The Prairie Valley Project: Reactions to a Transition to a Schoolwide, Multiage Elementary Classroom Design

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Abstract

Originating from progressive educators who saw the need for student-centered educational designs rather than the traditional, single-age classroom design based on Henry Ford's assembly line, the multiage classroom design is returning as a viable alternative to the single-age classroom. The authors explored the perceptions of parents and teachers impacted during the transition of two elementary schools away from single-age classrooms to a multiage classroom design. This study specifically focused on kindergarten through fifth grade and examined the overall effect of the multiage design on these two groups and on the elements that were important to the administration. Results indicate that parents support the transition to a multiage design. Although they demonstrated support, teachers were significantly more neutral than the parents in several areas, such as family–school relationships, class size stability, teacher assignment stability, and overall ability of students to do well in the multiage classroom. The findings of this research will assist districts transitioning to a multiage design in identifying what elements of the design are likely to be supported by parents and teachers.

Key Words: multiage classrooms, differentiated instruction, looping, collaboration, parent perspectives, school–family relationships, students, social skills, teachers, school design, class size

Introduction

A single-age classroom is what those in the United States have come to expect of traditional education. Students are grouped by grades based on the chronological age of the student and moved through the system in an assembly line fashion. In a multiage classroom, however, students of multiple grade levels are combined, providing for greater flexibility in allowing students to naturally progress socially and cognitively beyond what can be facilitated in a single-age design (Carter, 2005; Song, Spradlin, & Plucker, 2009). The ideology of this design is supported by the work of such progressive educators as Marietta Johnson, founder of the School of Organic Education, and John Dewey, developer of Experimental Education, as well as being grounded in the theories of Jean Piaget, Albert Bandura, and Lev Vygotsky who supported child learning driven by the cognitive level that may differ from child to child at a single age level (Bandura, 1977; Cherry, n.d.; Internet Encyclopedia of Philosophy, n.d; Mosteller-Timbles, 2015; Piaget, 1959; Vygotsky, 1978). While theoretically beneficial in a number of ways, such a drastic change needs the support of teachers and parents. This study describes the experience of parents and teachers in a schoolwide transition from a single-age classroom design to multiage classrooms, referred to as the Prairie Valley Project.

The Prairie Valley Project

The Prairie Valley Project began in concept in the 2009–10 academic year with two schools in a small district located in the Northwestern United States. School leaders had identified a variety of issues that needed to be addressed to improve teaching and learning. Issues of primary importance included the lack of opportunity for teachers to have collaborative partners so they could share expertise when classes were divided by age yet some overflow students from an unusually large grade-level population were placed in a multigrade classroom. The multigrade approach was disliked by staff and students due to its design which involved keeping the two grade levels separate within the classroom. This resulted in teachers who had to instruct one grade level while the other grade level worked independently. A concern was also identified regarding the inability to equalize classes with this method of class placement. In addition, there was a deep concern for the amount of time wasted at the beginning of each year when a teacher had to spend much of the first month instructing the students in general classroom procedures as well as getting to know the individual learning capabilities of each student. Teachers and administrators also determined more needed to be done to foster greater parental involvement in children's learning. This was especially true as both schools had a high

population of low-income families. Finally, educators at the two schools had discussed the potential value of creating a more natural and secure setting for nurturing better social skills needed by many students.

Research identified the multiage classroom as a design model that has the potential to provide a more favorable framework to improve the effectiveness of the classroom with such elements as looping, differentiated instruction, and teacher collaboration (Broome, 2009; Grove & Fisher, 2006; Hitz, Somers, & Jenlink, 2011; Tobin & McInnes, 2008). The design also provides an environment conducive to enhancing the family–school relationship as well student social skills (Broome, 2009; Carter, 2005). These improvements are supported through the procedure of looping the younger grade students back with the same teacher for the second year of the two grade-level classroom design. Looping, therefore, is a mechanism by which a multiage classroom can be created. This looping allows parents and teachers an opportunity to better know each other's needs in supporting student learning and allows students to better know other students within the classroom. Differentiated instruction can be enhanced when the teacher is able to learn more about each student's individual learning needs since they are teaching the student for two years instead of one. Teacher collaboration may be enhanced by using the multiage design, especially in smaller schools that may otherwise have had only one or two teachers per grade level; the new design may double the number of teachers with the same assignment, allowing for enriching, collaborative conversations.

During the 2010–11 school year, the school district piloted two multiage classrooms in Grades K–5. Observations throughout the 2010–11 school year as well as discussions with the teachers involved made it apparent that teachers supported a combined classroom of two grades using the multiage concept (rather than the multigrade concept with separated grades within one room) because students appeared to be on task more and had less down time. The observations also helped the administration see the value this classroom design could provide in resolving other issues that had occurred when single age or multigrade classrooms were utilized. These issues included unequally sized classrooms, isolation of teachers and students within an overload classroom, and reduced motivation of teachers to differentiate instruction in a single-grade level classroom. After a year of observation, district leaders decided to transition all kindergarten through fifth grade classes to a multiage design beginning in the 2011–12 school year. Thus, both Valley Elementary and Prairie Elementary (pseudonyms) transitioned to a schoolwide multiage classroom concept at a time period predating this study by two years.

