).

One way to implement differentiated instruction is through the use of peer tutoring (Cornish, 2009; Van Keer & Vanderlinde, 2010). Peer tutoring allows the teacher to meet the different levels of learning by having higher achieving students instruct the lower achieving students or older students instructing younger students. This procedure allows for more assistance being accessible in the classroom by both the teacher and other students (Kobelin, 2009; Tobin & McInnes, 2008). In a study by Van Keer, allowing students to peer tutor other students to support a classroom showed significant gains in reading strategies, awareness, usage, and comprehension by lower level students (Van Keer & Vanderlinde, 2010). Peer tutoring also encourages upper level thinking skills that are utilized when instructing others (Cornish, 2009).

The greatest challenge of implementing differentiated instruction identified by teachers who were using this instructional method was the amount time it took to adjust the curriculum (Page, 2006; Stuart et al., 2006). There is still a great need for curricular materials that are designed for the support of differentiated instruction (Bailey & Williams-Black, 2008; Hitz et al., 2007). Another challenge that has been identified by teachers is the greater workload, resulting from the perceived increase in the variance among the different student learning levels. This perceived increased workload entails developing individual lessons and organizing the classroom (Driskill, 2010; Page, 2006; Russell, Rowe, & Hill, 1998; Veenman, 1996). However, because of the ability of this instructional framework to support all levels of learning there is a value to implementing it, which the multiage design supports. In any case, it is important when

introducing a new design to understand the concerns of the teachers and either acknowledge that the concern exists and cannot be changed, or attempt to remedy the concern before it is a major factor of how effective the program is perceived.

Looping. Looping, where students are with the same teacher for multiple years has merit in supporting a positive classroom climate and learning environment ((Belcher, 2000; Danling et al., 1999; Hitz et al., 2007). Looping typically has been defined as a process of moving the teacher along with the students for multiple years, most commonly two years (Hitz, Somers, & Jenlink, 2007). In certain looping situations, a teacher follows the same group of students and gears their instruction to the grade level the students are currently in (Hitz et al., 2007). In the most common multiage design, a teacher has students from two grade levels (Belcher, 2000; Hitz et al., 2007). In the model used by the Prairie Valley Project, classrooms contained two grade levels led by one teacher. The younger half of the students within the multiage classroom returned to the same teacher for a second year while the older half of the students moved to the next two-grade-level classroom (Danling et al., 1999). This model allowed students to only make three classroom and teacher transitions during the 6 years at the elementary level. This processes also allowed the teacher to remain in the same range of grades levels, or pod, which allowed the teacher to become an expert in their grade range.

The advantages of looping have been numerous, especially within a multiage framework. Looping has allowed students who are returning to the same classroom and teacher to already know the classroom procedures when they return for their second year (Belcher, 2000; Danling et al., 1999; Hitz et al., 2007; Moser, West, & Hughes, 2012). The students are familiar with the teacher and feel more comfortable in the classroom setting, which has been shown to encourage more risk taking in student learning (Danling et al., 1999; Grove & Fisher, 2006). In addition,

students who enter their classroom for the first year would have the older, returning students who can serve as peer tutors and assist them in learning the rules and procedures of the classroom, freeing the teacher from these teaching tasks (Carter, 2005). This area of interest has demonstrated that classrooms that have a broader age range have been shown to improve social interactions because of the more family like atmosphere typically seen in a multiple children family (Danling et al., 1999; Grove & Fisher, 2006; Penney, 2005).

This has allowed students to begin working on their academics much earlier in the year rather than spending a longer period of time learning new classroom procedures and rules (Danling et al., 1999). Students understand the teacher's instructional methods as well and better understand the expectations of the teacher (Danling et al., 1999; Hitz et al., 2007). This is especially important to both students and teachers as current standards and mandates set by legislation ask classes to do more within a school year (Belcher, 2000). Teachers also have the opportunity to help students bridge the different grade levels by staying in communication with them and their families during the summer months (Hitz et al., 2007). Teachers would also be more likely to assign student projects over the summer months when they know the student is returning to their classroom (Danling et al., 1999; Hitz et al., 2007).

The ability to enhance the student–teacher relationship over a longer period of time was another benefit to looping in a multiage classroom (Beaman, 2009; Hitz et al., 2007). Teachers that knew the abilities of returning students would be better able to meet the students' learning needs. Of the teachers surveyed in previous studies, 92% stated looping provided them the time they needed to have more awareness of students' needs (Belcher, 2000). This is important when more students come to school fragile, unmotivated, and frequently from transient families that need the stability of having the same teacher who knows their specific needs (Grove & Fisher,

2006; Hitz et al., 2007). Looping also allows the teacher to have the time to understand the individual student's learning styles, developmental level, and learning strengths that they can utilize in their specific instruction for the child (Belcher, 2000). With the gained time for instruction teachers are more able to direct the instruction to students individually (Hitz et al., 2007). They are able to be more adaptable to the students' natural rhythm of childhood and learning processes (Belcher, 2000; Hitz et al., 2007; Nevin et al., 2008). Finally, teachers are able to make lessons more flexible, motivating, and add time to question and wonder in a relaxed atmosphere (Belcher, 2000)(Danling et al., 1999).

Students who participated in looping and the multiage model did better academically and in some subgroups where no gains were identified they did no worse than their counterparts in the single-age classroom setting (Holloway, 2001). This academic achievement was especially true for students in the Tier I level of learning who represent 80% - 90% of the students in a classroom ("What is RTI?," n.d., para. 2). Students in the gifted and talented program and students needing special educational services similarly showed that the multiage design and looping was beneficial, both academically and socially (Danling et al., 1999; Hoffman, 2003).

Another area the looping design has benefited students is in the area of social skills (Belcher, 2000; Hitz et al., 2007). During the second, students felt more comfortable in the classroom setting because of the increased peer relations that were built over time and the sense of comfort and community that were developed in a multiage classroom (Beaman, 2009; Carter, 2005; Hitz et al., 2007). Hitz (2007) and her colleagues found that there was a significant reduction in behavioral issues, especially bullying, within the multiage classrooms where looping occurs. In surveying teachers who were in a looped classroom 69% of the teachers stated that students were more willing to participate voluntarily in class, and 70% of the teachers believed

classroom management for social issues were easier (Belcher, 2000). Eighty-five percent of the teachers also stated the students saw themselves as important members of the class, and the school (Belcher, 2000).

The sense of community built in a multiage looping classroom spills over to the relationship between the school and the families of these students (Beaman, 2009; Carter, 2005). After surveying teachers, 84% believed that looping of students allowed the teachers to form a more positive relationship with the student's families (Belcher, 2000). This relationship has also shown that teachers place more value in the input of the parents when they have developed a connection with the family (Hitz et al., 2007; Nevin et al., 2008). Parents in return are more willing to accept the teacher's constructive suggestions due to the trust they have built with the teacher (Hitz et al., 2007).

The concerns with looping that were most commonly mentioned in reviewing previous studies were students being in a classroom with an incompetent teacher for more than one year, a possible teacher/student or family/teacher personality conflict occurring, and separation anxiety for the student when they move on to another classroom and teacher (Hitz et al., 2007).

Collaboration. Collaboration is described as the ability to work within a group for the purpose of orienting to an issue, coordinating, planning, and making connections (Kimmel, 2012). There has been strong evidence that teacher collaboration improves academic achievement for students (Broome, 2009; Grove & Fisher, 2006; Kimmel, 2012; Rossi & Sirna, 2008). Collaboration among the education community has been recently emphasized due to the high stakes placed upon teachers by the requirements of No Child Left Behind.

Being in groups provides the power of a sense of community (Grove & Fisher, 2006). Michael Fullan (2008) emphasized the importance of connecting peers with purpose and the

capabilities of a group, which is often more successful than individuals. Collaboration has allowed teachers to work as a group with a common purpose to better meet the needs of their students. Through teamwork, collaboration provided the ability to share the workload to reduce preparation time. The concern regarding workload had been the largest complaint regarding the multiage model and this is why it even more important for teachers to collaborate with each other to meet the increasing demands place upon them (Grove & Fisher, 2006; Kobelin, 2009; Page, 2006; Stuart et al., 2006).

Collaboration allows teachers to meet the individual needs of the students within the classroom. Teachers who collaborated were more willing to differentiate instruction due to the time saved by sharing responsibilities (Grove & Fisher, 2006; Levine & Marcus, 2007; Stuart et al., 2006). Teachers were also more aware of the needs of individual student learning styles and could assist in deploying resources to meet the varied needs (Grove & Fisher, 2006).

From the literature, it was clear that many teachers still needed to understand the importance of working together. Some teachers still do not see their work being interrelated with other staff members, or they continue to value working independently rather than as a member of collaborative team (Grove & Fisher, 2006; Kimmel, 2012; Page, 2006). An awareness of the benefits of collaboration must be included in colleges' pre-teacher training and professional development training (Broome, 2009; Grove & Fisher, 2006; Page, 2006).

Collaboration has a long-term, positive effect, whereas the challenges that were identified by the teachers appear to be short term caused by the transition (Grove & Fisher, 2006; Kimmel, 2012; Levine & Marcus, 2007). These challenges could be reduced by the administration's support of the teachers in their collaborative effort by providing them the needed time and training (Grove & Fisher, 2006; Levine & Marcus, 2007; Niesche & Jorgensen, 2010).

Academics. Much discussion has been directed toward the academic impact of both multiage and multi-grade classrooms. As discussed within this study there are differences between the multi-grade and multiage designs. For example the multi-grade is more often used to only counter an influx of students and provides a classroom that even though supports two or more grade levels the grades remain separate (Penney, 2005). This is contrary to the multiage classroom in that it is more geared to redesigning the learning experience where student-driven learning is more commonly used and social interaction is encouraged (Penney, 2005). However, due to the lack of distinction in many of the studies researched it is required the two be discussed together. The most discussed research has been Veenman's study where he stated the multiage classroom did not have either a positive or negative impact on academic achievement (Veenman, 1995). It probably became the most discussed research in this area because shortly after it was published Mason and Burns questioned the research findings ((Mason & Burns, 1996). Mason and Burns claimed Veenman's findings were misleading. Mason and Burns' study presented the argument that rather than academic achievement being neutral, the academic achievement gained through the implementation of the multiage classroom design was countered by negative effects from the multiage design (Mason & Burns, 1996). Veenman countered their study with a second paper that clarified the findings of his first study and adamantly argued against Mason and Burns's findings (Veenman, 1996). After additional studies on the effects of the multiage design on student academic achievement, the issue remains somewhat undecided.

Holloway looked at the effects of grouping students for increased achievement and found that a multiage classroom showed a positive significant difference in academic achievement (Holloway, 2001). Harmon focused on combined Kindergarten and 1st grade classrooms and found that both Kindergarten and 1st grade students' reading and math scores improved with the

multiage classroom design (Harmon, 2001). However, the study also showed that these results did not always show up in standardized tests (Harmon, 2001). Corrigan later disagreed with Harmon and found that the class design did not affect the overall literacy test results of kindergarten students (Corrigan, Hemmings, & Kay, 2006). In another competing study, Flora compared reading scores of students in both traditional classrooms and multiage classrooms and found no significant difference between the two classroom designs (Flora, 2006).

Recent research has taken a more detailed approach to analyzing the effects of the multiage classroom. For example, Ong et al. found that Tier 1 students, students with average to high learning abilities, showed higher achievement in the multiage classroom over traditional classrooms. However, students in Tier II, students with mild learning difficulties, and Tier III, students with more severe learning disabilities, did not see academic improvement in academic progress (Ong et al., 2000). In Mariano and Kirby's study on achievement in multi-grade classrooms utilizing a Los Angeles school district, it was found that there was a small and negative effect on student achievement when students are placed in a multi-grade classroom (Mariano & Kirby, 2009). However, Veenman (1996) responded to this study and suggested this may be caused by the selection of students placed in the multi-grade classroom (Mariano & Kirby, 2009). This type of rebuttal is common in multiage studies because schools that implemented the multiage or multi-grade design only apply the design partially, under various circumstances, often due to oversized classrooms and financial or personal needs. The selection of students chosen in these instances are often chosen because they work well independently, as needed in a multi-grade classroom, or enrolled by parent request. Both of these instances of partial implementation may result in skewed data.

Past studies seem to suggest that academic achievement has been minimally impacted with the transition to a multiage classroom design (Flora, 2006; Harmon, 2001; Lindstrom & Lindahl, 2011; Michael et al., 1994, Annual Meeting; Ong et al., 2000; Song et al., 2009). If there is any improvement in academic achievement, it may be contributed to the looping aspect that is part of the multiage classroom (Belcher, 2000; Nevin et al., 2008). It also seems that there was no negative affects toward student academic achievement by the implementation of the multiage classroom (Beaman, 2009; Corrigan et al., 2006; Flora, 2006).

Outside Schools Factors

Family/School relationship. The reauthorization of the Elementary and Secondary Education Act, better known as the No Child Left Behind Act, highlighted the importance for a connection between families and schools (Song et al., 2009). Family engagement can assist students, parents, and teachers in developing a trusting community that will benefit student learning (Barnyak & McNelly, 2009; Daniel, 2011). Increased communication between schools and families will also allow parents access to the knowledge base of the educational system so that they can assist and advocate effectively for their child's educational needs, as well as support the teacher's instructional goals for their child (Daniel, 2011).

Previous research has supported the need for family engagement in a child's education. Children that have parents that engage in their schooling, teachers that provide learning experiences that relate to the child's home environment, and parents and teacher who frequently communicate are more successful academically (Daniel, 2011; Kim et al., 2012; Smith, 2006). Furthermore, students that have their families' support of their educational studies are more comfortable in the educational setting. This comfort level allowed students to be more willing to take risks in their learning (Carter, 2005). These risk-taking behaviors allowed students to move

faster in their learning, which supports both Vygotsky's and Bandura's theories (Cherry, n.d.; Kausar, 2010; "Social Development Theory," n.d.).

Vygotsky emphasized in identifying the importance of the role of families as well as communities, the importance of a child's comfort level in socializing and gaining the opportunity to learn (Merritt, Wanless, Rimm-Kaufman, Cameron, & Peugh, 2012; Obukhova, 2012). Positive feelings between the parents and the teacher, even though it does not always directly impact student academic achievement, affects a student's social and behavioral skills within the classroom (Kim et al., 2012). Being informed and having a connection with the teacher provides all parents a stronger incentive to be a part of their child's education. Parental engagement improved teacher–parent relationships, teacher morale, and school climate (Hornby & Witte, 2010). Parental connectivity to the school setting was an important part in increasing student's motivation and academic achievement in the lower elementary levels (Coleman & McNeese, 2009). The only exception to this positive correlation is in the fifth grade, where parent classroom involvement showed a negative correlation (Coleman & McNeese, 2009). However, parent engagement by assisting students at home had a positive correlation in all the elementary grade levels, including the fifth grade (Coleman & McNeese, 2009).

The engagement of the family with the school has been found to also allow the teacher to have a better understanding of the family dynamics, which allows them to better understand how best to communicate with the family in order to foster needed support to assist the student (Barnyak & McNelly, 2009; Zygmunt-Fillwalk, 2011). Family-school relationships also provides teachers the knowledge of how best to communicate with children and how best to relay information back home (Carter, 2005). However, building these connections must be a concerted effort by the schools to draw in the parents to have meaningful interactions (Daniel, 2011; Kim

et al., 2012; Zygmunt-Fillwalk, 2011). This is especially true in regards to parents within the low income range, where it has been noted they typically leave schooling to the school system. In contrast, parents among the middle and upper class are already significantly more involved (Coleman & McNeese, 2009; Smith, 2006).

The multiage design, with its ability to support other positive educational components such as looping, can develop a community atmosphere between families and the school system that school personnel desire. Earlier studies have shown that parents that have students in the same classroom with the same teacher for two or more years develop a connection with the teacher and are more likely engaged in their child's education (Smith, 2006). This engaged behavior has been shown to provide a better avenue of meaningful interaction between the parent and teacher (Daniel, 2011). This also has been shown to cause the parent to understand and trust the teacher's procedures and goals for their children (Bracke & Corts, 2012; Kim et al., 2012). Sheers also discussed the structure of the multiage classroom model as able to improve the sense of community with the teacher, student, and families. Sheer identified how a sense of community supported respect, trust, and kindness. This sense of community also supported a sense of belonging for parents and students that contributed to a more positive learning environment (Sheers, 2010). As the parents or guardians understand and trust the teacher they are more willing to support what is happening in the classroom by assisting their child with assignments sent home to be completed (Kim et al., 2012; McDermott & Rothenberg, 2000; Song et al., 2009).

Student social skills. One attribute to the multiage design that parents may have found appealing as they considered the value of the multiage design implementation was the design's structure to improve social skills among students (Beaman, 2009; Carter, 2005; Levine &

Marcus, 2007). This was especially true as our society has been bombarded with studies regarding the epidemic of bullying incidents (Allen, 2010; Estell et al., 2009).