The design consisted of classrooms combining two grade levels: kindergarten and first grade, second and third grades, and fourth and fifth grades.

The specific combinations were decided because of the desire to make the entire elementary grade levels into multiage classrooms. The kindergarten–first grade combination also provided the advantage of allowing all-day schooling for kindergarteners by integrating them with the first graders. Previously, the kindergarten students had attended half days. Each of these groups were called "pods" (K–1 pods, Grade 2–3 pods, etc.). Teachers grouped students in an equitable manner between high, average, and low achieving students of both grade levels in each classroom. The achievement level of each student was determined by the previous year's standardized assessment and previous teacher-designed assessments and observations, or in the case of the kindergarten students new to the school district, they were assessed through the kindergarten screening that was conducted during the spring semester prior to their entry. Students would remain with the same teacher for the two-year grade span. As such, half of the students would exit a pod each year, and half of the students would remain for their second year with another group of students joining the pod.

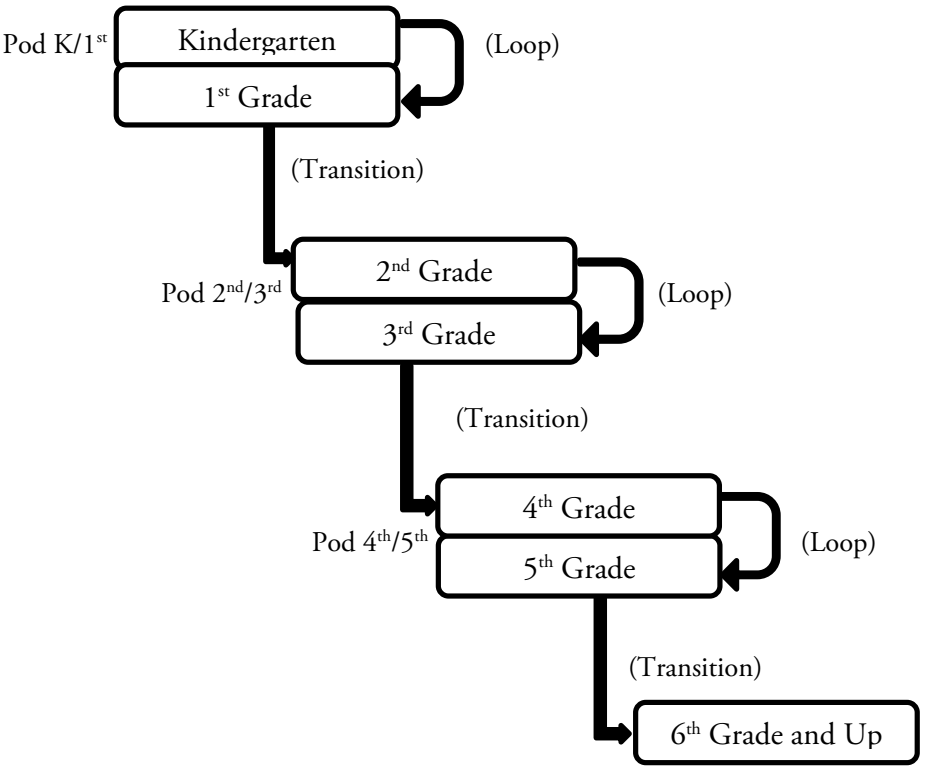

Figure 1. Student progression through a schoolwide multiage classroom design.

Purpose of the Study

The purpose of this study was to explore, analyze, and describe the impact of transitioning from a single-age to multiage classroom design on the students, parents, and teachers within the Prairie Valley Project. Emphasis was placed on providing details of parents' and teachers' perceptions of transitioning into a schoolwide multiage classroom design, as this was identified as a gap in current literature regarding multiage classrooms.

Previous research, further described below, indicates that multiage classrooms embody key elements which have been identified as necessary in supporting a student's sense of belonging (Song et al., 2009). To determine if transitioning to a multiage model impacted the students' educational climate through the embedded elements of looping, differentiated instruction, teacher collaboration, and family–school relationships, the perceptions of both teachers and parents were examined. The following research questions formed the basis of this study:

RQ1. What effect did the multiage classroom design have on teachers and parents who have students in the program?

RQ2. What components of the multiage classroom explain the effect the program has on teachers and parents who have students in the program?