A characteristic looked for in a classroom design was that it influenced positive social and emotional well-being of the student, and that it provided students time to get comfortable with their learning environment and teacher (Hitz et al., 2007). This was especially important if a student demonstrated shy or withdrawn behavior (Hitz et al., 2007). In some cases where there were high numbers of children from low-income households where the parents work or move often, a classroom design was needed to allow the student to have the stability of their teacher for multiple years, allowing them to gain social skills from a trusted adult (Carter, 2005).

The multiage classroom also allowed students to interact more with their peers than if they had been pulled out of the classroom setting (Carter, 2005; Nevin, Cramer, Voigt, & Salazar, 2008). Peer dynamics are an important part of a child's development. Keeping these students together can foster better peer relations that could possibly reduce bullying (Allen, 2010; Estell et al., 2009). This is especially helpful for students with mild learning disabilities that need support in developing social connections within the classroom (Estell et al., 2009). With the understanding that students have the opportunity to have their academic needs met within the classroom rather than being pulled out also allows them to have a much better feeling of safety (Beaman, 2009).

Summary

Existing literature suggested a number of ways the multiage classroom may benefit students, demonstrated by numerous studies conducted the last 10 years (Carter, 2005; Corrigan et al., 2006; Eichacker, 2008; Flora, 2006; Lindstrom & Lindahl, 2011; Mariano & Kirby, 2009; Song et al., 2009). However, the transition from single-age classroom to a multiage design must

be strongly supported by effective implementation. This has been noted in terms of support from administrators and teachers, but the literature is lacking in information regarding parental support (Beaman, 2009; Levine & Marcus, 2007; Niesche & Jorgensen, 2010; Smith, 2006). Parental support likely plays a critical role in the effective implementation of multiage design. The literature discussed the importance parental input and support plays in educational initiatives (Baeck, 2010; Barnyak & McNelly, 2009; Bracke & Corts, 2012; Carter, 2005; Coleman & McNeese, 2009; Daniel, 2011; Kim et al., 2012; Sharon & Nimisha, 2009; Smith, 2006; Zygmunt-Fillwalk, 2011). The literature also stated if the schools desire parental involvement, it was crucial to gather input from the parents (Belcher, 2000; Levine and Marcus, 2007; Smith, 2006).

Through research-based literature, the benefits of the multiage classroom design seem appealing. Multiage classrooms purportedly provided a positive setting that supported a socially and academically enriched environment, a focus on student achievement, teachers meeting their student's individual needs through the use of differentiated instruction, and providing parents and students a sense of community and a place for their voices to be heard (Sheers, 2010). This research examined the impact on student, parents, and teachers of transitioning for a single to multiage classroom in a rural district in the northwestern United States providing insight into the potential benefits of this classroom model by two important stakeholder groups, teachers and parents.

Chapter III

Design and Methodology

Introduction

The purpose of this explanatory multiple-case study that was approached as a mixed-methods design was to explore, analyze, and describe the characteristics of the multiage classroom. This study was conducted after a school district implemented this alternative design to provide a classroom setting they perceived to better meet the needs of their students, parents, and staff. The site of this study, known as the Prairie Valley Project, took place in two elementary schools in a rural school district in North-Central Idaho where the researcher had been the superintendent during the implementation of this alternative classroom design.

The study examined the perception of both parents and teachers of the value of implementing the multiage classroom design. A positive perception by parents and teachers has been determined to show a tangible impact regarding the support that parents provide in circumstances that effect their child's education (Griffith, 1998). This understanding of the perception by parents and teachers would allow future school districts to understand the importance of parental and teacher support. It will also allow the school district to understand which components are vital to include so that the support is provided by these two key stakeholders.

The study wanted to also determine if there was a significant difference between the two groups by rating the value of the researched-based components that were supported by the design. Specifically, the study examined the ability of the multiage classroom to provide a setting that allowed students to loop back to their same teacher and classroom for a second year, support differentiated instruction, support teacher collaboration, improving family-school relations, and

provide a setting conducive to enhancing students' social skills. In addition, a comparison of the academic assessment scores were also examined between the years prior to the implementation of the multiage design and after the implementation to determine if an impact to students' academic achievement could be seen.

Chapter three will provide the reader with information regarding the research design selected to obtain and analyze the data collected. It will also discuss the reasoning behind the selection of the site for the study and basic structure of the project being studied. The method of selection of the participants and how they were recruited to participate in the study will also be discussed in this chapter. The role of the researcher will also be considered since this may be pertinent to the data gathering process. Additionally, this chapter will identify the data collection method, the research instrument used, analytical method, and the overall limitations of the study.

While known to be important to education, it was found through the literature review that there was a gap in the research studies in regards to the value that both the parents and teachers have of these different components when they were implemented in the multiage classroom. There is also a gap in looking at a multiage classroom design that is school-wide rather than an alternative within a school where students are either selected by their ability to work independently or placed in such a classroom due to parent request. Finally, there is a gap or continual discussion of the amount that student academic achievement is affect by being in a multiage classroom setting.

To help in filling this gap regarding the multiage classroom, the following research questions were formulated. Creswell stated that the purpose of the research questions was to provide a narrowing of the scope and to become major signposts to guide the reader throughout

the study (Creswell, 2013). The guiding questions explored in the study seek to determine the value of the multiage classroom design and all of its components for parents and teachers:

1. What effect did the multiage classroom design have on teachers and parents who have students in the program?
2. What components of the multiage classroom explain the effect the program has on teachers and parents who have students in the program?
3. How effective in improving academic scores was the school-wide multiage classroom design in a rural school?

In answering these questions the researchers hopes to provide other school districts who consider using the multiage classroom design the needed information that will allow them to gain the full support of two of the key stakeholders—teachers and parents.

Research Design

The approach for the research was a multiple-case study. The design was formatted as a mixed-methods case study. A case study allows a researcher to study an issue explored through one or more cases within a bounded setting (Creswell, 2007; Merriam, 1998). Even though the case-study approach is more typical of a qualitative approach, researchers like Robert K. Yin (2003) advocated for the use of both quantitative and qualitative approaches to case study development. The study would consist of a quantitative 5-point Likert scale followed by qualitative open-ended questions for answer response enhancement (Venkatesh, Brown, & Bala, 2013).

The design for the study was formatted as an explanatory multiple-case study, which supported the use of qualitative data to be used to help understand the quantitative study results (Venkatesh et al., 2013). The mixed-method approach allows the researcher to use words to add

meaning to numbers, which will be the case in this research study to answer the research questions (Johnson & Christensen, 2008). This method can also add insight that may have been lost without the different methods that can provide clarity (Johnson & Christensen, 2008). The quantitative and qualitative data were collected concurrently, which is permissible when the qualitative questions are indirectly connected to the quantitative portion of the survey (Terrell, 2012).

The mixed-method approach has a strong history in the education arena for its strength in being able to look at different forms of data to better understand the results (Blatchford, 2005; Creswell & Garrett, 2008; Powell, Mihalas, Onwuegbuzie, Suldo, & Daley, 2008; Terrell, 2012; Venkatesh et al., 2013). The mixed-method approach was selected for its ability to advance and provide a richer understanding through the use of both quantitative research and qualitative research methods (Al-Hamdan & Anthony, 2010; Blatchford, 2005; Creswell & Garrett, 2008; Powell et al., 2008; Venkatesh et al., 2013). In Blatchford's study, four major purposes to conduct a mixed-method approach are listed: (a) participant enrichment, (b) instrument fidelity, (c) treatment integrity, and (d) significance enhancement (Powell et al., 2008, p. 294). This study used the mixed-methods approach for significance enhancement. The purpose was to receive additional information through the qualitative portion of the survey to allow respondents to provide information that was not asked on the qualitative portion.

The research study also used the mixed-methods approach for the design to assist in providing the opportunity to advance the understanding of the multiage classroom design, and the multiple-case-study approach to help answer the research questions. Using the quantitative and qualitative approaches allowed the use of multiple measures to understand the reasoning behind the parents' and teachers' interpretation of the value of the multiage design (Marshall &

Rossman, 2011). Using a multiple-site approach also allowed for comparisons of any adaptations the two schools might have taken during the implementation process.

Hypothesis. The first research question is descriptive in nature. The hypothesis will show the effect multiage classrooms have on parents and teachers. No comparison will be made regarding the effects of each group.

The second question addresses the effect each component of the multiage classroom had on parents and teachers. The null hypothesis (H_o) states there will be no perceived difference in the effects of each component between the parents and teachers. The alternate hypothesis (H_1) states there is a significant difference between the effects of each component of the multiage classroom has on parents and teachers.

The third research question considers the potential effect the multiage classroom has on student academic scores. The null hypothesis (H_o) states academic achievement, measured by overall grade scores in years before and after the Prairie Valley Project, remains the same. The alternate hypothesis (H_1) states the scores will be significantly different after the introduction of the multiage classroom.

Site selection. The Prairie Valley Project began in the spring of 2011 in a school district led by the researcher as the superintendent. The researcher selected the school district for this study because of the timely opportunity for analyzing the recent change in the district to the multiage classroom design in the elementary level, which occurred under the guidance of the researcher in his role as superintendent. It was also selected because the school district had received some concerns from patrons regarding the district's decision to transition to the multiage classroom and move away from the traditional classroom setting. After concerns were identified, it became apparent that more feedback was needed from parents and teachers.

Prairie Valley Project

The Prairie Valley Project began in concept in the 2009/2010 school year when the researcher, as superintendent, and two teachers discussed some of the issues causing staff concerns about the ability of the district to meet the needs of their students. Issues of primary importance were the inability to provide teachers the opportunity to work with each other so they could share expertise, the concern for the amount of time wasted at the beginning of the year when a teacher had to spend much of the first month instructing the students of the general classroom procedures as well as getting to know the individual learning capabilities of each student, and third, the need to address those individual learning needs by adjusting the lessons to meet the student's level of learning. Also discussed was the need to foster greater parent involvement in their child's learning. This was especially true since both schools in the district had a high population of families considered low income. These educators also discussed how they noticed an increase in poor social skills among the students and believed that a more secure setting might reverse this perceived trend.

After this conversation it was determined that a classroom design that matched the multiage classroom could remedy these concerns. During the 2010/2011 school year the school district piloted two multiage classrooms. After a year of observation it was determined to extend the amount of classrooms that would be multiage beginning in the 2011/2012 school year. After consideration that some grade levels would need to have a split classroom similar to a multi-grade classroom and would not be similar to the grade above or below causing the teacher to feel left on an island where she/he would not be able to share ideas with the other teachers due to the non-conformity of the multiage classroom, it was decided to make all classrooms multiage in grades kindergarten through 5th grade. With this decision both the Valley Elementary and Prairie

Elementary (pseudonyms) transitioned to a school-wide multiage classroom concept for the two years prior to this study taking place. The study was completed in October of 2013 after the multiage design was implemented school-wide. The study was designed to determine if parents and teachers had come to value the multiage classroom for what the administration believe it could provide. The answers gathered by this study could also be shared with other school systems considering the multiage design.

Participants

The study was completed in two elementary schools within one rural school district located in North-Central Idaho of the western United States. The study took place during the fall of 2013 and was completed within a school district that had implemented the multiage classroom design in the kindergarten through fifth grade range in two elementary schools. The schools were selected due to their participation with the Prairie Valley Project, their specific variation of the multiage classroom model, their location, and the schools' transition from a single-age classroom design to the multiage design within the past three years. All participants selected were associated with Prairie Elementary School and Valley Elementary School. A request to complete the research study within the two elementary schools was provided to the Board of Trustees in March of 2013 (Appendix A). The board at their regularly scheduled meeting in March approved the request, and a letter of approval, along with a copy of the meeting minutes, were provided Appendix B & C).

The multiage classrooms consisted of nine K/1st grade classroom groups, eight 2nd/3rd grade classroom groups, and seven 4th/5th grade classroom groups. Each of the groupings of paired grade levels was known as pods. For example, the K/1st group of classrooms in a school was known as the K/1st pod.

The smaller of the two schools participating in the study was the Valley Elementary School. The school is a K-5 grade school that has 122 students. Of these students, 87.5% are White, 5.7% Hispanic, 3.4% American Indian, and 3.4% other. The school is considered within a low-economic area, and 59.6% of the students qualified for the Free–Reduced Lunch program. The community that Valley Elementary serves is on a National Indian reservation. It is a community that has a population of 608 as of 2012 with a reduction of 9.9% since 2000 (United

States Census Bureau: American Fact Finder website, 2010). The community's average household income is 45% below the state's average income. The cost of living index is 85.8 (less than average, U.S. average is 100) (United States Census Bureau: American Fact Finder website, 2010). The community reflects the ethnic background of the school with 90% of the population identified as white with the next nearest population representing the American Indian population of 5% (United States Census Bureau: American Fact Finder website, 2010). Of the adults 25 years and older 80% have received a high school diploma and only 5.3% have received a bachelor's degree or higher (United States Census Bureau: American Fact Finder website, 2010). The three most common occupations in the community are woodworking, lumber production, and agriculture (United States Census Bureau: American Fact Finder website, 2010). This is due to the proximity to the national forests that borders the community on three sides and the farming that borders the community on the remaining side. The community is politically conservative and is non-transient in nature (United States Census Bureau: American Fact Finder website, 2010).

Three out of the nine total K/1st pods were located within Valley Elementary School. Three out of the eight total 2nd/3rd pods and three of the seven 4th/5th pods were also within Valley Elementary School.

The second school that participated in this study was the Prairie Elementary School. Prairie Elementary School, which is located 27 miles away from the first school, is a K–8 school with 493 students. The multiage classroom design was only utilized in the K–5 grade ranges and consists of 324 students, which represents 66% of the overall population of the school. The other grades within the school consisting of grades 6th through 8th did not utilize the multiage classroom setting but was established as a middle school.

The school had an ethnic population similar to Valley Elementary with 94.7% of the students White, and other various ethnic backgrounds making up the other 5.3%. Of the students who attended this school, 52.5% qualified for the Free–Reduced Lunch program. The community served by the Prairie Elementary School has a population of 3,151 in 2012 with a reduction in population of 2.4% since 2000 (United States Census Bureau: American Fact Finder website, 2010). The average household income is $30,972, which is 29% below the state's average (United States Census Bureau: American Fact Finder website, 2010). In regards to the ethnic make-up of the population, Whites represent 93% of the population followed by 3.9% of the population having a Hispanic background (United States Census Bureau: American Fact Finder website, 2010). More than 87% of adults over the age of 25 have a high school diploma and 13.2 % of the population has a Bachelor's degree or greater (United States Census Bureau: American Fact Finder website, 2010). As of July of 2013, unemployment is at 7.7%, which is greater than the state's average (United States Census Bureau: American Fact Finder website, 2010). The most common occupations include: truck drivers, retail sales, forest related work, and farming (United States Census Bureau: American Fact Finder website, 2010). The Prairie Elementary community is also conservative in nature and is slightly more transient than the Valley Elementary community.

This school's K-5 portion of the school consisted of six K/1st pods, five 2nd/3rd pods, and four 4th/5th pods. It should also be noted that this school had not met adequate yearly progress requirement as dictated by the federal program, No Child Left Behind act. It had not met the annual yearly progress in the subcategory of "Students with Disabilities" in mathematics.

Parents with students in the multiage classrooms and teachers who taught in these multiage classrooms were asked to participate in the survey. The intent of the survey was to gain

a better perspective of their value of the various components provided through the multiage classroom design. All parents who had children in the multiage classrooms in either of the two sites were asked to participate in the study. This decision to include all of the parents was determined due to the limited parent population size within the two schools. The parent online survey went out to 348 families and asked that one parent or guardian of each family complete the survey. Of the 348 families, 122 families represent the Valley Elementary School and 226 represent the Prairies Elementary School.

All teachers who were assigned to teach students in a multiage classroom design within either of the two school sites were also asked to participate in the study. The teacher online survey went out to all of the 28 teachers who taught or supported the multiage classroom setting within the district.

The make-up of the teaching population in the Valley Elementary School within each of the three pods is as follows:

- K/1st pod: One teacher with over 10 years of teaching experience, one with over five years, and one teacher new to the teaching field. Two of the teachers had been involved with the district since the conception of the multiage design.
- 2nd/3rd pod: One teacher with over 10 years of teaching experience, one with over five years, and one teacher new to the teaching field. One of the teachers had been involved with the district's transition to the multiage design from the conception, and another became a part of the transition a year before the study.
- 4th/5th pod: All three teachers at this level have over 10 years of teaching experience. These teachers were also involved with the district's implementation of and transition to the multiage design.