Review of Literature

Theoretical Foundation

The theoretical foundation of the multiage classroom and this study can be found in the work of Jean Piaget, Albert Bandura, and Lev Vygotsky. These theorists believed that the environment to which students were subjected impacted their academic and social development (Bandura, 1977; Cherry, n.d.; Piaget, 1959; Vygotsky, 1978). They asserted that students develop most effectively in a safe and trusting environment as this allows students to explore, try new things, and challenge themselves (see Cherry, "Social Development Theory," n.d.). The multiage classroom provides such an environment, one that is student-centered, rich with opportunities to interact with other students at different levels of development, providing a community atmosphere where students feel comfortable with their teacher, and facilitating trust and communication between parents and teachers (Allen, 2010; Carter, 2005; Hitz et al., 2007). This is not always the case in a single-age classroom design where expectations of learning capabilities are standardized to the typical age for that grade level and lower levels of development are considered a deficit (Bowman, Bowman, & Conley, 2005).

The multiage classroom has components impacting students, teachers, and parents both within the school itself, called within school factors, as well as outside the walls of the school, referred to as outside school factors (Bailey & Williams-Black, 2008; Belcher, 2000; Grove & Fisher, 2006). Within school factors include differentiated instruction, looping, and teacher collaboration. Outside school factors include the family–school relationship and student social skills.

Within School Factors

Differentiated Instruction

Differentiated instruction is a flexible approach to instruction allowing 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). 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 his or her learning rather than continually attempting to teach to the masses (Carter, 2005; Danling et al., 1999).

A multiage design's structure naturally forces teachers 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). 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). Differentiated instruction can support both learning disabled and gifted students in developmentally appropriate ways without being removed from the classroom setting for specialized instruction (Driskill, 2010; Tobin & McInnes, 2008). Keeping students together can foster better peer relations (Allen, 2010; Estell et al., 2009).

Looping

Looping refers to a situation in which students are with the same teacher for multiple years. Previous research indicates that looping has merit in supporting a positive classroom climate and learning environment (Belcher, 2000; Danling et al., 1999; Hitz et al., 2007). In the most common multiage design, a teacher has students from two grade levels (Belcher, 2000; Hitz et al., 2007), such as the model used by the Prairie Valley Project (see Figure 1).

The reported advantages of looping are numerous, particularly within a multiage framework. Looping reduces the amount of time wasted at the start

of an academic year normally spent by students learning classroom procedures and rules (Hitz et al., 2007; Moser, West, & Hughes, 2012). This allows students to begin academic work much earlier (Danling et al., 1999). Students entering the classroom for the first time have the older, returning students as peer tutors to assist them in learning the rules and procedures of the classroom. This frees the teacher from these administrative tasks and allows him/her to focus on instructional elements (Carter, 2005).

The ability to enhance the student–teacher relationship over a longer period of time is another previously identified benefit of looping (Beaman, 2009; Hitz et al., 2007). Teachers who already know the abilities of returning students are better suited to meet the students' learning needs. Of the teachers surveyed in a previous study, 92% stated looping provided them the time they needed to have more awareness of students' needs (Belcher, 2000). This is particularly important when students come to school fragile, unmotivated, or from transient families (Grove & Fisher, 2006; Hitz et al., 2007). In a schoolwide implementation where multiple classrooms within a pod are present, as was the case within the Prairie Valley Project, the ability is available to move students from one classroom to another should a serious teacher–student or teacher–parent conflict arise.

Another area where the looping design has benefited students is in social skill development (Belcher, 2000; Hitz et al., 2007). During the second year within the same classroom setting, students may feel more comfortable because of increased peer relations built over time and the sense of comfort and community developed in the multiage class (Beaman, 2009; Carter, 2005; Hitz et al., 2007). Classrooms that have a broader age range have also been shown to improve social interactions, similar to the development that occurs in families with multiple children (Danling et al., 1999; Grove & Fisher, 2006; Penney, 2005). Additional social benefits found in the multiage classroom include a reduction in behavioral issues like bullying, increased willingness to participate in class, and greater ties to other students and the school community on the part of students (Belcher, 2000; 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). Teachers who work as a group with a common purpose can better meet the needs of their students. Those who collaborate have been shown to be more willing to differentiate instruction due to the time saved by sharing responsibilities (Grove & Fisher, 2006; Levine & Marcus, 2007; Stuart, Connor, Cady, & Zweifel, 2006). The most common concern in the

multiage classroom is the workload; the main cause of the increased workload identified by teachers participating in one study was the need to adapt curriculum materials to support differentiated instruction (Song et al., 2009). Teachers needed to pull curriculum materials from multiple sources to meet the various levels of learning spanning the two grade levels rather than having a single textbook as a source of curriculum. This is why it is even more important for teachers to collaborate with each other to meet the increasing demands placed upon them (Grove & Fisher, 2006; Kobelin, 2009; Page, 2006; Stuart et al., 2006). Through teamwork, collaboration provides the ability to share the workload to reduce preparation time.