- Ancillary teachers: Two teachers support the three different pods within the school. They represent special education and music. The special education teacher is new to the school with no experience regarding the multiage classroom. The music teacher has over 10 years of experience in the district, and participated in all of the trainings the teachers in the classroom received.

Teachers that worked at the Prairie Elementary School had the following make-up that may have impacted the transition to the multiage classroom design:

- K/1st pod: The pod consisted of six teachers. Of the six, all of them had over five years of teaching experience, and three of them had over 10 years of experience. Five of the six teachers had been part of the transition to the multiage classroom. Two of the teachers also had a background of teaching either special education or remedial reading programs.
- 2nd/3rd pod: Five teachers were assigned to this pod level. Three of the teachers had over 10 years of teaching experience and have been with the district during the transition. Two of the teachers are new to teaching and new to the concept of the multiage classroom.
- 4th/5th pod: Four teachers were assigned to this pod level. Three of the four teachers had over 10 years of experience, and all four teachers had been a part of the transition during the entire time. One of these teachers had a special education background. One teacher had five years of experience.
- Ancillary teachers: Three teachers support the three different pods within the school through special education, Title I support, and physical education. The special education and Title I teachers had over 10 years of experience and trained on the

multiage design with the other teachers. The physical education teacher had over 10 years of teaching experience, but was new to the district and the multiage concept.

The teachers identified as transitioning into the multiage classroom during the first two years of multiage implementation were allowed to go to a national conference on differentiated instruction in Las Vegas, Nevada. During this training they received names of books and authors that would support their instruction and management in a multiage classroom. When they returned from the summer conference the teachers provided the district with the names and authors of these books, which were purchased for teachers to use in guiding their instruction. The teachers were also given five days in the summer to work within their pods to establish procedures and lessons, as well as share ideas of how to make the new design work. These days were established by the staff to fit their summer schedules.

Vulnerable population. For this study, no minors or any other population group that fall within the category of vulnerable population were used in collecting data, the only information gathered were survey responses from parents and teachers and post hoc student test scores with the names of the students removed.

The survey was distributed online and responses were anonymous. Participants were provided instructions regarding the survey and informed that completing the survey would be considered their consent to participate. Participants were also advised that they had the right to not answer any question that they might feel uncomfortable answering.

Due to the anonymity of the online survey there was no risk to the participants. This was supported by the Northwest Nazarene University's Doctoral Advisory Council and the Human Rights Review Committee when they reviewed this research project and found it to be acceptable, according to state and federal regulations and university polices established to protect

the rights and welfare of all participants in the research. The committee approved the request to be exempt due to no risk to the participants. Risk as defined by federal guidelines is defined as the probability of harm or injury (physical, psychological, social, spiritual, or economic) occurring as a result of participation in research ("IRB Guidelines," n.d.).

Protection of human subjects and approval. As discussed in Johnson's and Christensen's book, *Educational Research: Quantitative, Qualitative, and Mixed Approaches* (3rd Ed.), treatment of research participants is emphasized and identified as an issue that researchers must confront (Johnson & Christensen, 2008, p. 105). To assure that the principal researcher had the knowledge and skill regarding completing an ethical study a training course covering the issue of protecting the human research participants was provided by National Institutes of Health (NIH) Office of Extramural Research. After the training an examination was completed and passed by the researcher. This organization then certified the principal investigator. Approval was documented with a Certificate of Completion (NIH Certificate #1034385) (Appendix D).

In this study no risk was anticipated, but every precaution was provided to assure that any unforeseen risk is minimal.

- *Anonymous*: The names of the participants in this study were anonymous to both the readers of the study and the principal investigator. During the student assessment data gathering, personnel from each school who had authority to review the data eliminated any identifying information that could identify a student. The surveys were also anonymous and no information was gathered that would identify an individual participant.
- *Instrument*: The instrument was researcher-generated (Appendix E & F).

- *Right to refuse*: Participants had the right to refuse to participate by discontinuing the survey at any time and not submitting the survey. The participants also had been informed that they had the right to not answer any specific questions that they felt uncomfortable answering (Appendix G).
- *Computer files*: All information gathered was collected on the principal researcher's computer and also an external hard drive for backup purposes. All information was password protected with only the principal researcher having the password. Additional documents and notes collected were secured in a locked file cabinet at the home of the principal investigator. These documents will be maintained for a period of three (3) years when at that time they will be properly destroyed.

With these precautionary actions, it was believed that the research study met the ethical requirements of a research study.

Role of the researcher. One limitation of this study was the possible bias of the reader due to his former position in the two locations of the study. Prior to the 2013/2014 academic year, the researcher was the superintendent of the two schools where the study took place. The principal researcher, as superintendent, initiated the transition to the multiage classroom in these two schools. This was done after numerous years in the district listening to the different concerns teachers had with the current design. There were concerns that the class sizes were unbalanced, that the teachers were unable to reach each student's academic needs, that parents were not being involved in their child's education, and that teachers had minimal time and capabilities to collaborate and share ideas.

The nature of the researcher's former level of authority may have affected the data gathered from the parents whose children attended the district's schools and teachers who were

previously supervised by the researcher. This leadership role of the researcher had to be considered throughout the research project. This consideration, at times, eliminated certain data gathering possibilities due to the possible bias on the part of the researcher. It was important to work with the chair of the doctoral committee and the chair of the Human Research Review Committee during the planning and completion of the data gathering and data analysis to minimize this potential bias.

Data Collection

The data collection began in fall of 2013. Because permission had already been obtained for the researcher to complete the study within the school district, a written letter requesting assessment results of previous standardized assessment results was made (Appendix H). The letter was provided to the two principals of the schools involved in the study requesting the results of the kindergarten through third grade Idaho Reading Indicator (IRI) scores for grade levels and building level for the past four years. Fourth and fifth grade students do not take this test, so there was no data to gather or analyze. A request was also sent to forward the grade and building level results of the Idaho Standard Achievement Assessment (ISAT) for grades 3 through 5 (Grades K–2 were not required to take this test). The span of seven years of testing data was provided to the researcher by the schools' principals for this assessment analysis. This span allowed the researcher to collect data for the two or more years prior and two years during the implementation of the multiage classroom for later comparison. As data from test scores were provided, they were entered into the SPSS Statistical program for further calculation by the researcher.

In addition to the request for school post hoc standardized assessment data, the second portion of the data gathering process consisted of the distribution of an online survey to parents

and teachers (Appendix E & F). The survey consisted of the quantitative, 5-point Likert scale items and also the qualitative, open-ended questions used for explanatory purpose. The survey for both the teachers and the parents consisted of 24, 5-point Likert scale statements. Three Likert scale statements evaluated each of the seven key areas of interest, and three statements looked at the overall perception of the participant. Following the Likert scale portion of the survey the participant was asked to answer three open-ended questions that allowed the participant to provide additional clarifying information. The survey was distributed to both parents and teachers in the Valley and Prairie Elementary schools. Content and face validity tests were completed for the survey because the instrument was designed by the researcher. This process will be described in the instrument section.

The distribution of the survey was completed during the month of October 2013. Parents with students in the multiage classroom and teachers who taught in these multiage classrooms were surveyed to gain a better perspective of their value of the various components provided through the multiage classroom design. The survey was an online survey using the program Qualtrics.

Instrument

Survey creation. The survey was created by the researcher in order to answer the research questions that guided the study. The Likert scale was determined to be the best tool to gather the perceptions of the stakeholders regarding the multiage classroom because it has a history of gauging attitudes and preferences (Bertram, 2007; Tanner, 2012). Open-ended questions were provided at the end of the survey to compliment the quantitative data. This concurrent nested strategy allowed for two simultaneous data collections methods (Terrell, 2012). The goal of the open-ended question was to prompt the participant to elaborate, enhance,

or clarify their responses to the Likert scale portion of the survey (Johnson & Christensen, 2008; Terrell, 2012).

In the survey, three Likert scale statements were provided for each multiage design component researched. This provided the Likert Scale portion off the survey with 24 statements. The qualitative portion of this mixed-methods survey consisted of three open-ended questions. Once the survey was developed the process of checking face and content validity began.

Face and content validity. The purpose of the content and face validity phase was to establish validity of the survey instruments used by having recognized subject-matter experts evaluate each item for relevance to the construct being measured. Before collecting participant data for analysis, eight participants were used to check content and face validity for the two survey instruments. Participants were selected based upon their expertise and experience with the multiage classroom design's components and were identified as a K–5 administrator, K–5 teacher, or parent representative. Recruitment was limited to only those who had taught within a multiage classroom, administrators knowledgeable of the multiage design, and parents who had children in the multiage-designed classroom. All participants were over 18 years of age.

After the survey was developed content validity was determined using the established procedures of Lynn (1986) and Polit and Beck (2006). Eight experts with knowledge of the multiage classroom design were selected to review the 24 Likert scale statements. They rated each statement on a 4-point scale. From those ratings an item content validity index (I-CVI) and scale content validity index (S-CVI) were calculated. The I-CVI required a rating of 0.88 or higher in order to consider the survey valid. The S-CVI required a rating of 0.9 to establish content validity. Face validity was also examined by the same experts by reviewing the

appearance of the survey to confirm that it was able to assess what it was meant to assess (Lynn, 1986; Polit & Beck, 2006).

The three opened ended questions were examined through soliciting feedback from the same group of people that completed the content validity review. Triangulation was also used between the surveys, post hoc documents, and open-ended questions to determine validity by looking at the consistency of responses (Marshall & Rossman, 2011).

Distribution. Families and teachers were provided a letter informing them about the purpose of the survey and asking each family to participate. The letter was first distributed by sending it home with the students. A reminder letter was sent seven days later, through delivery by the students, to remind parents to complete the survey (Appendix I). Finally, due to low response rate, a third notification using email was sent via the AlertNow Mass Communication System. This program was already available to the school district and had the ability to reach all parents with students in the grade levels studied. This was done with the agreement and help of the school administration. The letters and email provided directions for how the parent could locate the survey's website (Appendix J, K, and L).

Teacher surveys were also distributed using the Qualtrics web-based survey site. Staff members who were teaching in the multiage classrooms were asked to complete the survey by receiving a flyer in their school mailbox. The flyer explained the survey and asked for their cooperation. This occurred during the second week of October 2013. Teachers were asked to complete the online survey during a seven day window. Staff members were asked not to discuss the survey questions until after the surveys were completed and the collection window closed.

After the collection window was closed for parents and teachers, the data from the Qualtrics online survey program was entered into the SPSS Statistical Analysis program for further data analysis.

Analytical Methods

After the data was collected, an analysis of the information was conducted for a better understanding of the results/responses. The information for both the quantitative and qualitative portions of the survey were collected at the same time and mixed during the analysis phase (Terrell, 2012). The qualitative portion of the survey was nested within the quantitative portion and used for clarification purpose (Terrell, (2012).

Quantitative analysis. In the quantitative portion of the study, a comparison of results was examined from the 5-point Likert scale surveys. This was done to determine the more favorable components of the multiage classroom design. Data from the Likert scale survey was ordinal in nature, so the Mann–Whitney *U* test was used to compare the responses between the two schools and between the parent and teacher groups. A comparison was also made between the parents representing the older grade level students and the parents representing the younger grade level students of each pod level.

The Kruskal-Wallis *H* was used when more than two groups were compared. This analysis was completed when the parents and teachers of the three different pod levels' responses were compared and also when the parents and teachers of the six individual grade levels' responses were compared.

After the Mann–Whitney *U* test was completed, the Cronbach's Alpha was conducted to test internal consistency reliability. This procedure enabled the researcher to compare the answers without dividing the questions into two groups, allowing the sample group to remain at a

higher number (Tanner, 2012). The *p*-values less than .05 were considered to be significant (Tanner, 2012).

Student assessment scores of the different grade levels implementing the multiage classroom design were examined using an ANOVA test and the Chi-Square test of independence to determine if there were differences before and after the implementation. The Idaho Reading Indicator test used the ANOVA test due the ability to determine whether there are statistically significant differences between any two groups within a larger number of groups being considered (Tanner, 2012). The Idaho Standards Achievement Test used the Chi Square test of independence because of the possibility of multiple variables influencing the scores of students (Tanner, 2012). Post hoc analysis of the assessment scores were conducted to determine where those differences existed. A *p*-value of less than 0.05 was considered statistically significant.

Qualitative analysis. In the qualitative components of the study, the open-ended questions provided at the end of the parent and teacher surveys were examined for salient themes or patterns that could be summarized for a better understanding of an effective multiage classroom. Open coding was the first step for reviewing the open-ended questions. This process involves taking data and segmenting them into categories of information (Creswell, 2007, p. 239). Following the open-coding analysis, the researcher then completed the axial coding process. This process consisted of grouping the codes according to the conceptual categories that reflect commonalities among codes (Tanner, 2012, p. 215). This was completed by downloading all comments from the Qualtrics program to an Excel worksheet. After reviewing the comments, a color code was used to identify the main concept the writer was trying to convey. Once that was completed a second reading was done to narrow the categories needed to convey the participants' responses. This was done numerous times over a period of a month to confirm the

intent of the writer. Finally, the specific sentences in responses that could identify the concept conveyed was highlighted using a color coding system. Once this was done the final themes were considered and documented.

A triangulation of data was examined using testing results, teacher surveys, and parent surveys to determine accuracy of the study (Creswell, 2008). Triangulation seeks convergence, corroboration, and correspondence of results from different methods (Creswell, 2008; Johnson & Christensen, 2008). The purpose of the triangulation exercise was to increase the credibility and trustworthiness of the research findings (Creswell, 2008; Johnson & Christensen, 2008).

The researcher's role was that of a non-active participant. As a person who had a previous leadership role within the two sites participating in the study, it was important to allow the participants to remain anonymous to the researcher. The researcher, who, prior to conducting the research had been the superintendent of the district participating in the study, had taken a new position as superintendent of a school district approximately 110 miles from the research site. The researcher also had played an intricate role in the implementation of the multiage design within the grades K–5 when he was the superintendent of the district where the study took place.

The research instruments and documents used in this study were:

- National Institute of Health (NIH) Certification (Appendix D).
- Parent Survey (Appendix E).
    - Likert Scale
    - Qualitative Open-Ended Questions
- Teacher Survey (Appendix F).
    - Likert Scale
    - Qualitative Open-Ended Questions

- Qualtrics Survey Tool
- SPSS Analysis Tool
- Microsoft Excel Worksheets
- Request for Permission Documents (Appendix A).
- Information Provided to Participants, Regarding Rights, Directions, and Purpose (Appendix G)

Limitations

This study brought to light the perceptions parents and teachers had of the worth of utilizing the multiage classroom design to meet the needs of their children. The study also compared the parents' perception with the teachers' perception of the value of the multiage design. The study finally examined the impact changing to a multiage design had on students' state standardized academic achievement scores.

A limitation of this study was that the sample sizes for both the parent and teacher surveys were small. This is in part due to the two small, rural schools districts in which the study took place. This study was conducted specifically for one school district, so including information from other locations was not considered. The study also wanted to look primarily at a school district that was implementing the multiage classroom design school-wide. Both of these implications reduced the potential sample size. A third limitation to this study was that the ethnic makeup of the populations was predominantly Caucasian. No other ethnic group stood out as a second predominant group.

Other limitations to this study included the possible impact to the fact that the two schools were still in the initial phases of transition to the multiage classroom design. With only two complete years since the start of the transition it may be assumed that there was still concern

from staff and parents of the effectiveness of the program. During the initial change to a new program may skew the data and an ongoing study may show different results as the transition is further along and staff and parents are more comfortable with the change.

Other delimitations of this study were that the study only examined the perception of parents who had an elementary-age child who attended and teachers who instructed in a multiage classroom in one northwestern United States school district during the fall of 2013. The study was limited in scope by gaining only the perception of the parents and teachers who were involved with the multiage designed classroom.

Finally, a limitation of this study that should be noted is the possible response bias that may have occurred in the form of Social desirability. This is must be considered within this study due to the direct relationship the researcher had with the study. As the past superintendent of the school district where the study took place, and the initiator of the change to the multiage classroom design, both parents and teachers may have believed they had to provide a more socially acceptable response to items on the survey (Krumpal, 2011). Also being a smaller rural community there may have been a slight fear that even though the survey was anonymous that there may have been a chance the researcher could identify the responder of the survey.

In the next chapter the findings of the Likert Scale, open-ended questions, and the assessment scores will be shared. This will begin the analysis portion of the research study.

Chapter IV

Results

Introduction

The purpose of Chapter IV is to present the results of the data analysis conducted during this study. This chapter is divided into six sections: introduction, data collection procedures, survey item frequency distribution, statistical analysis, qualitative analysis, and summary. The purpose of this research study was to identify the perceptions of teachers and parents of students in a multiage classroom design in a rural school district in North-Central Idaho. Three research questions guided this study:

1. What effect did the multiage classroom design have on teachers and parents who have students in the program?
2. What components of the multiage classroom explain the effect the program has on teachers and parents who have students in the program?
3. How effective in improving academic scores was the school-wide multiage classroom design in a rural school?

The goal of the study was to establish what factors contribute to the success of a multiage classroom and to discover what elements parents and teachers perceive as important for a successful multiage classroom. The study was conducted as a mixed-method, multiple-case explanatory study within a rural school district. The two elementary schools in the district used a school-wide multiage classroom design for K–5th grade levels. The implementation of this design was completed two years before this study was conducted. This allowed for the comparison of student academic data from years before the implementation to the current scores achieved with the multiage classroom design.

Data Collection Procedures

Parent survey. The participants selected for this study consisted of the parents of students in the K-5th grade range in two elementary schools within the district. A total of 348 families, representing all of the families who had students in the multiage classrooms, were asked to complete an online survey (see Table 1). It was also identified that 21% of families represented a child in a multiage classroom for the first time. Of all 348 families, 98 completed the survey, which provided a 28% completion rate (see Table 2).

Table 1

District Multiage Classroom Families

Student per Family	Prairie	Valley	Total
1 Child in a Multiage Classroom	148	75	223
2 Children in a Multiage Classroom	68	37	105
3 Children in a Multiage Classroom	11	7	18
4 Children or More in a Multiage Classroom	0	2	2
Total Families with Children in a Multiage Classroom	227	121	348

Table 2

Parent Survey Completion Rates

School	Sent Survey	Completed Surveys	Response Rate
Prairie	227	63	27.7%
Valley	121	27	22.3%
Unidentified	–	8	–
Total	348	98	28.1%

The first request for families to complete the survey was sent home with students in the multiage classroom. Students were given a flyer, which explained the purpose of the survey and identified the website parents should use to complete the survey, and asked to give the flyer to their family.

Parent response rate was minimal after the first request, so a second notice was sent home with students. After limited success, a third request was made utilizing email to distribute the survey invitation and information. This was accomplished through the district's mass communication program with the capability of sending an email to all families with at least one child in a multiage classroom. This email allowed parents to directly connect to the online survey site. This third notice produced more responses, but not to an optimal level. The parent survey completion rate only reached 28.1% (see Table 4). This rate is below the 40% standard that was determined by previous studies. A 70% completion rate is generally accepted to be representative of the targeted group (Johnson & Christensen, 2008). Email rate of return versus mail rate of return has been found to be lower, but is considered more cost efficient and quicker to distribute which was a concern of the researcher. However, studies have found typically email survey rate

of return has been lower than mail survey rate of returns (Akl, Maroun, Klocke, Montori, & Schunemann, 2005; Bachmann, Elfrink, & Vazzana, 1996; Schuldt & Totten, 1994; Tse, 1998). It was determined that any additional requests to parents would not substantially increase the rate of return, so no other requests were made.

Staff survey. Thirty staff members that either taught or provided professional support within the multiage classroom were also asked to complete the survey. Staff participants were recruited through a flyer distributed during a staff meeting. Twenty-three instructors completed the survey providing a 76.6% completion rate (see Table 3). Participants were asked to only identify the grade level to which they were assigned. No other subgroups were defined to avoid loss of anonymity within the small population. The rates of return in all subgroups were high, except in the 2nd/3rd grade subgroup with a rate of return of only 37.5%.

Table 3

Multiage Teacher and Staff Survey Completion Rates

Subgroups	Total Staff	Response	Percentage
K/1st Grades	8	7	87.5%
2nd/3rd Grades	8	3	37.5%
4th/5th Grades	7	6	85.7%
Support Services, PE, and Fine Arts	7	7	100.0%
Total	30	23	76.6%

Survey Variables and Validity Check

The study identified possible attractive components or outcomes that occur when utilizing the multiage design. The variables that were examined are listed in Table 4. In this

study, each of these areas was considered important by staff and parents when the school system transitioned to the multiage classroom design. The importance of these different components was shared with the researcher while he was the superintendent of the school district studied. These identified components were shared through conversations had with teachers and parents when asked what is needed to better meet the needs of students within the classroom. These conversations occurred throughout a time period of 22 years within the school district. Some of these components were also discussed in negotiations with the local teacher's union in their request to have a better work environment.

Table 4

Multiage Elements Studied

Multiage Element	Operational Definition
Differential Instruction	Tailoring instruction to student needs, which also includes scaffolding lessons and using flexible student groupings (Driskill, 2010).
Looping	Looping is defined as teachers and students moving together from one grade level to the next as a group (Nevin et al., 2008).
Family/School Relationships	Engagement of families and other stakeholders within their child's education to help provide goals that are aligned with the educators (Brotherton, Kostine, & Powers, 2010).
Teacher Collaboration	Teachers who jointly plan, implement, and evaluate with other school personnel (Kimmel, 2012).
Class Size Stabilization	The ability to maintain equitable class sizes throughout the school system.
Social Skill Improvement	Providing opportunities for students to learn, practice, and master skills that allow them to communicate and participate with others.
Teacher Assignment Stabilization	The ability to allow teachers to maintain the same teaching assignment over a longer period of time so that they have the opportunity to become more knowledgeable and skilled within that area.
Overall Impression	The general thoughts and feelings toward a program or issue.

Two survey tools were used to collect data from parents who had children within the multiage classroom and teachers who either taught within the multiage classroom or provided support services within these classrooms. The surveys were developed as Likert surveys with open-ended questions utilized at the end of the survey to allow clarification or additional information by the respondent. The parent survey is provided in Appendix E. The teacher survey is presented in Appendix F.

After the survey design was completed, content validity tests were conducted utilizing eight individuals with expertise in the multiage classroom design. This technique followed Lynn's procedural guidelines for measuring content validity through a peer review (Lynn, 1986). Lynn stated 7 to 10 people with expertise in the topic studied and who will not be participating in the study should be selected to review the research tool to determine the content validity (Lynn, 1986). In the process of determining content validity for the surveys, the first attempt produced an individual content validity index (I-CVI) at a level below acceptable within the parent survey. This was determined through guidelines set by Lynn stating a minimum of 78%, per item, using eight evaluators is needed to support validity (Lynn, 1986; Polit & Beck, 2006). After rewriting the three questions, the parent survey was returned to the evaluators for a second review. Following the second review the I-CVI was calculated for the parent survey as being above the 78% minimum for all items by having no item rated below 88% with a mean rate of 0.96 (see Table 5).

Table 5

Content Validity Test

Test	Survey	
	Teacher	Parent
Mean I-CVI	0.98	0.96
S-CVI/Ave. (S-CVI/UA)	0.83 (0.67)	1.00
Mean Expert Proportion	0.98	0.96

The parent survey was distributed through an invitation in the form of a flyer sent home with students. Teachers were recruited through a flyer placed in their school mailbox. The flyer, which was identical to the parents except for the title indicating which group it was addressing, requested their assistance in completing the study and identified the website where they could locate the survey (see Appendix 9). The survey utilized the online program, Qualtrics, to gather the data.

It should be noted that after the teacher survey notification was distributed and some teachers had completed the survey, it came to the attention of the researcher that two items within the teachers' survey were listed twice and two other items were eliminated. Since the survey had already been distributed, it was determined it was less disruptive to the study to continue the survey gathering without correcting the error. When the analysis was done with comparisons between the teachers and parents' responses, the questions that were eliminated on the teacher survey were also eliminated on the parents' survey to remedy the situation. In regards to the two items that were duplicated on the teachers' survey, the responses were reviewed and it

became apparent that the only difference was due to one responder changing one response. With this consideration the repeated item was eliminated for both duplicated items.

Frequency Distributions

The frequency of responses for both the parent survey and teacher survey are shown in clusters representing the multiage element the questions addressed (see Table 6 through 13). Scale scores were given for each item. The scale ranged from a score of 1, which was given for the response “Almost Always True”; 2 representing “Often True”; 3 representing “Sometime True”; 4 indicating “Seldom True”; and 5, which represented “Almost Never True.” Each of the 24 items was written as a positive statement so a mean of 2.5 or less would represent a response that is considered positive toward the multiage classroom design.

Differentiated instruction. The first three questions of the survey addressed differentiated instruction (Table 6). This element was of interest because previous research suggested differentiated instruction was able to meet the needs of a wide range of learning levels (Driskill, 2010; Estell et al., 2009; Kobelin, 2009; Tobin & McInnes, 2008). This was of importance when implementing the multiage classroom due to the increased range of student ability levels caused by combining the two grade levels.

Table 6

Differentiated Instruction Survey Item Frequency Distributions

Parent (P)/ Teacher (T)	Survey Item	Response Frequencies on 5-Point Scale from Almost Always True (1) to Almost Never True (5)					Total Responses	Mean
		1	2	3	4	5		
1P	My child's teacher provides instruction and assignments that challenge my child.	30	34	14	4	0	82	1.90
1T	I can provide instruction and assignments that challenge each student.	5	8	8	2	0	23	2.30
2P	My child is working at a pace that is challenging to them, but not overwhelming.	23	29	20	9	0	81	2.19
2T	I can provide a pace that challenges my students, but does not overwhelm them.	5	7	9	2	0	23	2.35
3P	My child's learning plan is developed specifically for my child.	26	21	18	11	5	81	2.36
3T [a]	I can provide a pace that challenges my students, but does not overwhelm them.	4	7	9	2	0	22	2.41

[a] Repeated question due to investigator error.

In a visual review of the frequencies presented in Table 6, there appears to be similarities between parent and teacher perceptions in regard to students receiving instruction and assignments that challenge them. Parents and teachers appeared to respond with a positive skew toward the amount of individualized attention their child received in the classroom with 64 of 82 parents' responses and 13 of 23 teacher responses within the categories of "Almost Always True" and "Often True". In the second item there was less of a difference with only a

discrepancy between the parents and teachers when asked about whether the pace of work is challenging, yet not overwhelming. Both groups were more prone to state that this was more positive than negative with 72 of the 81 of parents responding to the three most positive response categories of the five and 21 of 23 teachers responded in the same categories. The third item was a duplication of the second item for the teachers, but had very similar responses to the second item, with one responder not responding, presumably because they realized the question was a duplicate. However, since the parents' third item was not a duplicate, the item demonstrates that parents were closer to the median than the other two questions.

Looping. The second area of interest that was investigated was the perception of both parents and teachers regarding the looping of a portion of the students each year in the multiage classroom (Table 7). At the beginning of each year, the past year's lower grade loops back to the same teacher and classroom. The new lower grade level students move into the classroom. This provides a setting where a portion of the students in the classroom have the knowledge of the procedures of the classroom and have already developed a relationship with the teacher.

Table 7

Looping Survey Item Frequency Distributions

Parent (P)/ Teacher (T)	Survey Item	Response Frequencies on 5-Point Scale from Almost Always True (1) to Almost Never True (5)					Total Responses	Mean
		1	2	3	4	5		
4P	The good relationship my child has with his/her teacher allows my child to feel comfortable in the classroom.	51	20	6	5	0	82	1.57
4T	I have a good relationship with my students and they feel comfortable in the classroom.	18	5	0	0	0	23	1.22
5P	I like that my child will have the same teacher for two years.	44	16	10	4	7	81	1.94
5T	I like that I have students for two years.	13	4	3	0	1	21	1.67
6P	At the beginning of the school year my child quickly learned the classroom procedures and responsibilities identified by the teacher.	41	30	6	2	2	81	1.69
6T	I spend less time at the beginning of the school year going over classroom procedures and responsibilities with my students since the multiage classroom design was implemented.	**7**	5	3	3	1	19	2.26

Overall, the responses for both parents and teachers fell into the categories of “Almost Always True” and “Often True”. In a visual inspection the responses demonstrated a distribution

with a positive skew in favor of looping. The strongest positive response from the parents' surveyed is in the first item in this category where the perception is that students feel comfortable being in the teacher's classroom for multiple years.

Family and school relationships. In the review of the frequency of responses regarding the family and school relationships within the multiage setting, there was again a positive distribution skew in the parent response, but the teachers' responses appeared to be more centrally located on the scale. The teacher's responses were shown to be higher in their response of "Sometimes True" and "Often True" rather than "Almost Always True" (Table 8).

Parents' response to their feeling comfortable with their child's teacher provided the highest rate of positive response with 58 of the responders stating this was almost always true. Teacher's responses also demonstrated this was an area that was considered positive as well, but not to the level as the parents indicated. The teachers scored this as "Often True."

The item within this category that had a high rate of parents selecting the rating of "Almost Never True" was the item stating, "Having the same teacher for my child for two years has, or will, make it easier for us to communicate with each other". The teachers also showed a more neutral perception of this item by having the highest number of responses in the "Sometimes True" category.

Table 8

Family/School Relationships Survey Item Frequency Distributions

Parent (P)/ Teacher (T)	Survey Item	Response Frequencies on 5-Point Scale from Almost Always True (1) to Almost Never True (5)					Total Responses	Mean
		1	2	3	4	5		
7P	I feel comfortable talking with my child's teacher.	58	15	4	1	4	82	1.51
7T	My students' parents are more comfortable talking with me since the implementation of the multiage classroom design.	2	7	7	0	2	18	2.61
8P	I know the expectations of my child's teacher.	46	22	6	4	3	81	1.72
8T	The parents of my students understand my expectations in the classroom better since the implementation of the multiage classroom design.	4	5	6	2	2	19	2.63
9P	Having the same teacher for my child for two years has, or will, make it easier for us to communicate with each other.	44	24	4	4	6	82	1.83
9T	Communication appears to be easier for parents because of the multiage classroom design.	2	6	8	1	2	19	2.74

Student social skills. The frequency distribution pertaining to social skill development and social peer connections demonstrated a slight positive skew for both groups (Table 9). This area of interest has, in earlier research, demonstrated that classrooms that have a broader age range have been shown to improve social interactions because of the more family like

atmosphere typically seen in a multiple children family (Danling et al., 1999; Grove & Fisher, 2006; Penney, 2005).

The highest response by the parents was for the statement, “My child feels a sense of belonging at school, and enjoys going to school” with a 36 parents responding with an “Almost Always True”, where teachers responding higher for the statement, “Students in the different grade levels get along well in my classroom” with 10 responses to “Almost Always True”.

Table 9

Social Survey Item Frequency Distributions

		Response Frequencies on 5-Point Scale from Almost Always True (1) to Almost Never True (5)						
Parent (P)/ Teacher (T)	Survey Item	1	2	3	4	5	Total Responses	Mean
10P	I believe the multiage classroom design has helped my child in his/her social development.	31	18	9	9	14	81	2.47
10T	Students appear to get along better since we changed to the multiage classroom design.	3	9	6	1	2	21	2.52
11P	My child feels a sense of belonging at school, and enjoys going to school.	36	28	8	7	3	82	1.94
11T	Students appear to have a better sense of belonging since being in the same classroom for two years.	5	9	7	0	0	21	2.10
12P	My child likes being with students that are in different grade levels.	33	22	13	7	6	81	2.15
12T	Students in the different grade levels get along well in my classroom.	10	6	6	1	0	23	1.91

Teacher collaboration. An increase in the ability to collaborate was one of the intents when introducing the multiage classroom design in this project. With the ability to have multiple teachers teaching the same grade levels, rather than a few teaching one grade level, and a few teaching another level, and one teacher teaching a multi-grade classroom, it was hoped that collaboration amongst the group would increase. Research has demonstrated collaboration among teachers has shown to improve the overall quality of lessons, and improvement in communication with families (Bailey & Williams-Black, 2008; Grove & Fisher, 2006; Kimmel, 2012; Levine & Marcus, 2007; Stuart et al., 2006).

This area of interest was also studied within the Likert scale presented to the parents and teachers (Table 10). Three items were asked to be rated. The parents' responses to these three questions are represented by a positive distribution skew. The mean range was $1.79 < \bar{x} < 2.22$ within the parent group. The teacher survey demonstrates a more central data distribution. The mean had a greater distribution variance of $1.95 < \bar{x} < 2.82$ between the three items presented to the teachers. The item that depicted a more negative perception of collaboration by the teachers was in regards to the teachers' perception of sharing students with other teachers during the day. The teachers' responses showed that 9 of 22 responders selected "Seldom True" and "Almost Never True" regarding this item.