The multiage classroom design's ability to standardize class groupings by bringing multiple grades together allows students to be a community of learners as well as teachers (Broome, 2009). An example of this would be in a scenario where—rather than having one second grade, one third grade, and one multigrade classroom so none of the three teachers can communicate or share work because they are teaching three fundamentally different classes—the school has three second–third pods where the three teachers teach within a similar design and act as a community. Providing a setting that allows teachers to come together for a common cause is the essence of collaboration that will benefit students (Broome, 2009; Kimmel, 2012).

Outside School Factors

While factors impacting the school environment directly are important to student success, the multiage classroom design also influences the family–school relationship and the student's social skills development (Allen, 2010; Song et al., 2009). Frequently when school systems implement a new class design, these secondary areas of impact are overlooked even though they impact learning (Barnyak & McNelly, 2009; Bracke & Corts, 2012; Cornish, 2009).

Family–School Relationship

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 provides parents with an awareness of the educational system so 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 supports the need for family engagement in a child's education. Children achieve greater academic success if they have parents who are engaged in their education, teachers who provide learning experiences that relate to their home environment, and parents and teachers who frequently

communicate (Daniel, 2011; Kim et al., 2012; Smith, 2006). Furthermore, students who have their families' support of their educational studies are more comfortable in the educational setting. This comfort level allows students to be more willing to take risks in their learning (Carter, 2005). Vygotsky (1962) emphasized the importance of the role of families as well as communities, as well as the importance of a child's comfort level in socializing and gaining the opportunity to learn.

The engagement of the family with the school has been found to provide teachers with a better understanding of the family dynamics, allowing them to better understand how best to interact with the family in order to foster needed support to assist the student (Barnyak & McNelly, 2009; Zygmunt-Fillwalk, 2011). Strong family–school relationships also provide teachers the knowledge of how best to communicate with children and how best to relay information back home (Carter, 2005).

The multiage design with educational components such as looping can help develop a community atmosphere between families and the school (Sheers, 2010). Earlier studies have shown that parents who have students in the classroom with the same teacher for two or more years develop a deeper connection with the teacher and are more likely to be engaged in their child's education (Smith, 2006). 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). 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).

Student Social Skills

One attribute of the multiage design parents might have found appealing is that the design lends itself to the creation of an environment that may positively impact student social skills (Beaman, 2009; Carter, 2005; Levine & Marcus, 2007). This is especially true as society has been bombarded with studies regarding the epidemic of bullying incidents (Allen, 2010; Estell et al., 2009). Having older students in a classroom with younger students allows the older students to provide guidance as role models. The older students are able to introduce the younger students to the rules and procedures of the classroom, and they are also able to encourage the younger students in their work (Carter, 2005). Students learning of social skills through interaction with older peer mentors may prepare them to deal with future social situations (Stuart et al., 2006). Students, when in the presence of older students within a classroom, will often watch and simulate a higher level of social skills under the supervision of an instructor (Stuart et al., 2006).

By not requiring pull out services, the multiage classroom allows students with learning disabilities to interact with their peers, a benefit not available had they been removed from the classroom setting (Carter, 2005; Nevin, Cramer, Voigt, & Salazar, 2008). Peer dynamics are an important part of a child's development. Keeping 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 who need support in developing social connections within the classroom (Estell et al., 2009).

Although the literature indicates potential positive impacts of the multiage classroom, little has been written regarding parental support of this design (Beaman, 2009; Levine & Marcus, 2007; Niesche & Jorgensen, 2010; Smith, 2006). Multiage classrooms purportedly provide a positive and enriched environment, a focus on student achievement, and teachers meeting their students' individual needs through the use of differentiated instruction, and they give parents and students a sense of community and a place for their voices to be heard (Sheers, 2010). Parental support likely plays a critical role in the effective implementation of multiage design as previous studies highlight the importance of parental input and support in educational initiatives (Baeck, 2010; Barnyak & McNelly, 2009; Bracke & Corts, 2012; Smith, 2006).

Methods

Research Design

The mixed methods design, an explanatory multiple-case study, was chosen for this investigation. The explanatory multiple-case study allows the qualitative data to provide additional information to the researcher to clarify the results of the quantitative portion of the study. The written responses to open-ended questions provided information that could not be obtained by interviews due to the need for anonymity. Using a multiple-site approach allowed for the comparison of any adaptations the two schools might have taken during the implementation process. The mixed method approach was selected for its ability to provide a richer understanding through the use of quantitative research (a 5-point Likert scale survey) and open-ended qualitative questions (Al-Hamdan & Anthony, 2010; Blatchford, 2005; Creswell & Garrett, 2008; Powell, Mihalas, Onwuegbuzie, Suldo, & Daley, 2008; Venkatesh, Brown, & Bala, 2013).

Participants

Parents with students in the multiage classrooms and teachers who taught in these multiage classrooms within the Prairie Valley Project were sent a letter asking them to participate in the study. The parent online survey was sent to

348 families with instructions requesting one parent or guardian of each family to complete the survey. A letter was sent home with students seven days later to remind parents to complete the survey. After one month, due to low response rates, a message was sent through the school district's mass communication system. Of the 348 families, 122 families represent Valley Elementary School, and 226 represent Prairie Elementary School. Of the 348 families invited to participate, 98 completed the online survey, a 28% completion rate.

All teachers who were assigned to 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 was given to all 30 teachers who taught or supported the multiage classroom setting within the district. Twenty-three instructors completed the survey, a response rate of 76.6%. Participants were asked to only identify the grade level to which they were assigned. The participation rate of all subgroups was high except in the second–third pod where 37.5% of teachers responded.

Instrument

The investigator-developed survey utilized in this study consisted of a 5-point Likert scale and open-ended questions. The survey for both the teachers and the parents contained 24 statements. Three Likert scale statements evaluated each of the seven key areas of interest (differentiated instruction, looping, family–school relationships, teacher collaboration, class size stabilization, social skill improvement, teacher assignment stabilization), and three statements looked at the overall perception of the participant. The study identified possible attractive elements or outcomes that occur when utilizing the multiage design. Scale and item content validity was conducted with eight content experts following Lynn's (1986) protocol.

Data collection began in the fall of 2013. Both quantitative and qualitative data elements of the study were collected and studied simultaneously during the analysis phase. The qualitative portion of the survey was nested within the quantitative portion and used for clarification purposes (Terrell, 2012). The following questions were posed to participants (the first three were asked of both teachers and parents; the fourth was only asked of parents):

1. Is there any information you would like to add regarding any of the survey questions you answered?
2. Is there any other information that you believe we should know that was not asked in the previous survey?
3. Is there anything that you would like the school to change in regards to the multiage classroom design?
4. If you have any other children in kindergarten through fifth 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?

Table 1. Multiage Elements Studied With Definitions

Multiage Elements	Operational Definitions
Differentiated 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 those of the educators (Brotherton, Kostine, & Powers, 2010).
Teacher Collaboration	Teachers who jointly plan, implement, and evaluate with other school personnel (Kimmel, 2012).
Class Size Stability	The ability to maintain equitable class sizes throughout the school system.
Social Skills Improvement	Providing opportunities for students to learn, practice, and master skills that allow them to communicate and participate with others.
Teacher Assignment Stability	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.

Data Analysis

The data was analyzed to determine the more favorable components of the multiage classroom design as perceived by parents and teachers. To ascertain whether parents and teachers in the two schools differed in their responses, a Mann–Whitney *U* test was calculated using SPSS. To determine if survey responses differed based on the student pod level, Kruskal-Wallis *H* was calculated. For all statistical analyses, *p*-values less than .05 were considered significant.

Limitations

A limitation of this study was the sample sizes as both the parent and teacher surveys were small. This is, in part, due to the two small school districts in which the study took place. The demographics of the school districts also resulted in the inclusion of predominantly Caucasian students and only those in elementary school. Students identified as having a Caucasian ethnicity represented 93.33%, with other various ethnicities representing the remainder 6.67% of the student population. Fifty-four percent of the students qualified for the free-reduced lunch program.

Another limitation to this study is the possible impact of the two schools still being in the initial phases of transition to the multiage classroom design. With only two complete years since the start of the transition, concern from staff and parents about the effectiveness of the design might exist that will not in later years.

Finally, as the primary investigator was a former superintendent of the school district where the study took place, participants may have believed they had to provide a socially acceptable response to items on the survey (Krumpal, 2011) or may have been concerned that their responses could be identified. This consideration, at times, eliminated certain data gathering possibilities due to the possible bias on the part of the researcher or fear of identification by survey participants. As primary investigator, 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 to minimize these potential issues.

Results

Frequency Distributions

The frequency of responses was identified for both the parent survey and teacher survey and displayed in clusters representing the multiage element the statements addressed. 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"; to 5, which represented "Almost Never True." Each of the 24 items was written as a positive statement so a mean of less than three would represent a response that is considered positive toward the multiage classroom design. The frequency distribution was utilized to identify the level of effect that the overall perception, as well as each element, had on both parents and teachers. A positive skewed distribution would demonstrate a supportive effect.

Quantitative Analysis

To determine the difference in responses regarding the perceptions of the parents and teachers, a Mann-Whitney *U* analysis was completed using SPSS. All areas within this portion of the research were designed to determine if there was a significant difference between teacher and parent responses to prompts related to differentiated instruction, looping, family–school relationships, teacher collaboration, class size stabilization, social skill improvement, teacher assignment stabilization, or overall perception. Although 17 responses on the parents and teachers' surveys were similar, some statistical differences did result; those items are shown in Table 2.