Table 10

Collaboration Survey Item Frequency Distributions

Parent (P)/ Teacher (T)	Survey Item	Response Frequencies on 5-Point Scale from Almost Always True (1) to Almost Never True (5)					Total Responses	Mean
		1	2	3	4	5		
13P	My child's teacher shares ideas with other teachers.	27	31	8	1	1	68	1.79
13T	I collaborate more with other teachers since the implementation of the multiage classroom design.	10	5	4	1	1	21	1.95
14P	I like how my child has different teachers throughout the day.	29	25	14	6	7	81	2.22
14T	I like how we share students among the classrooms with the multiage classroom design.	7	5	1	3	6	22	2.82
15P	The teachers in the multiage classrooms seem to work together a lot.	24	25	16	5	1	71	2.07
15T	Teachers are more receptive to working in a group, rather than in isolation, as in previous years.	6	3	9	0	3	21	2.57

Class size and teacher assignment stabilization. In rural school systems, occasionally a grade level of students may be larger in size compared to the other classes causing a bubble that, in the past, causes the school to either have classes within the grade level much larger than the others or reassign a teacher to move into the grade level so that the class size is equitable to the other grade levels. An additional alternative has also been to combine the overload of students with another grade level in the form of a multi-grade classroom (Veenman, 1995). These

methods of dealing with this bubble have frequently created frustration for both teachers who are assigned to these overload classes and to parents whose children are in these classrooms. Their perception has been that this is format is not “real school” (Broome, 2009). The next six items in the survey refer to both the issue of class size stability and teacher assignment stability, which are two things that a multiage classroom may help rectified.

In regards to the three items dealing with classroom size stability, there appeared to be a large difference between the parents’ and the teachers’ perception of how the multiage classroom has helped in maintaining stable, low class sizes (Table 11). The difference in the range of the mean between the two groups on item 17 was that 60 of 82 responses by parents were listed as “Almost Always True” and the other 20 responses were marked as Often True; whereas 5 of the 22 teacher responses marked “Almost Never True”. Teachers within this category overall were not in agreement in having a perception that the multiage had improved the class size stability. This was shown through the frequency distribution where nine teachers fell in the two categories marked as Almost Never True and Seldom True; three teachers saw this category as being Sometimes True; and ten teachers did have the perception that the multiage had improved the class size stability either by marking Almost Always True or Often True.

Table 11

Classroom Size Stabilization Survey Item Frequency Distributions

Parent (P)/ Teacher (T)	Survey Item	Response Frequencies on 5-Point Scale from Almost Always True (1) to Almost Never True (5)					Total Responses	Mean
		1	2	3	4	5		
16P	My child's classroom is not over crowded compared to other classrooms.	31	28	9	5	2	75	1.92
16T	The ability to stabilize the class size through the use of the multiage concept has been helpful.	6	8	1	1	5	21	2.57
17P	I believe having smaller class sizes is helpful to my child's education.	60	20	1	0	1	82	1.32
17T	A benefit of the multiage design has been the consistent, smaller class size that has been beneficial to student learning.	2	8	3	4	5	22	3.09
18P	I believe my child's teacher has enough time to work with my child individually because of the class size.	20	18	21	12	7	78	2.59
18T	A smaller class size has given me the time to individualize instruction for my students.	3	2	8	5	5	23	3.30

In the next section of the survey that looked at the perception that the parents and teachers have regarding teacher assignment stability, the only item that showed a disparity between the two groups was item 19 regarding the expertise of the teacher (Table 12). The parents saw that the teachers were more of an expert in their field than the teachers perceived.

For item 19, parent mean score equaled 1.66 and teacher mean scores equaled 2.36 with responses strewn throughout each category. Item 20 showed a mean difference between the two groups to be minimal. Scores were also centrally distributed.

Table 12

Teacher Assignment Stabilization Survey Item Frequency Distributions

		Response Frequencies on 5-Point Scale from Almost Always True (1) to Almost Never True (5)						
Parent (P)/ Teacher (T)	Survey Item	1	2	3	4	5	Total Responses	Mean
19P	I believe my child's teacher is an expert at the grade levels he/she is teaching.	42	27	6	3	1	79	1.66
19T	Not having to switch teaching assignments has allowed me to be more of an expert in my grade levels that I teach.	7	7	4	1	3	22	2.36
20P	I believe my child's teacher is a better teacher because he/she doesn't have to change teaching assignments as much due to the multiage design.	20	26	10	8	10	74	2.49
20T	I have become a better teacher because of the work I have done with the multiage classroom design.	6	6	4	3	2	21	2.48
21P	Teachers that don't have to change teaching assignments can provide better lessons for my child.	23	23	16	9	6	77	2.38
21T[a]	I have become a better teacher because of the work I have done with the multiage classroom design.	6	5	5	3	2	21	2.52

[a] Duplication error caused by the researcher during the preparation for distribution.

It should be noted that there was a duplication of item 20 that eliminated item 21 from the teacher survey. This occurred when transferring the items to the Qualtrics program for data gathering. Due to realizing the error after the survey was distributed to the teachers, there was no effort to correct the error. The consideration that responses were slightly different was caused by one responder changing their response. It was determined to utilize only the first response to be similar to other item responses.

Overall impression. The final area of interest examined within the Likert portion of the study was the overall perception of the parents and teachers regarding the multiage classroom design's effectiveness in providing a better setting for students' educational experience (Table 13). Overall, parents and teachers differed regarding their perception that the students enjoyed school more since the implementation of the multiage classroom design. Overall, the parents' frequency distribution in this category skewed toward the positive perception of this design, where the teachers perceived the design in a more negative perception. Both means were greater than 2.5 with the parents mean at 2.69 and the teachers having a 3.16 distribution mean.

Table 13

Overall Impression Survey Item Frequency Distributions

Parent (P)/ Teacher (T)	Survey Item	Response Frequencies on 5-Point Scale from Almost Always True (1) to Almost Never True (5)					Total Responses	Mean
		1	2	3	4	5		
22P	Overall my child likes school more since the school implemented the multiage classroom design.	19	18	13	10	12	72	2.69
22T	Overall students appear to like school more since the implementation of the multiage design.	2	3	7	4	3	19	3.16
23P	Overall my child does well in the multiage classroom at our school.	37	21	12	7	5	82	2.05
23T	Overall students are doing better in the multiage designed classroom than they were in the single grade classroom.	3	6	2	5	4	20	3.05
24P	Overall I'm happy with the multiage designed classroom that my child is in.	32	20	6	10	14	82	2.44
24T	Overall I'm happy teaching in the multiage designed classroom.	6	5	3	4	5	23	2.87

Quantitative Analysis

Survey item analysis. To determine the statistically significant difference between the responses regarding the perceptions of the parents and teachers on the Likert scale portion of the survey, a Mann-Whitney *U* analysis was completed. The null hypothesis for the Mann-Whitney *U* analysis was that parents and teachers will respond similarly to each survey item. Rejecting the

null hypothesis will demonstrate there is a significant difference between the two groups in their perception of the topic provided.

The Mann-Whitney *U* test was run to determine if there were differences in perception scores between parents and teachers. Distribution of the perception scores for parents and teachers regarding academically challenging students were not similar as assessed by visual inspection. Perception scores for parents (Mean Rank = 50.12) and teachers (Mean Rank = 63.26) were considered statistically significantly different $U = 0707.00$, $z = -1.94$, $p = .05$* (Table 14).

Table 14

Perception Difference of Parents and Teachers: Differential Instruction

Item No.	Likert Scale Item	Mann-Whitney *U*	*p* Value
1	Instruction and assignments are challenging to students.	707.00	0.05*

$p < .05$ for statistical significance

* *p* value is greater than .05, but relevant for discussion.

The Mann-Whitney *U* was also conducted to determine if there was a statistically significant difference between the perception of parents and teachers regarding parents feeling comfortable when communicating with the teacher within the multiage classroom design. This item's purpose was to help identify the value of the multiage classroom design's ability to improve family/school relationships.

In examining the distribution of the perception ratings for parents and teachers, it appears to be not similar when visually reviewing the frequencies listed in Table 8. Perception ratings for parents (Mean Rank = 44.85) and teachers (Mean Rank = 76.25) were statistically significantly different $U = 274.50$, $z = -4.73$, $p = .00$ (Table 15).

Table 15

Perception Difference of Parents and Teachers: Family/School Relationships

Item No.	Likert Scale Item	Mann-Whitney *U*	*p* Value
7	The Multiage design has helped with parents feeling more comfortable communicating with the teacher.	274.50	0.00

$p < .05$ for statistical significance

Table 16 also identifies a statistically significant difference regarding parents having a better understanding of the teacher's expectations within a multiage classroom design. In viewing the frequencies presented in Table 8 the distribution of ratings for parents and teachers were not similar. Perception ratings for parents (Mean Ranking = 46.25) and teachers (Mean Ranking = 71.68) had the following results when the Mann-Whitney *U* test was performed. U = 425.00, z = -3.28, p = .001 (Table 16).

Table 16

Perception Difference of Parents and Teachers: Family/School Relationships

Item No.	Likert Scale Item	Mann-Whitney *U*	*p* Value
8	Parents have a better understanding of the teacher's expectations.	425.00	0.00

$p < .05$ for statistical significance

Item 9 of the Likert survey also examined the family/school relationship within the multiage classroom. This item looked at how communication between families and the school improved when students had the same teacher a second year in a row. As were the other two items, this item was also found to have a statistically significant difference between the perception of the parents (Mean Rank = 46.21) and teachers (Mean Rank = 71.68) with

U = 386.00, z = -3.65, p = .00 (Table 17). In viewing Table 8 it was determined that the perception ratings were not similar between the parents' ratings and the teachers' ratings.

Table 17

Perception Difference of Parents and Teachers: Family and School Relationships

Item No.	Likert Scale Item	Mann-Whitney U	p Value
9	Having a teacher teach their child for more than one year has improved parent communication.	386.00	0.00

$p < .05$ for statistical significance

A Mann-Whitney U test was run to determine if there were differences in the perception of parents versus teachers regarding whether the introduction of the multiage concept has stabilized the class sizes. One reason the multiage classroom design implementation was supported in this project was for its ability to maintain consistent class sizes throughout the grade levels when a grade level has an influx of more students during one year. A review of the frequency distribution between parents and teachers ratings showed responses were not similar (Table 11). The parent (Mean Rank = 44.07) and teacher (Mean Rank = 83.91) perceptions were significantly different as depicted by the following results: U = 211.00, z = -6.27, p = .00 (Table 18).

Table 18

Perception Difference of Parents and Teachers: Class Size Stability

Item No.	Likert Scale Item	Mann-Whitney U	p Value
17	Smaller class sizes are considered a positive part of the multiage classroom.	211.00	0.00

$p < .05$ for statistical significance

Item 18 of the Likert scale was reviewed in regards to the frequency distribution of both the parents' and teachers' responses and determined to not be similar. The intent of item 18 was to determine the perception of the parents and teachers in whether smaller classes sizes allowed more time for individualized instruction by the teacher. There was a statistically significant difference in the ratings between the two groups. For parents (Mean Rank = 47.46) and teachers (Mean Rank = 63.02), $p = 0.02$. The Mann-Whitney $U = 620.50$, $z = -2.30$, p=.02 (Table 19).

Table 19

Perception Difference of Parents and Teachers: Class Size Stability

Item No.	Likert Scale Item	Mann-Whitney *U*	*p* Value
18	Smaller class sizes allow teachers to work with students individually.	620.50	0.02

$p < .05$ for statistical significance

Item 19 examined teacher assignment stability and specifically how maintaining a teacher in an assignment over a longer period of time allowed the teacher to become more of an expert within that assignment. The Mann-Whitney *U* test was run for item 19 and found that $p = 0.02$ and determined to be statistically significantly different between the two different groups. In addition, the Mann-Whitney $U = 602.50$, $z = -2.38$, $p = 0.02$ (Table 20). The parent group (Mean Rank of 47.63) and the teacher group (Mean Rank of 63.11) had a frequency distribution that was not similar.

Table 20

Perception Difference of Parents and Teachers: Teacher Assignment Stability

Item No.	Likert Scale Item	Mann-Whitney *U*	*p* Value
19	Reducing the need to have teachers reassigned due to student populations has allowed teachers to become more of an expert in the classroom that they have been assigned too.	602.50	0.02

$p < .05$ for statistical significance

The final item that reached a statistically significant difference between the perception of the parents and teachers was in regard to the overall benefit for students in the multiage classroom. The parent group (Mean Rank = 47.43) and the teacher group (Mean Rank = 68.20) had a difference of $U = 486.00$, $z = -2.94$, p = 0.00 (Table 21). Since the *p*-value of .00 was less than a *p*-value < .05 the item showed statistically significantly differences between the two groups.

Table 21

Perception Difference of Parents and Teachers: Overall Perception

Item No.	Likert Scale Item	Mann-Whitney *U*	*p* Value
23	Overall, students do well in the multiage classroom.	486.00	0.00

$p < .05$ for statistical significance

A Mann-Whitney *U* test was also completed between the parent group that had students in the first year of a looped multiage classroom (K, 2nd, and 4th) versus the parent group of the students who were in the second year of a looped multiage classroom (1st, 3rd, and 5th). No items were found to be statistically significantly different among these two groups within this

study. In addition the Mann-Whitney *U* looked for statistically significant differences between the Valley School and the Prairie School and again there were no significant differences found.

Another analysis was conducted to examine if there was a statistically significant difference between the three different multiage classroom pods that represent the independent variable (K/1st, 2nd/3rd, and 4th/5th). The Mann-Whitney *U* test could not be conducted because of its inability to look for significant differences between more than two independent variables (Tanner, 2012). The Kruskal-Wallis *H* test was selected for its ability to measure a dependent variable that is ordinal in three or more independent variables (Tanner, 2012). The ANOVA test, which also can study three or more independent variables, was not selected because it is more appropriate for interval and ratio data (Tanner, 2012).

Five items were found to be statistically significantly different when the Kruskal-Wallis *H* was completed. The first difference found was within item 3 that discusses the ability of the multiage classroom to help in allowing student learning plans to be developed specifically for each student. The *p* value was greater than .05, but was close in proximity that the item is relevant for discussion. The parents did not differ of their perception regarding individualized lesson planning in the multiage classroom, $X^2(2, N = 81) = 5.76$, $p = .056$ (Table 22).

Table 22

Statistical Significance of Parent Perceptions Within Different Pods: Differentiated Instruction

		Kruskal-Wallis *H*		
Item No.	Likert Scale Item	Chi-Square	df	*p* Value
3	Student learning plans are developed specifically to the student.	5.76	2	0.05*

*$p < .05$ for statistical significance

The second item that was identified as significant with a *p*-value less than .05 was item 5 that discussed the perception of parents in each pod level whether having the same teacher for two years is considered positive. With a return rate of 81 responses the mean rank for the pods were; 30.05 for K/1st, 44.52 for 2nd/3rd, and 44.19 for 4th/5th.

Table 23

Statistical Significance of Parent Perceptions Within Different Pods: Looping

Item No.	Likert Scale Item	Kruskal-Wallis *H*		
		Chi-Square	df	*p* Value
5	Having students in the same classroom with the same teacher is considered positive.	6.87	2	0.03

$p < .05$ for statistical significance

Table 24

Grouping Variable: Multi-Age Pods

Item No.	Kruskal-Wallis *H*		
	Chi-Square	df	Asymp. Sig
3	5.76	2	0.05*
5	6.87	2	0.03
13	8.40	2	0.02
19	10.70	2	0.01
23	7.16	2	0.03

$p < .05$ for statistical significance

A second Kruskal-Wallis *H* test was completed to examine whether there was a statistically significant difference between the different grade levels in regards to parent perception. The Likert item 19 was directed to the ability of the multiage classroom to reduce the need of reassigning teachers when an above normal enrollment influx of students in one grade level went through the system. The item specifically looked for the parent perception on whether the multiage design allowed a teacher to be more of an expert in their abilities and knowledge regarding the grade level they were teaching. The item read, "I believe my child's teacher is an expert at the grade levels he/she is teaching" (survey located in Appendix E). Results of that analysis indicated that whether the parent had a child in the Kindergarten, 1st, 2nd, 3rd, 4th, or 5th was related to their perception that the teachers were more likely to be experts within their pods. The parents did show a difference of their perception regarding item 19, the second item measuring teacher assignment stability $X^2(5, N = 79) = 12.88, p = .03$.

Standardized state assessment analysis. An additional area that brought information to light from the study was standardized test data. In the literature review, there were numerous studies that looked at the effects of the multiage classroom design on student achievement. In the literature review it became evident that the majority of studies found that the multiage design did not lower assessment scores, but also found that it made little or no positive difference in student assessment scores (Eichacker, 2008; Flora, 2006; Mason & Burns, 1996; Ong et al., 2000; Veenman, 1995). In reviewing this information, it was determined that assessment scores would also be investigated within this study to see if the specific Prairie Valley Project implementation caused a significant impact on students' assessment scores.

This assessment data was gathered post hoc from the school district where the study took place. The two tests that were used to help in determining if the multiage classroom had any

impact in student achievement were the Idaho Reading Indicator (IRI) and the Idaho Standardized Achievement Test (ISAT). The IRI is only used for the lower grades so that assessment was used in grades kindergarten through the third grade. The ISAT tests students only in grades 3 through 12, so was used only within the grade levels of 3rd, 4th, and 5th.