Table 2. Perception Difference of Parents and Teachers

Item	Elements	Likert Scale Item	Mann-Whitney *U*	*p*
7	Family–School Relationships	The multiage design has helped with parents feeling more comfortable with communication with the teacher.	274.50	0.00*
8	Family–School Relationships	Parents have a better understanding of the teacher's expectations.	425.00	0.00*
9	Family–School Relationships	Having a teacher teach their child for more than one year has improved parent communication.	386.00	0.00*
17	Class Size Stability	Smaller class sizes are considered a positive part of the multiage classroom.	211.00	0.00*
18	Class Size Stability	Smaller class sizes allow teachers to work with students individually.	620.50	0.02*
19	Teacher Assignment Stability	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 to.	602.50	0.02*
23	Overall Perception	Overall, students do well in the multiage classroom.	486.00	0.00*

*$p < .05$

Significant differences existed between parents and teachers in the family–school relationship portion of the survey. Perception ratings for parents (Mean

Rank = 44.85) and teachers (Mean Rank = 76.25) were significantly different in relation to the multiage classroom design making parents feel more comfortable communicating with the classroom teacher and in parents having a better understanding of the teacher's expectations within a multiage classroom design (Parent Mean Ranking = 46.25; Teachers Mean Ranking = 71.68). These results indicate that parents were more positive about these elements of the family–school relationship than teachers anticipated. A significant difference also existed in the perception of how communication between families and the school improved when students had the same teacher a second year in a row, with parents' perception again being more positive than teachers believed they would be (Parent Mean Rank = 46.21, Teacher Mean Rank = 71.68).

A Mann-Whitney *U* test was also used to examine differences in the perception of parents and teachers regarding the impact of transitioning to a multiage design on the stabilization of class sizes. One reason for multiage implementation was its theoretical ability to maintain consistent class sizes throughout the grade levels when a grade level has an influx of more students during one year. In regards to this prompt on the survey, parent (Mean Rank = 44.07) and teacher (Mean Rank = 83.91) perceptions were significantly different.

Other items on the survey that showed significant differences in parent and teacher perception were whether smaller classes sizes allowed more time for individualized instruction by the teacher, if the stability of having a teacher assigned to grades for a longer period of time makes them more of an expert in this assignment, and the overall view of the benefit of the multiage classroom. In regard to smaller classes leading to more individualized attention, parents had a more positive view of the impact of the multiage design than teachers (Parent Mean Rank = 47.46, Teacher Mean Rank = 63.02). Parents also had a greater impression on the positive impact of the multiage design than teachers in regards to teacher assignment stability leading to greater teacher expertise and the overall benefit of the multiage design with the former item being significantly different at the $p = .02$ level and the latter at the $p = .00$ level.

A Mann-Whitney *U* test was completed between the parent group who 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 have a statistically significant difference among these two groups. In addition, the same test was used to examine any statistically significant differences between the two schools utilized in this study, but no significant differences were found.

To determine if any statistically significant difference existed between the three different multiage classroom pods assessed in the study (K–1, Grades 2–3, and 4–5), a Kruskal-Wallis *H* test was selected for its ability to measure an

ordinal dependent variable with three or more independent variables (Tanner, 2012). Statistically significantly differences existed regarding a positive view on having the same teacher for two consecutive years, the benefit of a multiage design in reducing the need to reassign teachers due to changes in student enrollment, and the value of having a teacher assigned to a pod for multiple years in helping a teacher gain expertise. In regards to having a teacher for two consecutive years, the K–first pod representatives saw this as significantly less positive than the other two pod levels (p = .03). On a survey prompt related to whether the multiage design allows a teacher to be more of an expert in their abilities and knowledge regarding the grade level they were teaching, results indicated that the child's grade impacted the parents' perceptions. Parents of kindergarten or first grade students were less supportive that the multiage design promoted teachers being more of an expert within their pods (p = .03).

Table 3. Grouping Variable: Multiage Pods

Item	Element	Likert Scale Item	Chi-Square	*df*	Asymp. Sig
5	Looping	I like that my child will have the same teacher for two years.	6.87	2	0.03*
13	Collaboration	My child's teacher shares ideas with other teachers.	8.40	2	0.02*
19	Teacher Stabilization	I believe my child's teacher is an expert at the grade levels he/she is teaching.	10.70	2	0.01*
23	Overall	Overall my child does well in the multiage classroom at our school.	7.16	2	0.03*

Note. Kruskal-Wallis *H*. *p < .05

Qualitative Analysis

The qualitative portion of the survey was used to provide clarity into the thoughts of teachers and parents in relation to the two research questions. The open-ended questions were examined for themes or patterns that could provide a better understanding of an effective multiage classroom (Strauss & Corbin, 1997). The procedures used to identify the salient themes were: "(1) organizing the data, (2) immersion in the data, (3) generating categories and themes, (4) coding the data, (5) offering interpretations through analytic memos, (6) searching for alternative understandings, and (7) writing the report for presentation" (Marshall & Rossman, 2011, p. 209). During this stage, 27

cluster groups were generated. These clusters were analyzed through a second level of clustering, which brought the pertinent themes forward. Nine themes emerged from comments by the two groups of participants. Five themes came from the comments from the four open-ended questions on the parent survey, and four themes became apparent from the three questions on the teacher survey. The theme mentioned most frequently by parents with 28 references was that if a large learning spectrum exists in a class, this must be addressed for a multiage classroom to succeed. Parents also expressed their support of teachers during a time of change. The third most commonly identified theme from parents was that social connections between students in different grade levels within a multiage classroom take time. These three themes were followed by two themes, one that demonstrated parents concern that ability grouping take students away from their trusted teacher, and the other that looping develops a connection between families and the teacher. These themes were referenced nine and seven times, respectively. On the other hand, teachers most frequently indicated (with 28 references) that if workload increases without additional support that teacher frustration may ensue. This theme was followed by 25 references to the teachers' concern—which was similar to the parents—that if a wide learning spectrum is present within a classroom, teachers are more likely to implement ability grouping as a solution. These two themes were followed by the common theme that teachers support collaboration when workloads are increased during a time of change, with 13 references. The final theme with 11 references identified by the researcher was that teachers believed that without "school skills," kindergarten students provide a challenge for the implementation of the multiage design classroom.

Overall Perception Regarding the Multiage Design

In answering the question as to what effect the multiage classroom design has on teachers and parents who have students in the program, the following findings emerged. Cumulatively, the responses of the survey indicated that there was positive support for the multiage educational system. Parents perceived their children liked school more since the implementation of the new design and that they believed their children were doing better in the classroom environment since transitioning to the multiage design as evidenced by their responses on the prompts, "Overall my child likes school more since the school implemented the multiage classroom design", and "Overall my child does well in the multiage classroom at our school." This conclusion was supported by teacher responses on similarly worded survey statements.

The results did illustrate 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 than were parents. In regards to whether they believe the students are doing better in the multiage classroom, teachers showed a significant difference in their perception compared to the parents. Teachers were more neutral statistically in their responses than parents ($p < .05$).

Through analysis, it did become apparent teachers were greatly supported by the parents. Qualitative responses indicated that parents understood the additional work the teachers were doing during the transition and that they appreciated what it had done for their child (see Table 2). Although this is a positive outcome, comments from teachers did demonstrate there was an overall feeling that more support was needed and that frustration can occur with the extra workload in the absence of support.

Perceptions of the Elements Within the Multiage Design

In relation to what components of the multiage classroom explain the effect the program has on teachers and parents who have students in the program, the analysis provided the following insight. The frequency of responses to survey prompts showed a positive perception of the multiage design and much statistical similarity between parent and teacher responses, with the caveat that teachers in general showed a less positive view of the success of the multiage classroom than parents. In all cases, teachers expressed a more neutral perception of the value of these components, while parents' responses were more positive.

In regard to family–school relations, parents could see the multiage design being significantly more helpful than the teachers did. This was evidenced by *p*-values of less than 0.05 regarding statements of how the multiage design has helped parents feel more comfortable communicating with the teacher and parents' belief that they have a better understanding of the teacher's expectations. Moreover, having a teacher instruct their child for more than one year was seen as facilitating improved parent communication. When reviewing the responses relating to class size stability, the results showed there were two areas the parents were significantly more positive than teachers as demonstrated by a *p*-value of less than 0.05. Parents perceived that the ability to maintain small class sizes contributed to helping their child's education and that it also allowed the teacher to have more time to work with their child individually. In regards to teacher assignment stability, a significant difference was identified between the parents and teachers on how the multiage design reduced the need to have teachers reassigned due to fluctuating student populations. This stability was also considered by parents to allow teachers to become more of an expert in the assigned classroom. The last area that showed a significant difference between parents and teachers was the perception that children are doing well overall in the multiage classroom design (see Table 2).