The first assessment scores that were examined was the IRI assessment. It was determined to complete the one-way ANOVA because of its ability to analyze multiple groups for significant differences, but accommodates just one independent variable, such as the three scoring levels of the IRI, on one dependent variable, such as pre-multiage and post-multiage implementation (Tanner, 2012). The data that was provided for this study identified how many students received a score of 1, 2, or 3 on the IRI assessment. The scores represented the following:

- 1: Intensive (Below grade level)
- 2: Strategic (Near grade level)
- 3: Benchmark (On grade level)

The test scores used for the pre-introduction of multiage variable consisted of scores that were taken from assessments in the fall and spring of each year for the two years immediately prior to the implementation of the multiage classroom. The scores used post-introduction of the multiage design were also from the fall and spring scores of the first two years of the multiage classroom design's implementation.

In completing the one-way ANOVA the results showed that there were no statistically significant differences between the pre or post implementation of the multiage classroom at any of the three IRI assessment score levels.

The second assessment scores that were examined within the research study were the ISAT score percentages for grades 3rd through 5th of the five years prior and two years after the implementation of the multiage classroom. Five years of data was used because the school district could provide the data and the additional data allowed for a more detailed comparison. The analysis was completed by using the chi-square goodness of fit test for its ability to analyze what is expected and what is observed (Tanner, 2012). The chi-square goodness of fit was selected because of the ability in this case to use the percentages provided as nominal data. This was due to the percentages being considered more of a category rather than a degree. The intent of the test was to fail to reject the null hypothesis, that is, the researcher expected test scores prior to implementation of the multiage classroom to be similar to the observed test scores that were gathered after the implementation of the multiage classroom. If the observed ISAT mean is statistically significantly different, the alternate hypothesis will be accepted and the null hypothesis will be rejected demonstrating that the multiage classroom design has a strong likelihood that it impacted ISAT test scores. The scores of the five years prior to the implementation of the multiage design were used as the ISAT mean expected and the scores from the two years of the implementation of the multiage were the ISAT mean observed.

After calculating the chi-square, there was not a statistically significant difference between the score percentages of the ISAT test prior to the implementation of the multiage classroom and after the implementation of the design change $X^2(3) = 4.01$, $p = .26$. The null hypothesis was not rejected.

Qualitative Analysis

A qualitative section of the survey was implemented to allow the subjects to provide additional information or clarification for the researcher. Using qualitative data gathered through

open ended questions has been common in previous research studies, and the practice is generally supported (Al-Hamdan & Anthony, 2010; Creswell, 2008; Penney, 2005; Terrell, 2012). Four questions were presented to the parent group. Three of the four questions were also provided to the teacher group. These three repeated questions were:

- Is there any information you would like to add regarding any of the survey questions you answered?
- Is there any other information that you believe we should know that was not asked in the previous survey?
- Is there anything that you would like the school to change in regards to the multiage classroom design?

A fourth question was asked of the parent group that asked:

- If you have any other children in kindergarten through 5th grade in [school district name removed for confidentiality], is there any information that you would like to share regarding different experiences that you or your other children experienced in regards to the multiage classroom setting?

This question was presented to the parents for the purpose of allowing the parents that have two or more children in the multiage classroom design to comment on any differences that each child may have experienced within this classroom design.

After the surveys were completed and gathered through the use of the web based program Qualtrics, responses were downloaded into an Excel data sheet. To create themes from the responses, the researcher began with a reading of each comment to understand the tone of each comment. Second, a process of open coding as described by Marshall and Rossman in there book, *Designing Qualitative Research* (2011, p. 214). This process identified commonalities

within the codes developed from the responses. Third, clustering of codes was completed by formalizing them into categories. During this stage 27 cluster groups were generated. In reviewing these clusters themes started to emerge, but even though they had some internal consistency they did not meet the level of being distinct from one another as stated as a requirement by Marshall and Rossman (2011). Another step was completed by reviewing the comments again and color coding the statements within the responses that supported the themes identified. This process allowed another opportunity to review the information to confirm the coding that had been earlier identified. Eventually clusters began to surface. Finally, these clusters were analyzed through a second level of clustering that brought the pertinent themes forward. In doing this last stage, ten themes emerged from comments by the two groups (Table 26). Six themes came from the comments from the four open-ended questions on the parent survey, and 4 themes became apparent from the three questions on the teacher survey. Combining the responses from the questions of each survey was done to allow connections between the questions to emerge as well.

Table 25

Qualitative Analysis Themes

Themes	Theme Frequency
Parent Responses	
A wide learning spectrum must be addressed to make the multiage classroom design successful.	28
Parents support teachers during a time of change.	18
Without school skills kindergarten students provide a challenge for the implementation of the multiage design.	13
Social connections between students in different grade levels within a multiage classroom take time.	13
Ability grouping takes students away from their trusted teacher.	9
Looping develops a connection between families and the teacher.	7
Teacher Responses	
Teacher frustration will occur when a sense of lack of support and increased workload appears during an educational design change.	28
When a wide learning spectrum is present within a classroom teachers are more likely to implement ability grouping as a solution.	25
Teachers support collaboration when workloads are increased during a time of change.	13
Without "School Skills" kindergarten students provide a challenge for the implementation of the multiage designed classroom.	13

In reviewing the themes that had emerged, it appeared that the wide span of learning levels of students was a concern by both parents and teachers. This is similar to other research that had previously been completed where parents and teachers were concerned about the learning span and the workload that it may cause the teacher (Carter, 2005). Teachers also expressed the belief that they did not have the supported that was needed for this change to the

multiage design. Much of this was due to lack of materials and training available that supported the multiage design. In reviewing the different comments it was also recognized that some teachers were using the multi-grade designed practices rather than the multiage practices which may constitute the frustration level.

A positive outcome of these themes was the support that parents had of the teachers. This coincides with earlier research that stated how the multiage classroom design developed a better communication and support between parents and teachers (Carter, 2005; Niesche & Jorgensen, 2010).

Summary

In review of the data that was provided, it appears that the biggest discrepancy that was found pertained to the item statement regarding teachers not having to be required to change classroom assignments making them more of an expert in the area they had been assigned. Parents found this to be a positive outcome of transitioning to the multiage design. Teachers did not have the same perceptions. Overall the perception of the district moving toward the multiage classroom is positive, but there are a few discrepancies between the teachers and parents.

In the next chapter the data will be analyzed, discussed, and recommendations made to further the knowledge level of school districts that are interested in transitioning to the multiage classroom design. The overall intent will be to identify needed modifications to the transition to make it more successful during and after the transition for other districts that see a value in making the change to a school-wide multiage classroom design.

Chapter V

Discussion

Introduction

Intent of study. The purpose of this explanatory multiple-case study that was approached as a mixed-methods design was to explore, analyze, and describe the effects that occurred during two rural elementary schools' transition to school-wide multiage classrooms in grades Kindergarten through 5th grade. The main emphasis was to provide detail within a gap of previous research dealing with parents' and teachers' perception of transitioning into a school-wide multiage classroom design.

Schools that provide school-wide multiage classroom settings appear to have certain collective key characteristics that have been identified in the research literature. These areas were studied within this research study to determine the importance they have in gaining a positive perception of both parents and teachers. The following research questions were considered the framework for this study.

Research questions. To examine the impact of these key characteristics the following overall research questions focused this study:

1. What effect did the multiage classroom design have on teachers and parents who have students in the program?
2. What components of the multiage classroom explain the effect the program has on teachers and parents who have students in the program?
3. How effective in improving academic scores was the school-wide multiage classroom design in a rural school?

Theoretical foundation. The study was completed through the vision of three theorists. Jean Piaget, Albert Bandura, and Lev Vygotsky who believed that the environment that students were subject to impacted their academic and social development (Cherry, n.d.; "Social Development Theory," n.d.; McLeod, 2012). They asserted that a safe and trusting environment that allowed students to explore, try new things, and challenge them helped students develop (Cherry, n.d.; "Social Development Theory," n.d.). Providing a setting much like the multiage classroom supported a classroom that was student–centered, rich with opportunities to interact with other students at different levels of development, provides a community atmosphere where students feel comfortable with their teacher, and facilitates trust and communication between parents and teachers (Allen, 2010; Carter, 2005; Hitz et al., 2007).

Within school factors. The study specifically looked at the teachers' and parents' perceptions of the school's program, activities, practices, and predicted consequences that were promoted by the administration as the way to remedy concerns that both parents and teachers had conveyed to administration regarding the classroom design and how it affected student success. The areas believed to be impacted by the multiage classroom design that were directly related to academic achievement were differential instruction, looping, and teacher collaboration (Bailey & Williams-Black, 2008; Belcher, 2000; Grove & Fisher, 2006).

Outside school factors. The study also looked at the impact that the multiage classroom design had regarding the family/school relationship and on the student's social skills development (Allen, 2010; Song et al., 2009). It appears that at times when school systems implement a new classroom design sometimes these secondary areas of impact are overlooked even though they also influence the learning environment. Such secondary areas, which includes social skills as Piaget, Bandura's and especially Vygotsky's theories of development demonstrate

impact learning. (Barnyak & McNelly, 2009; Bracke & Corts, 2012; Cherry, n.d.; Cornish, 2009; Pratt, 1986). For this very reason these two issues were investigated to show how the multiage classroom design could impact these components to better assist students in their learning environment.

Chapter objectives. In this chapter, each research question outlined in Chapter I is addressed, and a discussion of the findings from the data is presented. The results presented in this study both confirm and add to the research findings previously described in the review of literature. Conclusions drawn from the data are reported and implications identified within this study are considered. Recommendations derived from the results of this study are presented, and limitations of the study are provided. In addition, implications for future research as well as for professional practice are discussed.

Summary of Results

The findings reported in this chapter assisted in answering the three research questions that provided the guidance for this study. The findings were based on the data collected through the use of parent and teacher surveys that consisted of Likert Scale questions, as well as open ended questions. In addition, post hoc reviews of two standardized assessments were conducted to determine if the multiage classroom design had an impact of student achievement.

Research question 1: In answering the question, what effect did the multiage classroom design have on teachers and parents who have students in the program, the following findings surfaced.

Overall, the frequency of responses showed that there is a positive support for the multiage educational system. The parents perceived that their children liked school more since

the implementation of the new design. The parents also believed that their children were doing better in the multiage classroom environment than they were previously.

The Likert scale did identify that the teachers were more neutral in their responses to the design's overall impact, meaning they were a bit more hesitant regarding the benefits of the multiage design. In regards to whether they believe the students are doing better in the multiage classroom they showed a significant difference in their perception as compared to the parents.

This difference could be contributed to the teachers having to make a large transition without feeling they had the needed support or materials, as identified in the qualitative portion of this study. If they perceive that their workload is increased and they don't have enough time to complete what they want their students to finish, they may believe the students are also struggling. However this may be a false perception because students who have the opportunity to be more active within their learning may be able to adapt easier than the teachers. This needed support for the teachers has been identified in an earlier research as an important part of the success of transitioning to a new program (Harmon, 2001; Hornby & Witte, 2010).

During the analysis it did, however, become apparent that teachers were greatly supported by the parents. It appeared through comments stated in the qualitative portion of the survey that the parents understood the additional work the teachers were doing during the transition and they appreciated what it had done for their child.

It should also be noted that a part of the frustration teachers have regarding their workload is that some of the teachers are not fully committed to the multiage concept and are attempting to run a multi-grade classroom rather than a multiage classroom. This information became apparent through the staff members' comments when it appeared that there was some confusion regarding the difference between the multiage design and the multi-grade design.

Some teachers, apparently, still are attempting to separate the two grades with the assignments being given only on the basis of the grade level the student is in.

However, the comments from teachers did demonstrate that there is an overall feeling from the teaching staff that more support is needed. During a transition in a system design such as multiage, teachers are more apt to demonstrate a higher level of frustration if they believe they are not provided administrative support or the workload increases (Niesche & Jorgensen, 2010). This point must be addressed during any future changes that schools implement, if they want the transition to be positive.

Research question 2: Responding to the question, what components of the multiage classroom explain the effect the program has on teachers and parents who have students in the program, the analysis gathered provided the following information.

During the Likert scale portion of the survey, with the nested support from the open-ended questions, the positive and negative aspects of these components came to light. The first thing that became apparent in analyzing the data was that in all categories used both parents and teachers showed a positive perception of the multiage design. However, there were areas that the parents and teachers showed a significant difference in their strength of support for the identified components. In all cases the teachers expressed a more neutral perception of the value of these components, where the parents' responses were more positive. This neutral support by the teachers was not surprising to the researcher due to some of the teachers' expressed concern regarding the any substantial change.

There were significant differences between the two groups in the following areas. Parents saw that the teachers provided instruction and assignments through differentiated instruction that challenged their children. In regards to family/school relations, parents could see the multiage

design being significantly more helpful than the teachers did. They believe it will make it easier to communicate with the teacher, better understand the expectations of the teacher, and having the teacher for two years would make communication easier. When reviewing the responses that relate to class size stability it was found there were two areas the parents were significantly more positive about than the teachers. Parents perceived the ability to maintain small class sizes contributed to helping their child's education, and it also allowed the teacher to have more time to work with their child individually. The last area that showed a significant difference between parents and teachers is the perception that children are doing well in the multiage classroom design.

In a second analysis, a comparison of the parents' perceptions in relationship to what pod level their child was in was conducted. In this analysis it became apparent there was consistency. Even though all groups showed some positive perceptions of the components, the parents with children in the K/1st pod level had significantly lower perceptions of the value of the components than parents of children in other pod levels.

There were five areas where the K/1st pods differed from the other pods. These areas included how differentiated learning helped contributed to specifically designed curriculum for their child. In regards to looping, the parents of the K/1st differed from both of the other pod levels significantly in the belief that looping has caused them to like that their child will have the same teacher for two years. These parents of the K/1st pod students also showed a significantly different perception of their child's teacher participating in collaborating with other teachers. Again, the parents of K/1st pod students demonstrated a significant difference from the perception of the 2nd/3rd pod and 4th/5th pod parents regarding how the multiage classroom helped maintain a small class size so that teachers had enough time to work individually with

students. Finally, the parents of the K/1st pod students demonstrated a significant difference from the 2nd/ 3rd pod parents of their overall impression that their child is doing well in the multiage classroom.

In summary, it becomes apparent that even though all of the groups find that the multiage classroom design is a more positive setting then the single grade classroom, the parents of students just beginning in their educational learning are less favorable to combing classes. This appears to be due to the concern, as emphasized in the qualitative portion of the survey, that there is a fear from both teachers and parents that the learning spectrum is too wide at this beginning level. This is contrary to what was identified in the literature review portion of this study where the K/1st combination has been successful (Belcher, 2000; Harmon, 2001). It also became clear through the analysis portion of the study that the parents saw the multiage design as improving the communication between them and the teacher. This is strongly supported in previous research (Baeck, 2010; Carter, 2005; Daniel, 2011; Song et al., 2009).

Research question 3: In response to the question, how effective in improving academic scores was the school-wide multiage classroom design in a rural school, the following was found during the analysis of data.

In conducting the analysis of the two state-wide assessments within this study by evaluating the student results prior to and after transitioning to the multiage classroom it was concluded that there were no significant differences in scores either positively or negatively. This supports previous research that also showed no significant differences in scores or minimal differences when switching to the multiage classroom design (Corrigan et al., 2006; Eichacker, 2008; Flora, 2006; Harmon, 2001; Mariano & Kirby, 2009).

The lack of effect on student achievement may be due to the early evaluation of the program with only two years of implementation. This result may also be very important in that there is evidence that the multiage design makes a more superior social environment for the students so that they can take more social risks. This ability may lend itself to being more able to help students develop more for future learning as indicated in Bandura's and Vygotsky's theories (Cherry, n.d.; Obukhova, 2012). If the multiage classroom impacted the academic achievement of the students negatively then a school system would have to consider eliminating this design as a possible alternative due to the pressures of performing academically caused by the No Child Left Behind Act (Song et al., 2009).

Conclusion

Research question 1: In response to the effects that the multiage classroom design had on parents and teachers, it has brought to light that the single age classroom, which was developed by mimicking a factory process that was designed for Model-T cars, should not be the only design considered. However, when an alternative, such as the multiage classroom design, is implemented it is important to make sure that the parents and teachers are informed of the purpose for the change and then supported during the change.

Research question 2: In the review of the different components it was found that all of the components that were evaluated within this study were considered a positive aspect of the multiage design. However, the ability to provide an environment that challenges students through differentiated instruction, and provides a climate of safety through looping are two aspects of the multiage that have been found to be a strong reason for support by both parent and teacher. In addition, parents expressed that the family/school relationship that is supported through this design was also a perceived benefit to parents and their children.

Research question 3: This study has provided confirmation to previous studies that the impact of the multiage design neither helps nor hinders the academic achievement of the students. This allows the program to be instituted to benefit other factors that help a child's development, such as providing a safe environment to learn appropriate social skills that can cause the student to develop at a faster rate.

Implications of Study

This study supports the multiage classroom as being a viable option as an alternative to the more commonly recognized single-age classroom design. Students in a multiage classroom setting appear to be in an environment that provides a safe atmosphere with their peers and teachers, as perceived by parents. Every finding from this study points to the potential benefits of the multiage classroom. This design provides an environment for students to interact with their peers and learn from them. Students at the older range can strengthen the skills they have learned by teaching the students that have not mastered the skills through positive peer interaction. Students also have the benefit from knowing the teacher as they enter the classroom the second year. These students understand the classroom procedures and rules, and the teacher understands their learning style. This gives an advantage to these returning students by allowing them to begin learning new skills right away rather than learning a new set of rules and procedures for a new teacher. For the students entering into the classroom for the first time the student not only has the teacher to learn from , but a group of retuning students that can demonstrate and explain these new procedures.

Parents that have students in the multiage classroom appreciate the ability to get to know the teacher that works with their child. The opportunity to better know the teacher also facilitates more trust and communication between the two. Parents will develop a trust and support of the

teacher which will allow a more open discussion when it comes to the student's academic skill level and goals.

This environment may encourage students to take learning risks that may, in the long run, help their academic achievement. The program may also allow students to begin the year learning new information earlier because of the looping aspect where students already know the classroom rules and procedures. If they are new to the classroom they also have multiple teachers through the older peers that are returning to the classroom. The teacher has this opportunity to better understand their students' family background that can provide clues to their learning successes and difficulties.

Teachers who support the multiage concept can understand the importance of developing lessons that reach each student at the level of instruction that is challenging, but not overwhelming. They also know the importance of having lessons that are centered on the student rather than being teacher driven. It is also important to understand the importance of providing the teacher with needed support during a transition to a multiage classroom design. Teachers that understand why such a change is occurring and receive training throughout the process can be a positive messenger to the parents who trust them. Without the teachers' support during such transition they can negatively impact the success of a program such as the multiage design by causing others to question the worth of the change.

Implications for Professional Practice

When considering implementing a multiage classroom design any school district in the future will have a better opportunity for a successful transition by identify the components that will help their school, similar to what this project had done. Many of these components that were included within this study have a strong research base of providing positive support for both

students and their parents. In addition, administration and the community must understand the importance of supporting their teachers during such a transition so that they believe they are successful. Without this support, many times the teachers will have less support for the change because of the belief that they are not succeeding in helping their students.

The multiage design has the capabilities of supporting a classroom that provides a challenging curriculum, provides a positive learning climate that not only allows a student to learn, but also improve their development through social interaction that pushes them to move forward in their development. The program also supports parents in that they are more likely to be engaged in their child's learning, which has been proven to be vital to student success in school.

This study looked at one school district in rural Idaho that was transitioning to a school-wide multiage classroom design in two of their elementary schools. It is the hope of this researcher that this information provided within this study will provide any future rural schools an idea of what is important for both teachers and parents when such a program is considered. Providing information to these two groups of how the multiage classroom design can be supported by this program will allow the school to have a greater chance of a successful transition.

To further assist future implementers of this alternative to the single-grade classroom design a few implementation factors should be noted that the research noted during implementation. These factors were noted as the researcher, in his role as superintendent of the school district and initiator of the transition to the multiage design, observed the transition. These factors were not examined within the study and were not considered to reduce biases by the researcher, but they should be noted to help others considering implementing the same design.

First, to benefit teachers in utilizing collaboration to a full extent it would be helpful to provide training in the collaboration process. It was observed outside of the study that some teachers misunderstood the purpose of collaboration, or struggled when there was disagreement and a lack of skills for remediating disagreements was apparent. In addition, more training should also be done in the need for and benefits of changing to a new program. It became apparent through conversations with staff members that the teachers struggle to leave their comfort level and traditional habits of teaching. Providing an opportunity for feedback during the transition period did help in reducing the fears of the teachers to an extent.

Second, due to the simultaneous transition toward a standards-based curriculum the district had not adopted textbooks and materials as scheduled for the purpose of waiting for new materials to be developed and published that address the standards. This caused more of a hardship for teachers developing curriculum for the multiage classroom when materials that were up to date, as well as structured for differentiated instruction, were unavailable.

Third, adequate time for preparation was a major hurdle for the staff members teaching in the multiage classroom. It was found to be very beneficial to provide additional time in the summer months to provide teaching pods to have the opportunity to meet to organize lessons and develop procedures during the initial phase of the transition. This will be an additional financial burden on the school district, but a worthy expenditure. It is also helpful to make sure that teachers within a pod have the same time for preparation during the school day so that if they needed to do additional collaboration they have the opportunity to do so.

Finally, a need to make sure all parents, with children in the multiage classroom, are aware of the change and the reasoning behind the change. This communication with the parents will reduce the misconceptions by parents and also hopefully gain their support for such a

change. The communication needs to be ongoing and in many different formats. During the transition that was studied there was minimal feedback to parents and this did appear to impact the perception of the parents.

These factors discussed should be considered during this type of change, but a district must also look at other possible roadblocks that may be unique to their individual district when making any change. These factors mentioned are for the sole purpose of initiating more dialogue about possible factors that may impact the success of a change in standard operating procedures. However, more information would be helpful and should be studied and considered if available.

Recommendations for Future Research

If the multiage classroom design is considered by other districts and a study is completed similar to the one here. It would be helpful to design the study to be conducted during the transition rather than after the transition had been completed. This was not done for this study due to the desire to research this design came after the initial start of the program. If a study is completed during the actual transition period it would be helpful to provide formative evaluations of the program, as well as the summative data. Formative data could be done through observations, interviews, and ongoing surveys. In addition, data from classroom assessments could also be gathered throughout the transition period to determine and changes in skill level of the students.

The methods that were used in this study allowed the researcher to provide the participants an opportunity to provide their perception of the effects of the multiage classroom on their children or the students that they taught. Consideration of the confidentiality of the responses was needed due to the researcher's direct connection to the school district being studied. Since the researcher was the superintendent of the school district, and one of the

initiators of the implementation of the multiage classroom design, the need to make responses confidential was imminent in receiving responses that accurately reflected the participant's perception.

Due to the need of the confidentiality some methods of gathering data were not available to the researcher. One such method that was considered, but eliminated was the use of one-on-one interviews. Interviews would have allowed the researcher to gather additional information from specific sample groups that may provide more information to come to light.

A second method of data collection that was considered, but then eliminated due to confidentiality issues was developing more subgroups within the teaching groups. This was not done because of the small number of staff members available for the study. It was determined if subgroups were recognized within the teacher group beyond the multiage pods confidentiality for the staff would be jeopardized.

The initial research proposal for this study also included reviewing the attendance of students before and after the implementation of the multiage classroom. This was removed from the study after the researcher found the school district could not provide needed records that would allow a comparison to take place. Since many schools are concerned about attendance because of the financial and academic support that is generated from attendance data a future research should consider doing a similar study that looks at the impact of the multiage classroom has on attendance.

Future research would be helpful in completing a similar study, but with the added ability to collect data from individual interviews of a sample of teachers and parents. These interviews could provide a better understanding of the impact that the multiage design has affected them. In addition observations of the classroom setting would also provide valuable information for the

researcher to bring more of an overall perspective of the impact of the multiage design has on teachers and students.

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Appendix A
Request Permission to Conduct Study

[redacted], Chair

Board of Trustees

[redacted]

[redacted]

Dear [redacted] Board of Trustees,

As you are aware through earlier conversations I am currently working toward a doctorate degree at Northwest Nazarene University. You are also aware that part of the doctoral requirements is a dissertation on a research project. I would like to ask for your district's assistance in this project.

My dissertation will be a mixed methods approach dealing with the value of the multi-age classroom design. My questions will be directed to both teachers who are instructing in the multi-age classroom and parents who have children in a multi-age classroom. My questions will pertain to the value that each group sees in the multi-age design. I will also be asking how each group values pertinent components of the multi-age classroom design. Finally, I will compare the two groups' responses. Each group would be provided a survey with both Likert Scale questions (Quantitative), and open-ended questions (Qualitative). Prior to the survey being distributed I would like to assure you that the Northwest Nazarene University's Doctoral Advisory Council and the Human Rights Review Committee will have reviewed this research project and found it to be acceptable, according to state and federal regulations and university polices established to protect the rights and welfare of all participants in the research. Please also note that the survey would be confidential and voluntary.

[redacted]

Appendix A
Request Permission to Conduct Study

I would like to include schools that are currently utilizing the multi-age classroom design. I am interested in including a minimum of three schools. The three schools I currently have in mind are [redacted] and [redacted] located in the [redacted], and the third would be in the [redacted].

The study would occur in beginning in August 2013 and be completed no later than March 2014. Results will be able to be shared once approved by the Northwest Nazarene University's Doctoral Advisory Council approves my results which is estimated to be in May of 2014.

Would you as representatives of the [redacted] give me permission to discuss this study with the building principals and receive permission at the building level? If the district participates in the study I would be more than happy to share the results of the study with whomever the board would like.

If you have further questions regarding this request please contact me at [redacted] or you can contact [redacted], Program Director and Faculty at Northwest Nazarene University [redacted] I look forward to receiving your response.

Sincerely,

Greg Bailey
Northwest Nazarene Doctorate Candidate
[redacted]
[redacted]

Appendix B
Letter from School Board of Trustees Granting Permission

[redacted]

[redacted]

March 18, 2013

Dear Northwest Nazarene University's Doctoral Advisory Council,

As the Chair for the [redacted] Board of Trustees I give Greg Bailey, a doctoral candidate at Northwest Nazarene University, permission to survey teachers and parents that are associated with [redacted] and [redacted]. The content theme of the survey will be in regards to the multi-age classroom design. I understand the survey will take place sometime between the months of August 2013 and March 2014. I also understand that Mr. Bailey will work with the building administration from the two schools to gather the needed information to complete the survey.

Sincerely,

[redacted], Chair
[redacted] Board of Trustees

[redacted]

Appendix C
Board Meeting Minutes Documenting Approval

[redacted]

[redacted]

Board of Trustees Meeting Minutes

Monday, March 18, 2013
District Office, [redacted], 5:30 P.M.

Call Meeting to Order
Chairman [redacted] called the meeting to order at 5:30 P.M. Other board members in attendance were [redacted]. [redacted] was absent.

Additions, Deletions, and/or Corrections to Agenda
There were none

Minutes of Previous Meeting
- **February 19, 2013 Regular Meeting**
- **February 28, 2013 Special Meeting**

Chairman [redacted] asked if there were any additions or corrections to the minutes. A motion to accept the minutes as presented was made by [redacted] with a second by [redacted] and passed unanimously.

Public Input Session (1)
Audience may address the board (members of the audience are requested to sign in and indicate their topic).
There was one administrator, five patrons and the [redacted] president in attendance during this time. Topics included requests from the patrons to review the K-1 multiage instruction decision, an offer to help with levy information, questions about the proposed [redacted]" program and the board's process for input and response to legislative issues impacting education, anecdotes regarding bullying issues and recollections from a retired teacher's perspective.

Information Agenda
Superintendent's Report

1) Current News from the Capitol
Superintendent Bailey reported on the status and highlights of various bills moving through the legislature, including: business personal property tax bills, private school scholarships, contract return timeline, early retirement incentive, and use it or lose it flexibility. He also commented on the unique circumstances of [redacted] with regard to sharing staff, travel time, etc.

2) Current News from Governor's Education Task Force ([redacted])
Principal [redacted] provided a summary report from the last task force meeting and shared a handout with the board. He noted that a regional meeting will be held on April 16th at [redacted] but noted some concern with addressing the public on issues that are loose. Final recommendations will be presented to the Governor in September 2013.

3) Update Regarding Trustee Election
Superintendent Bailey informed the board that at this time there is one candidate who has filed for Zone 3, [redacted]. Declarations of Candidacy/Petitions must be received by the Clerk no later than 5 P.M. on March 22, 2013.

New Business

1) Request to Survey Parents and Teachers in Fall 2013
Superintendent Bailey requested permission to conduct a survey of [redacted] and [redacted] parents and teachers as part of his doctoral candidate dissertation work involving multiage instruction and differentiated learning. He noted that no costs would be incurred by the

Appendix C
Board Meeting Minutes Documenting Approval

districts involved [redacted]t districts) and that the schools involved would each receive full copies of the final dissertation research study. The board discussed and supported the use of hard data versus the anecdotal comments currently being received; by board consensus the request was granted.

Old Business

1) **Financial Budget Proposal and Levy Request**
   Superintendent Bailey and Business Manager [redacted] presented Draft B of the 2013-14 M&O and Forest Fund budgets. The board reviewed the draft and offered suggestions for revision. Another draft will be prepared and presented at a special meeting on Monday, March 25th at 5:30 P.M.

New Business Consent Agenda (to be approved in one motion)

1) **Staff Hires/Renewals**
   a. **[redacted], [redacted] Paraprofessional**
2) **Staff Resignations/RIF/Dismissals**
   a. **[redacted], Instructor [redacted]**
3) **Financial Report**
   a. **School [redacted] Treasurer's Report & Accounts Payable**
4) **Board & Room / In Lieu of Transportation Requests**
5) **Non-Resident Open Enrollment request(s)**

A motion to approve the Consent Agenda was made by [redacted] and seconded [redacted].

Public Input Session (2)
Audience may address the board (members of the audience are requested to sign in and indicate their topic)
There was no audience in attendance at this time.

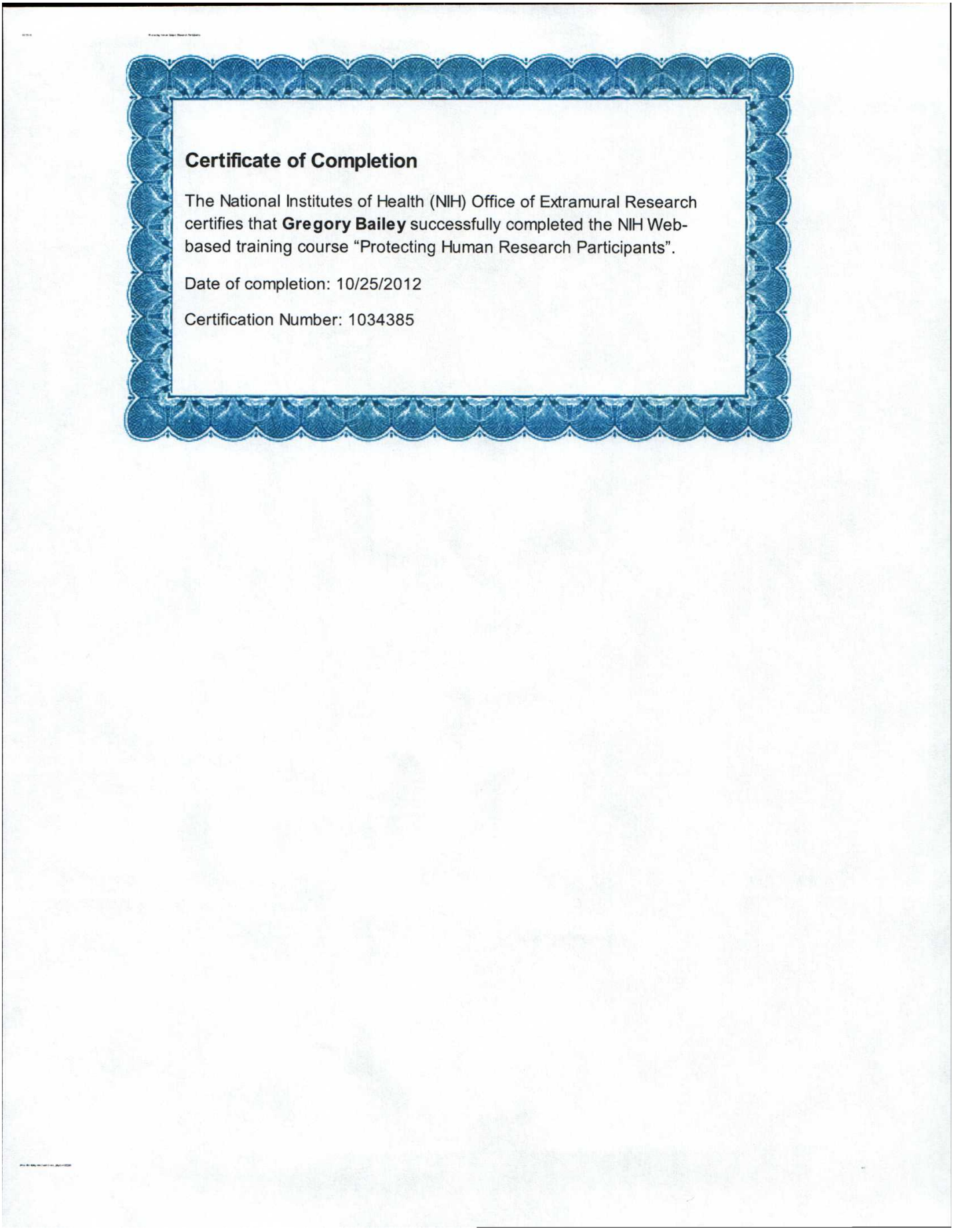
Adjournment
The meeting adjourned at 8:35 P.M.