Within the parent group there was a difference in perception between the upper and lower grades within the K–first pod in the looping element. The item stating that having students in the same classroom with the same teacher is considered positive had a Chi-Square of 6.87, $p = .03$ as demonstrated using the Kruskal-Wallis H test. Even though all groups showed some positive perceptions of the elements within the multiage design, parents with children in the K–first pod level had significantly lower perceptions of the value of these elements than parents of children in other pod levels within four specific areas as determined by the Kruskal-Wallis H test. In response to the statement regarding if looping caused parents to appreciate having the same teacher for two years, K–first pod parents showed significantly less support as compared to higher level pods. The parents of the K–first pod students also showed a significantly different perception of their child's teacher participating in collaboration with other teachers. Again, the parents of K–first pod students demonstrated a significant difference from the perception of the second–third pod and fourth–fifth pod parents regarding how the multiage classroom helped in allowing the teacher to become an expert in their grade level by reducing the need to change classes. Finally, the parents of the K–first pod students demonstrated a significant difference from the second–third pod parents on their overall impression that their child was doing well in the multiage classroom (see Table 3). The difference with this specific pod level is pertinent to schools implementing the multiage design because it will require teachers or administrators to educate this group about the differences the multiage classroom can provide.

Discussion and Implications

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 combining classes. This appears to be due to the concern of a wide learning spectrum, as emphasized in the qualitative portion of the survey. 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 previous research where the K–first combination has been successful (Belcher, 2000; Harmon, 2001). The current study has also revealed that the parents saw the multiage design as improving the communication between themselves and the teacher. This is strongly supported in previous research (Baeck, 2010; Carter, 2005; Daniel, 2011; Song et al., 2009).

This study supports the multiage classroom as being a viable option as an alternative to the more commonly recognized single-age classroom design. Even

though the multiage design is typically utilized as an alternative for schools that cannot fill a single grade classroom, there are no factors inhibiting this design from being implemented in schools with larger populations. The ability of the multiage classroom to be adaptable in environments of varying sizes was shown with the population differences of the two schools participating in the study: Valley Elementary had 122 students and Prairie Elementary 324 students. Both small and large school districts can benefit from the student-centered nature of the multiage design.

Parents believed students in a multiage classroom setting appear to be in an environment that provides a safe and nurturing atmosphere with their peers and teachers. This is in direct agreement with the theories of Piaget, Bandura, and Vygotsky. This design also provides a community for students to interact with their peers and learn from them as emphasized by Bandura and Vygotsky. Parents with students in the multiage classroom appreciated the ability to get to know the teacher who works with their child. The program was also designed to allow students to begin the year learning new information earlier; because of the looping aspect, students already know classroom rules and procedures. Teachers have the opportunity to better understand their students' family backgrounds, providing clues to their students' learning successes and difficulties. Finally, teachers who have received training throughout the process and understand why such a change is occurring can send positive messages to parents who trust them.

Implications for Professional Practice

When considering implementing a multiage classroom design similar to the Prairie Valley Project, a school district will have a better opportunity for success by learning about the components identified within this project that were considered by parents and teachers to be important to the success of the implementation. The following recommendations that arise from this study can benefit those embarking on a similar journey. Administration and the community must understand the importance of supporting their teachers during such a transition. The multiage classroom also supports parents in that they are more likely to be engaged in their child's learning, which has been identified to be vital to student success in school. Providing information to both parent and teacher groups regarding how the multiage classroom design can remedy the concerns they have identified as barriers to their children's success may allow the school to have a greater chance of a successful transition.

To benefit teachers in utilizing collaboration to a full extent, it would be helpful to provide training in the collaboration process. Another barrier encountered by the Prairie Valley Project arose due to the simultaneous transition

toward a standards-based curriculum; the district had not adopted textbooks and materials as scheduled in order to wait for new materials to be developed and published addressing the new standards. Adequate time for preparation was a major hurdle for the staff members teaching in the multiage classroom. Finally, the administrative team needs to make sure all parents with children in the multiage classroom are aware of the transition and the reason behind the change.

Recommendations for Future Research

It would be beneficial to conduct a similar study during the transition rather than after the implementation to get insight into the dynamics of such a change from this perspective. Additionally, formative data could be collected through observations, interviews, and ongoing surveys. Replication of this study could be expanded to include in-depth interviews with parents and teachers. These interviews would provide a deeper understanding of how the multiage design has impacted them. Observations of the classroom setting would also provide valuable information for the researchers to bring more of an overall perspective of the effects the multiage design has on teachers and students.

Conclusion

In the review of the different components studied, it was found that all of the components evaluated were considered positive aspects of the multiage design by parents and teachers. The ability to provide an environment that challenges students through differentiated instruction and provide a climate of safety through looping was found to be a strong reason for support by both parents and teachers. In addition, parents expressed the family–school relationship supported through this design was also a perceived benefit to parents and their children.

The response to the effects that the multiage classroom design had on parents and teachers has brought to light that the single-age classroom should not be the only design considered to meet the needs of students. When students and teachers have increasing demands placed upon them, they need a classroom design that can foster a positive educational community. The multiage design, with its ability to individualize learning, improve relationships, and support a community-like atmosphere can make the assembly line process of today's educational system obsolete.

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