_____
School Board Chairman

_____
School Board Clerk

Next Board Meeting is scheduled for Monday, April 15, 2013, 5:30 P.M., District Office, [redacted].

Appendix D
NIH Certificate



Certificate of Completion

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

Date of completion: 10/25/2012

Certification Number: 1034385

Appendix E
Parent Survey

[redacted]

Qualtrics Survey Software

Consent

Consent to Participate in Research

My name is Greg Bailey, the former superintendent of [redacted]. I am working toward my Doctoral degree through Northwest Nazarene University and I'm requesting your input in my research on the multiage classroom. Your participation is voluntary, however your experience will be invaluable. The purpose of this study is to explore characteristics of the multiage classroom through the perception of parents and teachers to determine how the model meets the varied needs of the students, teacher, and families.

If you choose to participate in this research project, please complete the following survey. The survey should take approximately 15 minutes to complete. The information will be anonymous and you may skip any question you do not wish to answer.

There are no known risks to you or your child by participating in this research. Benefits include access to the final research project and the opportunity to support positive change in your school district. The study has been reviewed and approved by Northwest Nazarene University's Human Rights Review Committee.

Contacts
If you have additional questions or concerns now or at any time during the research project, you can call me at [redacted] or [redacted]. If you have questions regarding your rights as a participant you may also contact [redacted], Faculty Sponsor at Northwest Nazarene University [redacted] or email [redacted]).

Consent
I have read this information and by clicking on the forward button below I consent to participate in the research study. I am aware that I can refuse to answer any question, or to not submit my survey answers at the end of the survey.

Thank You

Directions and Purpose

Dear Parents/Guardian,

As part of a doctoral research study, I'm conducting a study on multiage classroom design. I would like to know how you as a parent or guardian perceive the effectiveness of this approach in your child's educational success and emotional well being. Within a school classroom there are certain practices and components that affect student learning and the overall performance of the school. To improve, it is necessary to understand the systems and processes in place in your child's classroom. Parents are a critical link in the educational process.

While your participation is completely voluntary, your feedback will help in providing information of what is valued in your school system so that the district is able to continue providing your child an educational program that meets his/her needs. By completing the survey, you are consenting to take part in this study. Please note that the survey is anonymous.

Special Note - I ask that if you have multiple children in the grade ranges of kindergarten through 5th grade complete the survey with your oldest child in mind. At the end of the survey you will be provided the opportunity to comment on any differences that you see between your children's experiences in the multiage setting.

[redacted]

Appendix E
Parent Survey

[redacted]

Qualtrics Survey Software

Demographic Information

My child attends the following school:

- ○ [redacted] Elementary School
- ○ [redacted] School

My child is currently in the following grade:

- ○ Kindergarten
- ○ 1st Grade
- ○ 2nd Grade
- ○ 3rd Grade
- ○ 4th Grade
- ○ 5th Grade

My child has been in the [redacted] School District for how many years / months? (1 school year = 1 year)

Imported Block 1 - Sep 1, 2013

Directions: Please mark the response that best identifies your perception of the following comments. Please remember you do not have to answer any questions that you do not feel comfortable answering. (24 Questions)

	Almost Always True	Often True	Somewhat True	Seldom True	Almost Never True
My child's teacher provides instruction and assignments that challenge my child.	○	○	○	○	○
My child is working at a pace that is challenging to them, but not overwhelming.	○	○	○	○	○
My child's learning plan is developed specifically for my child.	○	○	○	○	○
The good relationship my child has with his/her teacher allows my child to feel comfortable in the classroom.	○	○	○	○	○
I like that my child will have the same teacher for two years.	○	○	○	○	○

[redacted]

Appendix E
Parent Survey

Qualtrics Survey Software

[redacted]

At the beginning of the school year my child quickly learned the classroom procedures and responsibilities identified by the teacher.	○	○	○	○	○
I feel comfortable talking with my child's teacher.	○	○	○	○	○
I know the expectations of my child's teacher.	○	○	○	○	○
Having the same teacher for my child for two years has, or will, make it easier for us to communicate with each other.	○	○	○	○	○
I believe the multiage classroom design has helped my child in his/her social development.	○	○	○	○	○
My child feels a sense of belonging at school, and enjoys going to school.	○	○	○	○	○
My child likes being with students that are in different grade levels.	○	○	○	○	○
My child's teacher shares ideas with other teachers.	○	○	○	○	○
I like how my child has different teachers throughout the day.	○	○	○	○	○
The teachers in the multiage classrooms seem to work together a lot.	○	○	○	○	○
My child's classroom is not over crowded compared to other classrooms.	○	○	○	○	○
I believe having smaller class sizes is helpful to my child's education.	○	○	○	○	○
I believe my child's teacher has enough time to work with my child individually because of the class size.	○	○	○	○	○
I believe my child's teacher is an expert at the grade levels he/she is teaching.	○	○	○	○	○
I believe my child's teacher is a better teacher because he/she doesn't have to change teaching assignments as much due to the multiage design.	○	○	○	○	○
Teachers that don't have to change teaching assignments can provide better lessons for my child.	○	○	○	○	○
Overall my child likes school more since the school implemented the multiage	○	○	○	○	○

[redacted]

Appendix E
Parent Survey

classroom design.					
Overall my child does well in the multiage classroom at our school.	○	○	○	○	○
Overall I'm happy with the multiage designed classroom that my child is in.	○	○	○	○	○

Open Ended

If you have any other children in kindergarten through 5th grade in [redacted] is there any information that you would like to share regarding different experiences that you or your other children experienced in regards to the multiage classroom setting?

Is there any information you would like to add regarding any of the survey questions you answered?

Is there any other information that you believe we should know that was not asked in the previous survey?

Is there anything that you would like the school to change in regards to the multiage classroom design?

Block 5

Appendix E
Parent Survey

[redacted]

Qualtrics Survey Software

This is the conclusion of the survey. Thank you for taking the time to provide me with information that will assist me in my study. Please click the forward button below to complete the final submittal of your responses.

Thank You.

[redacted]

Appendix F
Teacher Survey

[redacted]

Qualtrics Survey Software

Consent

Consent to Participate in Research

My name is Greg Bailey, the former superintendent of [redacted] School District. I am working toward my Doctoral degree through Northwest Nazarene University and I'm requesting your input in my research on the multiage classroom.

Your participation is voluntary, however your experience will be invaluable. The purpose of this study is to explore characteristics of the multiage classroom through the perception of parents and teachers to determine how the model meets the varied needs of the students, teacher, and families.

If you choose to participant in this research project, please complete the following survey. The survey should take approximately 15 minutes to complete. The information will be anonymous and you may skip any question you do not wish to answer.

There are no known risks to you or your child by participating in this research. Benefits include access to the final research project and the opportunity to support positive change in your school district. The study has been reviewed and approved by Northwest Nazarene University's Human Rights Review Committee.

Contacts
If you have additional questions or concerns now or at any time during the research project, you can call me at [redacted] or [redacted]. If you have questions regarding your rights as a participant you may also contact [redacted], Faculty Sponsor at Northwest Nazarene University ([redacted] or email [redacted]).

Consent
I have read this information and by clicking on the forward button below I consent to participate in the research study. I am aware that I can refuse to answer any question, or to not submit my survey answers at the end of the survey.

Thank You

Directions and Purpose

Dear Teachers,

As part of a doctoral research study, I'm conducting a study on multiage classroom design. I would like to know how you as a teacher perceive the effectiveness of this approach in your students' educational success and emotional well being.

Within a school classroom there are certain practices and components that affect student learning and the overall performance of the school. To improve, it is necessary to understand the systems and processes in place in your classroom. Teachers are a critical link in the educational process. While your participation is completely voluntary, your feedback will help in providing information of what is valued in your school system so that the district is able continue providing students an educational program that meets their needs, and will allow a better understanding of the key components of a successful implementation of the multiage classroom design.

By completing the survey, you are consenting to take part in this study. Please note that the survey is anonymous.

Demographic Information

[redacted]

Appendix F
Teacher Survey

Qualtrics Survey Software

I'm currently instructing in the following grade range:

- K/1st Grades
- 2nd/3rd Grades
- 4th/5th Grades
- Support Services, PE, and Fine Arts

Survey Section Survey Section Directions: Please mark the response that best i

Directions: Please mark the response that best identifies your perception of the following comments. Please remember you do not have to answer any questions that you do not feel comfortably answering. (24 Questions)

	Almost Always True	Often True	Sometimes True	Seldom True	Almost Never True
I can provide instruction and assignments that challenge each student.					
I can provide a pace that challenges my students, but does not overwhelm them.					
I can provide a pace that challenges my students, but does not overwhelm them.					
I have a good relationship with my students and they feel comfortable in the classroom.					
I like that I have students for two years.					
I spend less time at the beginning of the school year going over classroom procedures and responsibilities with my students since the multiage classroom design was implemented.					
My students' parents are more comfortable talking with me since the implementation of the multiage classroom design.					
The parents of my students understand my expectations in the classroom better since the implementation of the multiage classroom design.					
Communication appears to be easier for parents because of the multiage classroom design.					
Students appear to get along better since we changed to the multiage classroom design.					

Appendix F
Teacher Survey

Qualtrics Survey Software

Students appear to have a better sense of belonging since being in the same classroom for two years.	○	○	○	○	○
Students in the different grade levels get along well in my classroom.	○	○	○	○	○
I collaborate more with other teachers since the implementation of the multiage classroom design.	○	○	○	○	○
I like how we share students among the classrooms with the multiage classroom design.	○	○	○	○	○
Teachers are more receptive to working in a group, rather than in isolation, as in previous years.	○	○	○	○	○
The ability to stabilize the class size through the use of the multiage concept has been helpful.	○	○	○	○	○
A benefit of the multiage design has been the consistent, smaller class size that has been beneficial to student learning.	○	○	○	○	○
A smaller class size has given me the time to individualize instruction for my students.	○	○	○	○	○
Not having to switch teaching assignments has allowed me to be more of an expert in my grade levels that I teach.	○	○	○	○	○
I have become a better teacher because of the work I have done with the multiage classroom design.	○	○	○	○	○
I have become a better teacher because of the work I have done with the multiage classroom design.	○	○	○	○	○
Overall students appear to like school more since the implementation of the multiage design.	○	○	○	○	○
Overall students are doing better in the multiage designed classroom than they were in the single grade classroom.	○	○	○	○	○
Overall I'm happy teaching in the multiage designed classroom.	○	○	○	○	○

Open Ended

Appendix F
Teacher Survey

Is there any information you would like to add regarding any of the survey questions you answered?

Is there any other information that you believe we should know that was not asked in this survey?

Is there anything that you would like the school to change in regards to the multiage classroom design?

Block 5

This is the conclusion of the survey. Thank you for taking the time to provide me with information that will assist me in my study. Please click the forward button below to complete the final submittal of your responses.

Thank You.

Appendix G
Participant's Rights

Consent to Participate in Research

My name is Greg Bailey, the former superintendent of [redacted] School District. I am working toward my Doctoral degree through Northwest Nazarene University and I'm requesting your input in my research on the multiage classroom.

Your participation is voluntary, however your experience will be invaluable. The purpose of this study is to explore characteristics of the multiage classroom through the perception of parents and teachers to determine how the model meets the varied needs of the students, teacher, and families.

If you choose to participant in this research project, please complete the following survey. The survey should take approximately 15 minutes to complete. The information will be anonymous and you may skip any question you do not wish to answer.

There are no known risks to you or your child by participating in this research. Benefits include access to the final research project and the opportunity to support positive change in your school district. The study has been reviewed and approved by Northwest Nazarene University's Human Rights Review Committee.

Contacts

If you have additional questions or concerns now or at any time during the research project, you can call me at [redacted]1 or [redacted]. If you have questions regarding your rights as a participant you may also contact [redacted], Faculty Sponsor at Northwest Nazarene University ([redacted] or email [redacted]).

Consent

I have read this information and by clicking on the forward button below I consent to participate in the research study. I am aware that I can refuse to answer any question, or to not submit my survey answers at the end of the survey.

Thank You

[redacted]

Appendix H
Letter to Principals Providing Direction for Survey Distribution

[redacted] and [redacted],

As you are aware I have received permission from the school board (Regularly Scheduled Board Meeting March 18, 2013) to complete a survey regarding the multiage designed classroom for both parents and certified staff of your schools. My hope is that the information that I gather will be of help to you and the district for future decisions regarding the multiage classrooms.

Included in this envelope are flyers that I would like to ask that your teachers in grades K-5th distribute to the parents of their students. My hope is that this can be completed without too much delay so that parents have the time to complete the surveys prior to the parent/teacher conferences. This would allow a follow-up reminder to be provided by the teachers during the conferences. The reminder would be in the form of a slip of paper with the website listed that could be handed to the parent if they had not completed the survey. I will be sending you this reminder at a later date. My hope is to get a strong completion rate of the surveys so that the data demonstrates a good representation of the parents' perception of this classroom design.

The teacher survey also has a flyer, but I thought it might be easier to ask you to email it to them so that they could just click on the site and complete the survey. It should go out to all of the certified instructors that work in the K-5 level. This would include the classroom teachers, special education teachers, Title-I teachers, Music teacher, and PE teacher that serves the multiage classrooms.

I appreciate your help and look forward to sharing my dissertation research results with you and your staff when it is completed.

(I have attached directions for the teachers that can be included with the flyers when the flyers are disbursed to each teacher.)

Sincerely,

Greg Bailey

Appendix I
Reminder to Complete Survey

[redacted]

Dear K-5 Parents or Guardians,

This is a friendly reminder to ask that you complete the following parent survey regarding your perception of the multiage classroom design that your child is in. Your input is vital to the district's ability to explore, analyze, and describe characteristics of the multiage classroom that is being implemented in [redacted] and [redacted]. Please go to the following website and complete this short survey. Thank You.

On your computer please type in the following URL :

[redacted]

Appendix J
Parent Flyer: Paper Version

K-5 Parents,
We Want Your Input!

NORTHWEST NAZARENE UNIVERSITY

The [redacted] School District and Northwest Nazarene University have teamed up to get your input regarding the multiage classroom design that is being implemented in grades kindergarten through 5th grade in your school. The purpose of this study is to explore characteristics of the multiage classroom through the perception of parents and teachers.

This study is being conducted by your former superintendent Greg Bailey who is completing this research project as part of his doctorate dissertation. Oversight of the project will be provided by [redacted] from Northwest Nazarene University.

Please help by providing your valuable input regarding the multiage classroom design and your child's experience in this program.

[redacted]

Please
It Only Takes
15 Minutes

To Complete the Survey Go To:

[redacted]

Appendix K
Parent Flyer: Electronic Version

We Want Your Input!

NORTHWEST NAZARENE UNIVERSITY

The [redacted] School District and Northwest Nazarene University have teamed up to get your input regarding the multiage classroom design that is being implemented in grades kindergarten through 5th grade in your school. The goal of the study is to find out the value that parents and teachers have of this new design.

This study is being conducted by [redacted] Greg Bailey who is completing this research project as part of his doctorate dissertation. Oversight of the project will be provided by [redacted] from Northwest Nazarene University.

Please help by providing your valuable input regarding the multiage classroom design and your child's experience in this program.

[redacted]

Please

It Only Takes

15 Minutes

To Complete the Survey Go To:

[redacted]

Appendix L
Directions for Teachers for Distribution of 1st Attempt of Parent Survey

Dear K-5 Teachers,

With the support of the Board of Trustees of [redacted] School District, I am asking that you send out the included flyers to your students to take home. The purpose of the flyer is to direct parents to a website to complete a survey regarding their perception of the multiage classroom design and its components. My hope is that these surveys are distributed as soon as possible prior to the parent/teacher conferences so that a second reminder could be handed to the parents at those conferences.

You, as a teacher working in a multiage classroom setting, will also be asked to complete a different survey specific to you as an instructor. This will be emailed to you by your principal. The purpose is to also get your perception of the multiage classroom design. When the study is completed I will be sharing with both schools and the school board the results. Both surveys are anonymous and any information that could direct a reader to a specific responder will be omitted.

Thank you for your efforts in assisting me in completing this survey.

Sincerely,

Greg Bailey